Svenska Kraftnät
Annual Report 2004

- Very good reliability performance during the year
- The national grid becomes even more robust
- The Nordic grids are expanded
- Good financial result: MSEK 519
- Normal transmission flows resumed

Svenska Kraftnät

2004 in brief

Operational data for the year
The energy fed into the national grid amounted to 123.5 (117.7) TWh*.

Operational reliability has been good during the year. An electricity failure on 23 September the previous year caused an outage in electricity supplies of approximately 10 400 MWh.

During 2004, the national grid was affected by a total of 187 (198) operational disruptions – most of which were caused by thunderstorms. Of these, 10 (27) disruptions resulted in supply failures for electricity customers. The energy that was not supplied as a result amounted to 25 (17) MWh.

Brief financial data
- Total operating income for the Group amounted to SEK 3 990 (3 982) million.
- Consolidated profit for the year improved, and amounted to SEK 519 (288) million.
- The return on adjusted equity, after 28 % tax equivalent, was 6.2 (3.5) % for the Group.
- The debt/equity ratio amounted to 0.43 (0.49).
- Investments in the Group amounted to SEK 410 (411) million. Of these, SEK 317 (293) million were investments in the national grid, SEK 63 (47) million in optical fibre connections, SEK 2 (33) million in gas turbines, SEK 5 (20) million in the SwePol Link and SEK 23 (18) million in other intangible assets.

* The information in brackets refers to 2003.

Our mission is

- To provide transmission of power on the National Grid well in compliance with security, efficiency and environmental requirements.
- To perform the System Operator function cost-efficiently
- To promote an open Swedish, Nordic and European electricity market.
- To ensure a robust nationwide supply of electricity.

An outline of Svenska Kraftnät

Svenska Kraftnät is a public utility which began operations on 1 January 1992. The company runs Sweden's national power grid and has the system responsibility for the national electricity supply. This responsibility means ensuring that the power system is in balance in real time and that the connected plants and installations work together in a reliable way. In total, the grid includes approximately 15,000 km of 220 kV and 400 kV power lines, cross-border interconnectors and substations.

Svenska Kraftnät also operates control systems, IT-systems and optical fibres for broadband communication.

Svenska Kraftnät employs approximately 280 people. Our head office is in Vällingby, Stockholm, where the national control centre Network Control is also located. There are also offices in Halmstad, Sundsvall and Sollefteå, where there is a control centre for the northern part of the national grid. We also have a training centre for linesmen on civil duty located at Åsbro, in central Sweden. Svenska Kraftnät also provides work for a few hundred more people via subcontracts to construct and maintain the grid all across the country.

Svenska Kraftnät is also a group which during 2003 consisted of three subsidiaries and six associated companies, the largest of which was the Nordic power exchange Nord Pool.

The paintings in Svenska Kraftnät's annual report for 2004 are reproductions of works which Lars Norrman (1915–1979) painted for the previous Swedish State Power Board (Statens Vattenfallsverk).

"Lars Norrman was a painter, illustrator, and graphic artist whose work is characterized by plastic lucidity and a chillingly clear range of colours. He often portrayed street life in foreign countries, as well as in several travelogues." (Source: Bonniers Stora Lexikon – translated)

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Production: Fagerblads, Västerås

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Major operational events

January 2004
His Majesty King Carl XVI Gustaf visited Svenska Kraftnät on 15 January together with Marshal of the Court Ingemar Eliasson (former Cabinet Minister for Energy). A presentation of Network Control formed part of the visit.

Svenska Kraftnät was appointed by the government to look into the configuration of future transmission grids in the County of Stockholm. This work encompasses lines in the voltage range 70–400 kV. The time horizon is 30–50 years. Work is to be carried out in collaboration with the county council, the involved municipalities and their coordinating agencies, plus other power and line owners in the region. An interim report is to be submitted by 15 May 2005 and a final report by 1 July 2007.

The winter's highest level of power consumption in Sweden occurred on the morning of 22 January. On that day, the total consumption amounted to 26,900 MW. The power situation was deemed satisfactory despite this; among other things, all major Swedish power plants were operating fully and there were good opportunities for importing power.

February
In collaboration with Svenska Kraftnät, a children's science programme shown by Swedish state broadcaster SVT conducted an experiment in saving electrical energy on the 10th of the month. At the end of the programme, viewers were invited to turn down their heating, turn off their lights and dishwashers, etc for a period of one hour. At the same time, the hosts of the programme filmed the result at Svenska Kraftnät's Network Control for broadcast in a subsequent programme. We showed how much electricity the viewers had succeeded in saving (about 300 MW).

May
Svenska Kraftnät's plans for a new 400 kV line between Närke and Scania, the "Southern Link", were presented. Using this link, our capacity for transmitting power to Southern Sweden will increase, while the risk of disruptions to the electricity supply system will decrease.

June
Svenska Kraftnät's Director General Jan Magnusson was elected on the 9th of the month as the new Chairman of Nordel for a two-year period. This took place at the organisation's annual meeting in Finland.

At the Nordel meeting, it was also decided to adopt a programme that will implement five transmission reinforcements of the Nordic power system at a cost of approximately SEK 10 billion.These reinforcements could be implemented around 2010, thus creating even better conditions for trade on the Nordic electricity market.

Furthermore, there was a presentation of a review of the design and operating criteria of the Nordic electricity system, implemented in the wake of the outage in Southern Sweden and Zealand (Denmark) in September 2003.

August
The procurement of subcontractors who will maintain Svenska Kraftnät's plants was completed. Regular maintenance is becoming more extensive, primarily as regards forest clearance along power lanes. Even so, the procurement resulted in largely unchanged costs in comparison with previous years.

To fulfil a task given in the annual letter of governance, Svenska Kraftnät presented in the middle of August a report to the government on Sweden's power balance. The report described the power balance during the previous winter and made a forecast for the coming one.

Svenska Kraftnät decided to keep its grid tariffs unchanged during 2005, in relation to those of 2004. Sweden's grid tariff is the lowest in Europe. For every kilowatt hour of electricity consumed in Sweden, the cost of utilizing the grid is approximately SEK 0.013/kWh on average.

September
Svenska Kraftnät distributed on the 13th of the month a further MSEK 9.4 to 16 properties in order to connect them to the grid or some other form of electricity supply. In doing so, we fulfilled our task given by the government. All those who had applied for subsidies – and met the criteria for such – have now obtained electrical power. Since 1999, a total of 113 properties housing approximately 250 inhabitants across the country have received almost MSEK 60 in subsidies for electrification.

October
The government decreed that Svenska Kraftnät would be appointed, during 2005, as system operator for natural gas in Sweden. As a neutral player on the natural gas market, we will thus have to monitor the natural gas system to ensure that it is working in a reliable way and is in a state of balance, look after the balance settlement, and promote competition. Svenska Kraftnät's new responsibilities will take effect from 1 July 2005.

The Prime Minister presented plans for a new ministry dealing with issues concerning social structure and sustainable development headed by Mona Sahlin. Svenska Kraftnät will report to this ministry, to which energy and housing issues, for instance, have been attached.

November
Svenska Kraftnät procured power reserves totalling approximately 1,970 MW for the coming winter. A minor part of this consists of agreements regarding load reductions in industry, while the remainder is electricity generation. The background to this is the temporary Act governing power reserves which took effect in 2003. This gave Svenska Kraftnät the responsibility to enter into agreements with electricity producers, among others, so that a power reserve of max. 2,000 MW would be available between 2003 and 2008. Subsequently, the players will be responsible for sufficient levels of capacity existing in the electricity system to manage peak demands.

December
The European Commission presented proposals regarding the "Security of Supply" directive. Following circulation for comment among the countries of the EU, the European Parliament will vote on the new directive.

January 2005
Svenska Kraftnät took part in efforts to repair damage to distribution networks resulting from the catastrophic storm on 8–9 January. Vehicles, mobile back-up generators, reserve poles, telephones etc from our emergency stockpile were used. Sixty or so previously civil-duty trained linesmen were hired by the companies for the relief effort in Southern Sweden. For the power companies, we also procured access to freight planes, helicopters, drivers, mobile back-up generators etc, primarily from Sweden's armed forces.

Svenska Kraftnät was tasked by the government with investigating how we, in collaboration with the manufacturing industry, can support electrotechnical research, development, and demonstration. An interim report is to be submitted by 1 May and a final report by 15 October 2005, at the latest.

A word from the Chairman

Following a rather unusual 2003 - with outages in Southern Sweden, the lack of water in hydropower reservoirs and the periodically high price of electricity – 2004 was more normal. No major outages occurred during the year and Svenska Kraftnät has once again achieved its financial goals.

Svenska Kraftnät's operations have been characterized, among other things, by measures taken to further augment the reliability of the grid. A new line from Närke in central Sweden to Scania is currently being projected. We have also embarked upon the rebuilding and renewal of our substations at the rate of two per annum.

These and several other measures jointly entail halving the risk of outages originating from the national grid. This improvement takes place further to a previously high level of reliability, but we still deem the measures justifiable, bearing in mind the major significance of electrical power in modern society.

Svenska Kraftnät's work has also been characterized by intensified Nordic collaboration. A package of five major investments has been proposed by the Nordic grid operators and is now being processed in the countries concerned. For Sweden's part, this will mean a doubling of the Fenno-Skan link between Sweden and Finland, a new line to Norway, as well as the line mentioned above between the Counties of Närke and Scania.

During the year, the Board has been partly renewed through the arrival of two new members – Tomas Bruce and Anna-Stina Nordmark-Nilsson – appointed as members by the government effective 1 April.

In connection with the Board meeting in May, the station at Horred outside Varberg was visited as part of the Board's follow-up of measures taken in the wake of the outage in September 2003.

An extra meeting in October dealt with comprehensive and strategic issues such as the investment plans for 2005–2012, the continued development of the Nordic electricity market and Svenska Kraftnät's vision of the future – "SvK 2007". The Board has also had special submissions and discussions regarding Nord Pool's operations and the supply of expertise in relation to the relatively high number of retirements.

Collaboration on the Board and between the Board and management has been good and has primarily focused on the future requirements and tasks that Svenska Kraftnät is facing on the Swedish, Nordic, and European electricity markets.

Stockholm, February 2005
Sven Hulterström

Sven Hulterström, Chairman of the Board of Svenska Kraftnät

A word from the Director General

Reliability in focus

On the whole, 2004 was a rather normal year for the electricity system and Svenska Kraftnät. It commenced, admittedly, with historically low levels in hydropower reservoirs, with their attendant high electricity prices. The rather copious precipitation during the year, however, served to top up the reservoirs, returning water storage at yearend to normal. During the latter part of the year, the spot price was quite stable at around SEK 0.25/kWh.

Good reliability – further strengthened

The reliability performance during the year was good. Only in a few cases have deliveries to customers been hit by faults on the national grid. The volume of non-delivered energy during such outages amounted to 25 MWh, which is 0.00002 percent of the entire volume of energy of 129 TWh transmitted across the grid during the year.

Modern society's extensive dependence on electricity requires level of grid reliability to be very high. Following the outage in Southern Sweden and Zealand (Denmark) on 23 September 2003, Svenska Kraftnät embarked upon a raft of measures to further augment the reliability of the grid.

Together with the other Nordic grid operators, we initiated a review of the reliability rules for the Nordic power system.

The expansion of the Southern Link, a line running between Närke and Southwestern Scania, will further augment the grid capacity in Southern Sweden. We have also decided to increase the pace at which we are rebuilding the substations that constitute important nodes on the grid. Renewal will take place at the rate of two substations per annum.

All in all, the measures now being taken will entail a halving of the risk of outages originating from faults on the national grid.

Good finances and low tariffs

Our financial result was MSEK 519, which is just above our required return of MSEK 500.

Ahead of 2004, we increased the grid tariff for the first time. This was done to match the energy part of the tariff (compensation for transmission losses) with a higher electricity price than we have experienced during previous years. Svenska Kraftnät continues to have a very low grid tariff in comparison with other European grid operators.

Nordic collaboration intensified

In Nordel, the Nordic grid operators' collaboration organization, a package of five major reinforcement projects has been drawn up. For Sweden's part, three projects are included: Nea – Järpströmmen between Jämtland and Central Norway, Fenno-Skan 2 between Sweden and Finland, and the previously mentioned Southern Link. The other two are Skagerak 4 between Norway

Jan Magnusson, Director General

and Jutland and an interconnection across the Great Belt.

The reinforcements will considerably reduce the occurrence of congestion on the transmission system, thus further increasing the prerequisites for a smoothly-functioning Nordic power market.

Also a European power market

During the year, further steps were taken to develop a joint European power market. The European Commission focused on both security of supply and market development.

The European grid operators' collaboration organisation ETSO, which has hitherto concentrated on compensation for transit flows, is now also focusing on congestion management and harmonising grid tariffs. Issues such as security of supply are also high on the agenda.

The system for transit compensation entails that the respective grid company partly has to pay for the transit incurred by power flows from its own country and partly has to receive payment for the load which power flows from adjacent countries give rise to. Compensation is rendered on the basis of the respective country's grid tariff.

As Svenska Kraftnät has considerably lower tariffs than the majority of grid operators, this system means that we can become net payers even though transit flows through Sweden are greater than the flows that we ourselves give rise to. We are currently working to induce ETSO to instead introduce a model based on standard charges.

New work assignments and good work

During recent years, Svenska Kraftnät has been entrusted with a range of activities. This has applied to, among other things, dam safety, optical fibre expansion, and the registration of renewable energy certificates. During 2004, the disclosure of electricity, based on an EU Directive, was added to these.

During the year, furthermore, the government declared that Svenska Kraftnät would in 2005 become the system operator for natural gas. This activity is at present rather limited in its scope – natural gas consumption in Sweden is 11 TWh, i.e. three percent of the country's overall energy consumption. Nevertheless, I regard this to be an important decision in principle. If Sweden is to build a countrywide backbone for natural gas, it will be very advantageous if the organisation is shaped in the same way as the electricity sector, i.e. with an independent infrastructure which provides all the players with equal opportunities. I see the decision regarding system responsibility as a first step in such a development.

In order for Svenska Kraftnät to be able to carry out its important assignments – both new and old – skilled and committed co-workers are required. I would like to thank everyone for yet another year of good effort.

Stockholm, February 2005
Jan Magnusson, Director General.

The Svenska Kraftnät Group

Subsidiaries

SwePol Link AB
The mission of the company is to operate and maintain a DC link between Sweden and Poland. The link is rated at 600 MW.

Svenska Kraftnät's stake is 51%, Vattenfall AB owns 48% and Polish grid operator Polskie Sieci Elektro-Energetyczne SA owns 1%.

Group turnover during 2004:
MSEK 305 (280).

SwePol Link Poland Sp.z.o.o is a wholly-owned subsidiary of SwePol Link AB. This company owns the part of the DC link running through Polish territory.

Turnover during 2004:
MSEK 86 (82).

Svenska Kraftnät Gasturbiner AB
The company is wholly-owned by Svenska Kraftnät.

It was established in 1999 to enable Svenska Kraftnät to ensure, in the long-term, resources for stand-by emergency reserves for the power supply system.

Turnover during 2004:
MSEK 61 (88).

Svenska KraftKom AB
This company is wholly-owned by Svenska Kraftnät.

During 2004, as in 2003, the operations of this company were insignificant.

Turnover during 2004: MSEK 0 (0).

Associated companies

Nord Pool ASA
Nord Pool ASA is an exchange for financial trading for players on the Nordic electricity market. The head office is in Oslo, with branch offices in Stockholm, Helsinki, and Odense. Nord Pool is also active on the European market, for instance through owning 17% of German power exchange EEX.

During 2004, trading on the futures market amounted to 590.2 (545.1) TWh. The clearing operation amounted to 1,207.0 (1,218.6) TWh.

Svenska Kraftnät owns 50 % of Nord Pool ASA. Remaining 50 % owned by Statnett SF.

Turnover during 2004:
MNOK 243 (212).

Nord Pool Spot AS
The spot market for the physical trade in electricity, is conducted via a separate company: Nord Pool Spot AS.

During 2004, trading amounted to 167.0 (119.0) TWh.

The company is owned by Svenska Kraftnät, Statnett SF, Nord Pool ASA, Fingrid Oyj, Elkraft System a.m.b.a. and Eltra a.m.b.a.

Turnover during 2004:
MNOK 80 (74).

Triangelbolaget D4 AB
On behalf of its co-owners, the company administers the fiber-optic links Stockholm-Oslo-Gothenburg-Malmö-Stockholm. Revenues from leasing go directly to the co-owners.

The company is owned in equal shares by Svenska Kraftnät, Vattenfall AB, Fortum Distribution AB and Sydkraft Bredband AB.

Turnover during 2004:
MSEK 20 (19).

Kraftdragarna AB
Kraftdragarna AB's primary mission is to secure, on behalf of its owners, transport readiness with regard to transformers, reactors, and other heavy components included in the electricity supply system.

Kraftdragarna AB collaborates with Statnett Transport AS in order to further augment its readiness for breakdown transportation.

Svenska Kraftnät owns 50 %, Vattenfall AB 25 % and Vattenfall Regionnät AB 25 % of the company.

Turnover during 2004:
MSEK 29 (13).

STRI AB
This company conducts R&D in the power transmission sector, mainly when commissioned by its co-owners.

Svenska Kraftnät owns 25 %, ABB AB 50 %, Statnett SF 12.5 % and Vattenfall AB 12.5 % of the company.

Turnover during 2004:
MSEK 46 (50).

Elforsk AB
Elforsk conducts joint operations in R&D on behalf of the Swedish power industry.

Svenska Kraftnät is primarily involved in activities concerning the transmission of power and the evolution of the electricity market. The most important focal points are environmental issues, the maintenance and renewal of installations, and supporting the projects of doctoral candidates.

Svenska Kraftnät owns 25 % and supply-industry organisation Swedenergy 75 % of the company.

Turnover during 2004:
MSEK 82 (107).

Report of the Board of Directors 2004

Svenska Kraftnät's principal tasks are to administer and operate the national grid, including the links with other countries, and to be the system responsible authority pursuant to the Electricity Act. This involves being responsible for the ongoing instantaneous electricity balance and the overall reliability of the Swedish power system. Furthermore, Svenska Kraftnät is the authority responsible for power contingency planning in accordance with the Power Contingency Act. Svenska Kraftnät also has official duties in connection with dam safety and renewable electricity certificates.

During 2004, in addition to the public utility, the Svenska Kraftnät Group consisted of three subsidiaries: Swe Pol Link AB, Svenska Kraftnät Gasturbiner AB and Svenska Kraftkom AB. Six associated companies in Sweden and Norway are also incorporated in the Group.

Operations

Svenska Kraftnät's business operations

A description is given below of the measures that have been taken in order to achieve the goals set by the Government for Svenska Kraftnät's business operations in its letter of governance for 2004.

Financial goals

Svenska Kraftnät shall on average require a return on adjusted equity[1], following deduction for tax equivalence, of 6 %. Costs for the subsidies to remaining electrification amounting to approximately SEK 10 million per year, which Svenska Kraftnät has been commissioned by the Government to procure, shall be covered by earnings. The return on adjusted equity amounted to 6.2 (3.5) %, which means that the 6 % goal was exceeded. When the costs of remaining electrification are deducted, the return amounted to 6.3 %.

The debt/equity ratio[2] was 0.43 (0.49), which is in line with the goal of maximum 0.55. The dividend policy is that 65 % of the net income for the year should be distributed to the Swedish state.

Reliability

The reliability performance has been good during the year. The number of operational disturbances on the national grid was 187, most of which were coped with by the technical systems. Ten disturbances resulted in supply outages for electricity customers. The energy that was not supplied amounted to 25 MWh. Most of the disturbances were caused by heavy thunderstorms during the summer. An indication is given below of the disturbances in the national grid over a five-year period.

Cost efficiency

Cost efficiency shall be as high as in comparable companies. Efficiency is measured in comparative studies with other similar companies. Such studies have shown that Svenska Kraftnät is one of the most cost-efficient national grid companies in the world, as demonstrated by benchmarking-studies conducted by European Transmission System Operators, ETSO. This means that Svenska Kraftnät can maintain low grid tariffs.

Research and development

Svenska Kraftnät's research and development activities aim at increasing reliability, efficiency and environmental adaptation of the national grid and system responsibility operations. Research and development is also supported within the area of dam safety.

The activities are primarily conducted by commissioning assignments to the part-owned development companies STRI and Elforsk. Furthermore, Svenska Kraftnät supports postgraduate research projects and examination work conducted at institutes of technology.

A considerable amount of research and development is focused on maintenance technology and the new design of Svenska Kraftnät's infrastructure. One such project aims at developing a transition to cable directly in the power line pole by means of so-called dry bushings. Pre-studies have been carried out at STRI. We are currently planning to develop a 220 kV prototype installation.

Svenska Kraftnät is involved together with Elforsk, ABB, Banverket, Areva and the Swedish Energy Agency in the Elektra Programme, which annually supports some 40 postgraduate research projects within, primarily, the electrical engineering field.

Svenska Kraftnät is also involved in three projects that concern different aspects of the large-scale introduction of wind power and other small-scale electricity generation.

Disturbances	2004	2003	2002	2001	2000
Disturbances on the national grid, number	187	198	293	211	194
As above but with outages, no	10	27	23	14	5
Non-deliverable energy, MWh	25	10 417[3]	49	23	91

[1] Adjusted equity refers to the average of the year's restricted equity brought and carried forward, and 72 % of the non-restricted equity.

[2] Debt/equity ratio refers to interest-bearing liabilities minus interest-bearing assets in relation to adjusted equity carried forward, including minority interests.

[3] As a result of the power failure on 23 September 2003.

These are:

- Impact on the Swedish power system if 4 000 MW of wind power (corresponding to 10 TWh) were to be installed. This is being conducted under the auspices of Elforsk.
- System engineering impact given the large-scale introduction of wind power in the Nordic power system. Chalmers Institute of Technology is the Swedish body conducting one of the projects, which is supported by Svenska Kraftnät, Vattenfall and the Nordic energy authorities.
- Svenska Kraftnät and the Swedish Energy Agency are participating in an EU project that is analysing how electrical power systems in Europe will be affected when renewable generation is introduced on a large scale in the future. The Swedish organisations conducting the project are STRI and the Lund Institute of Technology.

Within the area of dam safety, support is being provided for some twenty or so research and development schemes. Among other projects, work has started on a sensitivity analysis of the Flow Committee's guidelines for determining design flows for dam installations in a future changed climate. In another project, dam owners, local authorities and county administrative boards are jointly developing a prototype for the overall level of preparedness for a dam failure and high flows in a developed river. Support has been granted for four postgraduate projects within the area of dam safety.

During 2004, Svenska Kraftnät used SEK 14 (15) million for research and development. Within national grid operations, costs amounted to SEK 19 (20) million, including dam safety measures.

Nordic and European co-operation

There has been intensive co-operation in the joint Nordic system operators association Nordel during the course of the year. In spring 2004, a programme of investments was presented in order to strengthen the Nordic high-voltage network for electricity. The investments will increase the security of the electricity supply and improve the way in which the Nordic electricity market functions. The following five projects in the Nordic power network are included in the programme:

- Fenno-Skan 2 between Sweden and Finland
- Nea-Järpströmmen between Norway and Sweden
- The Southern Link between central and southern Sweden
- The Great Belt Link in Denmark
- Skagerak 4 between Norway and Denmark.

The proposals for strengthening the system shall be regarded as a whole without mutual prioritisation, and they can all be completed in or around 2010. The total investment cost amounts to approximately SEK 10 billion. The possibility of using certain common funds (congestion income) as part of the financing – and as a supplement to traditional financing via national grid tariffs – is at present being investigated.

In May, Nordel submitted a proposal for a common goal to secure the supply of power during peak loads. The basic starting point is that incentives for investments shall be created by means of the market price. A well-functioning system of pricing and a clear division of roles between, on the one hand, system operators, on the other, market players are therefore decisive preconditions for ensuring that the players are sufficiently motivated to secure necessary resources to cope with their electricity supplies even on cold winter days. Nordel stresses the importance of increased flexibility in the demand for electricity in order to strengthen the power balance. The national grid companies have during the autumn drawn up national action plans in order to create better opportunities for such development. Nordel has also presented a proposal for a financial product intended to provide the market players with the possibility of hedging themselves against high prices during peak demand.

Nordel has also presented the results of an overview of the grid security criteria in the Nordic electricity system in view of the electricity failure in southern Sweden and eastern Denmark in September 2003. A number of points have been identified where improvements will be made, above all in the application of the common Grid code. At the same time, an in-depth review is being made of the rules, with consideration, among other things, to equivalent rules and regulations in the rest of Europe.

For a number of years, work has been in progress within Nordel on formulating common rules for dealing with transmission congestion, in the Nordic electricity network. In August, Nordel presented the results of an overview of the rules governing the establishment of trading capacity on the links between countries.

One of the conclusions reached was that the current rules are for the most part harmonised. Nordel proposes, however, that the question of dealing with internal transmission congestion and its impact on the capacity of the links between countries be further reviewed. In the report, an account is also given of how counter-trading can be used in order to reduce the subdivision of the market into different price areas. Nordel maintains that the costs of a system with increased counter-trading should be borne by the market players who benefit from the measures.

At a meeting held in Akureyri, Iceland in September 2004, the Nordic energy ministers concluded that the Nordic market is working well and that the harmonisation process should now be extended. In the Akureyri declaration, those responsible for the system were asked to find out how the further co-ordination of functions within system responsibility, financing and organisation of Nordic investments in the transmission network and a common handling of the peak capacity issue can be established. The outcome of the investigation will be presented in February 2005.

Informal Nordic co-operation within security and preparedness activities has been taking place for a number of years in the Nordic Electricity Preparedness and Security Forum. During 2004, this co-operation has been formalised and given more concrete forms. Among the questions taken up as part of the co-operation are questions concerning how the Nordic countries can support each other during extensive and prolonged disruptions in electricity supply.

In the European associations of system operators ETSO, a considerable part of the work has once again been devoted to the question of transit compensation. It was anticipated that the EU Commission would establish firm guidelines for transit compensation that would result in different preconditions for ETSO. During the autumn, it became clear that the Commission's guidelines would be delayed. ETSO chose, therefore, to extend the present regulations for transit compensation by a further year.

ETSO's work has also been characterised in other respects by the Commission's initiative. Among other things, ETSO has co-operated with the EU Commission on the proposal for a directive to the security of supply for electricity.

Svenska Kraftnät's contingency planning

The contingency organisation that Svenska Kraftnät is developing in co-operation with Swedenergy is based on the preparedness for disruptions that has been established by the sector and which consists of seven co-operation areas. In the case of disruptions that have been dealt with more recently, particularly in connection with Hurricane Gudrun on 8–9 January 2005, certain parts of this co-operation organisation have been involved to good effect.

Through agreements with the Swedish Armed Forces, various types of support can be added to deal with disruptions in the electricity supply. Among other things repair teams can be re-deployed by air. Through agreements with the voluntary defence organisations, resources can be made available from the Voluntary Motor Transportation Corps, the Women's Motor Transport Corps, the Voluntary Flying Corps and the Voluntary Radio Organization.

The development and testing of a new mobile radio communication system, Mobielex, has been completed. The intention is that the system shall be able to serve as a common mobile radio system for the electricity sector. The system was tested in spring 2004 by Vattenfall Norrnät. With the experience from this testing, a second round of testing will be conducted in Central Sweden over the period 2004 - 2005. The organisations involved in this system are Fortum, Sydkraft and Vattenfall.

During the year, some 500 personnel in power companies have been trained in crisis management, for which Svenska Kraftnät are responsible in co-operation with Swedenergy.

Work on securing access to safe standby control centres has continued during 2004 through the provision of additional control centres with standby facilities, secure telecommunications, increased physical protection and improved ancillary power.

Measures have been taken in six production plants, primarily combined heat and power plants, to secure their black-start ability and for island operation. This capacity has been verified by means of testing. In connection with the tests, operating staff have been trained in running their installations with adjacent networks in island operation.

Mobile repair teams organised by Svenska Kraftnät have taken part in Nordic Peace 2000–2003. Equipment for two repair teams is stored at Svenska Kraftnät's training and stores centre in Åsbro. The facility also contains equipment for rapid repairs in connection with cable outages in the national grid and regional networks. Two types of rapid-erection power line towers and a number of standby power units have been purchased.

Most of the planned NBC force has been trained and equipped to repair electrical installations in contaminated environments.

During 2004, Svenska Kraftnät has held basic training for 85 civil defence personnel in the repair of power lines and switchgear at the own training centre in Åsbro and for 41 power plant operators at Vattenfall Training Centre in Jokkmokk. Positive results have been obtained in the evaluations conducted by the National Service Board and by the respective schools. The Åsbro course centre was also named by the National Service Congress as being the best training establishment.

During the course of the year, Svenska Kraftnät was appointed the supervisory authority for dam safety pursuant to the Ordinance (1998:900) on supervision in accordance with the Environmental Code. The procedures that Svenska Kraftnät has developed for the annual reporting by dam owners to the supervisory authorities has started to be applied in the most important counties from the point of view of dam safety. On the basis of these reports, Svenska Kraftnät has produced a national summary in a report to the Government.

A project that was co-financed by the Swedish power industry, and which was started in 2003 for development of the co-ordinated preparedness for dam failures, has been further developed and is expected to be completed during 2005.

Svenska Kraftnät has together with other companies and authorities participated in a proposal to set up a centre for knowledge and competence within hydro power engineering. Good administration of the country's ageing dam facilities requires sound knowledge and competence within areas such as hydrogeology, hydraulics and dam construction engineering. The idea is that the centre shall satisfy the country's need for knowledge and competence within the field of hydro power.

Over the period 1999 – 2003, a total of SEK 50 million was allocated in grants for the remaining electrification of properties. During the feed-back reporting of the operations in 2003, Svenska Kraftnät requested the allocation of further funds for electricity generation installations for remaining properties. The request was upheld by the Government and a further SEK 10 million was made available. A decision was made in 2004 for grants totalling SEK 9.6 million for the electrification of 16 properties. The costs are accounted for as the work is carried out.

Risk and external environment analysis

The business risks for Svenska Kraftnät are judged to be limited.

Transmission operations are of a long-term nature and stable. The customers consist mainly of well-established and stable companies with a high level of solvency. As a result of its international operations, Svenska Kraftnät is to a certain extent exposed to financial risks, primarily exchange rate risks in connection with the conversion of foreign net assets and profit/loss. Svenska Kraftnät has not hedged receivables and liabilities in foreign currency. Interest risks in connection with liquidity and debt handling are limited because Svenska Kraftnät's equity/assets ratio is high and its borrowing volume small.

Svenska Kraftnät purchases electricity to cover transmission losses at a fixed price in accordance with agreements running over several years.

The use of the national grid is influenced by the hydrological situation, the generation in combined heat and power plants and exports/imports. In conjunction with extensive hydro-power generation and resultant major transmissions from the north to southern and central Sweden, Svenska Kraftnät's revenues increases. On the other hand, revenues for the national grid decreases when hydro power supplies are low and imports from the south are high. The fluctuation in result can as a consequence amount to several hundred million kronor. Therefore, the assessment of Svenska Kraftnät's result must apply to the average conditions over a period of several years.

Svenska Kraftnät's system responsibility includes responsibility for the national balance settlement on behalf of the balance providers. In order to reduce the credit risk that arises in this context, Svenska Kraftnät requires financial guarantees from the balance providers.

Optical fibre operations have been conducted in accordance with the Government's commission. In autumn 2001, Svenska Kraftnät informed the Government that extension of the optical fibre system to a certain number of municipalities could not be effected on a commercial basis. The development of Svenska Kraftnät's optical fibre network has continued at a slower pace over the

past year and has above all been focused on the needs of the national grid.

The risk of outages, which have serious consequences for customers on the national grid, is judged to be small. The national grid is sturdily designed and with good margins. This means that if a power line cable is disconnected, electricity in the network can be supplied by some other route. However, the risk of a major electricity failure cannot be entirely eliminated, as was illustrated on 23 September 2003. Svenska Kraftnät is now taking a series of measures to further increase the reliability of the grid.

The risk of power shortages has been reduced in the Swedish electricity system since Svenska Kraftnät, as a temporary measure, has purchased reserve power in accordance with the limited-duration act on reserve power.

The dependency on the world around us is increasing as the electricity markets are gradually being internationalised. The Swedish electricity market has become more and more dependent on supplies of electricity from other countries. The demand for transmission capacity between countries is also increasing. Methods of receiving payment for transit have begun to be applied. The internationalisation of the electricity markets is increasing the complexity for and demands on Svenska Kraftnät. At the same time, an increasingly internationalised electricity market is also resulting in a better utilisation of resources.

The model for transit compensation that is applied within ETSO, of which Svenska Kraftnät has been a member since 2004, influences the financial outcome. If the flow of electricity through Sweden is high, Svenska Kraftnät receives income, but at the same time there are high flows through Denmark and neighbouring countries, which involve a cost for Svenska Kraftnät. By applying the model that is currently used by ETSO, there is normally a net expense for national grid companies that have low grid charges. This resulted in an increase in cost for Svenska Kraftnät in 2004.

Group overview for 2004

Svenska Kraftnät Group operating revenue increased by SEK 8 million from SEK 3 982 million to SEK 3 990 million.

The consolidated net work revenue increased by SEK 241 million and amounted to SEK 2 456 million.

System revenue decreased by SEK 223 million to SEK 1 193 million and the revenue from Telecom activities dropped by SEK 2 million to SEK 62 million.

The Group's operating expenses amounted to SEK 3 393 (3 593) million. The cut in expenses is primarily a result of lower costs for the purchase of balancing power and system operation services.

Staff expenses amounted to SEK 198 (178) million.

The Group's other operating expenses dropped by SEK 225 million compared with 2003. The costs incurred for energy losses in connection with transmission on the grid increased by SEK 66 million as a result of larger volumes. The balance power expenses, i.e. purchased balance electricity, decreased by SEK 306 million, which is a consequence of lower electricity prices during the year. Costs for system operation services decreased by SEK 69 million as a result of the lower price of hydro power for primary regulation.

Depreciation of tangible and intangible assets in the Group increased by SEK 5 million to SEK 532 million.

Share of income in associated companies amounted to SEK 23 million, which is SEK 4 million better than in 2003. Nord Pool ASA has contributed with the highest proportion of the result. Depreciation of goodwill is included with SEK 5 (3) million.

The operating income for the Group amounts to SEK 620 million, which is an improvement of SEK 212 million compared with 2003.

Net financing for the Group amounted to SEK –67 (–118) million. The improvement is primarily a result of lower interest expenses for the Group. The Group's interest income amounted to SEK 7 (8) million for 2004. The deterioration is a consequence of lower interest levels. Interest expense and similar items amounted to SEK 79 (122) million as a result of lower costs for the financing of loans in SwePol Link AB than during 2003.

The net income for the year of SEK 519 (288) million means a return of 6.2 (3.5) % on adjusted equity. The debt/equity ratio amounted to 0.43 (0.49).

Reporting per business segment

In this section, reports and comments are given on the results of the business operations for transmission on the national grid, system responsibility, telecom, contingency planning operation and electricity certificates.

Since 2002, a division has been made of Svenska Kraftnät's income statement into Network and System. However, exactly how a subdivision of the costs can be made into a network part and a system part is not given by any regulations. The account is rendered on the basis of an assessment of how the costs should preferably be distributed between the respective business segments. In some cases, it has not been possible for an activity to be fully referred to a business segment. In such cases, the costs have been apportioned on a standard basis.

Network comprises operations and costs for:
- the national grid in Sweden
- cross-border interconnectors with other Nordic countries
- network operation including control centres
- part of the emergency reserve
- counter-trading
- purchases of electricity to cover network losses.

System responsibility comprises operations and costs for:
- primary and secondary regulation
- part of the emergency reserve
- balance power settlement
- balance power
- Ediel, electronic postal system.

Included as a special part of the system responsibility for a limited period of time are measures to secure the supply of power in the electricity system (procured power reserve).

Network

The grid tariff consists of a power component and an energy component. The power tariff is based on the power subscribed to by the customer on an annual basis for input and exit at each connection point. The input fee is SEK 5 /kW in the south and increases linearly with latitude to SEK 25 /kW in the north. The exit fee is SEK 47 /kW in the south decreasing linearly with latitude to SEK 11 /kW in the north. The energy fee covers the costs of transmission losses in the network. It was raised on average to SEK 250 (180) /MWh just before 2004 owing to the increasing energy prices in recent years.

The national grid fees account for most of the transmission income. Other revenue are capacity fees and transit revenue. The capacity fees consist of so-called congestion revenue, which arise when the Nordic market is divided up into different price areas. Transit revenue consists of reimbursement for costs of electricity flowing through the national grid with its points of origin in other countries.

Income for transmission
During the year, transmission on the national grid has amounted to 120.7 (115.2) TWh. The network fees generated SEK 1 870 (1 605) million, of which power fees accounted for 58 (68) % and energy fees 42 (32) %. The main reason for the high revenue level and the changed ratios between types of fees is the increase in the energy fees. The smaller number of customers is a result of restructuring between subsidiaries within the major groups.

A presentation is given below of transmission income within the Group.

Transmission revenue, MSEK	2004	2003
National grid		
Power fees	1 082	1 096
Energy fees	788	509
Total	**1 870**	**1 605**
Capacity fees	125	163
Transit revenue (gross)	125	74
Transmission on Swe Pol Link	305	280
Other transmission revenue	31	93
Grand total	**2 456**	**2 215**
No. of customers connected to the grid	**24**	**30**

Transmission via the national grid and energy losses
Input and exit agreements have decreased somewhat in number compared with 2003. The energy transmitted has increased to the same levels as during the years preceding 2003.

Power transmission	2004	2003
Subscribed outputs National grid		
Entry subscription, MW	20 383	20 864
Exit subscription, MW	21 226	21 330
Energy entry, grid, TWh	123,5	117,7
Energy exit, grid, TWh	120,7	115,2
Max exit power, grid, GWh/h	19,6	19,5

As a consequence of the increased power transmission, the transmission losses on the national grid have increased somewhat, as shown in the table below.

National grid	2004	2003
Energy losses, TWh	2,7	2,5
Proportion of exit energy, %	2,2	2,1
Max power losses, MWh/h (hour with highest energy losses)	715	731

The operating income for the business segment Network amounted to SEK 613 (486) million. The improvement is a result of the increased transmission revenue on the national grid. The ETSO model for transit compensation has given a deficit for Svenska Kraftnät of SEK –16 million during 2004.

SEK million	2004	2003
Operating revenue	2 477	2 233
Operating expenses	–1 864	–1 747
Operating income	613	486

System responsibility
The emphasis in System responsibility consists of managing the national balance between the generation and consumption of electricity. This is effected through Svenska Kraftnät's balance service, which is manned round the clock. During 2004, Svenska Kraftnät had agreements on balance responsibility with 30 customers in Sweden. These companies are responsible for maintaining their own balance throughout all times of the day and night, i.e. they shall plan to strike a balance between the input (generation and purchase) and outtake (consumption and sale) of electricity. Subsequently, Svenska Kraftnät conducts a balance settlement, i.e. a financial regulation of the imbalances. The difference between purchased and sold balance power amounted in the utility to SEK 138 (105) million. Other costs are also referred to the business segment System responsibility, including costs for automatic frequency response servicies (primary regulation) and costs for the personnel who are concerned with system responsibility duties.

The effects of the rule regarding a certain amount of flexibility in the consumption balance, the so-called dead-band, that was introduced at the end of 2003, were evaluated during the course of the year. It was concluded that the period of time was far too short to be able to draw any far-reaching conclusions. Therefore, the dead-band has also been retained, with a minor modification, during 2005.

According to the Reserve Power Act, Svenska Kraftnät shall be responsible for ensuring that reserve power of at most 2 000 MW is available each winter up to and including February 2008. This reserve shall contribute towards covering consumption during extreme situations that can occur during the winter when normal electricity production is not enough. Svenska Kraftnät therefore conducts annual procurements for the purpose of meeting this requirement. During 2004, a power reserve of just under 990 MW was procured. There was already an earlier agreement for 980 MW. The additional power that was procured comes from agreements on extra electricity generation and agreements which mean that industrial companies can, when necessary, reduce their electricity consumption.

The reserve power is financed by a reserve power fee that is paid by the balance providers. This activity shall, over the years, be neutral for the public utility as regards income. Any surplus during the current agreement period, which runs from 1 November 2004 to 31 October 2005, shall be repaid at the end of 2005 to the companies responsible for balance. On 31 December 2004, net income for reserve power in the accounts amounted to SEK 18 (38) million.

The players on the electricity market have agreements with Svenska Kraftnät for Ediel-communication. The system is also used for the needs of Svenska Kraftnät. The net expense for Ediel amounted to SEK 3 (3) million.

SEK million	2004	2003
Operating revenue	1 193	1 416
Operating expense	–1 240	–1 540
Operating income	–47	–124

The operating income for the business segment System responsibility amounted to SEK –47 (–124) million. The improved outcome is a consequence of lower costs for system operation services of SEK 69 million compared with the previous year. The fees in the balance service were further raised in November 2004 with the aim of achieving the goal for cost coverage.

Operations exposed to competition
Companies exposed to competition within the Group are Nord Pool ASA, Nord Pool Spot AS, and Kraftdragarna AB. These companies are associated companies and are accounted for in accordance with the equity method. Share of earnings amounted for 2004 to SEK 22 million compared with SEK 19 million for the year 2003. The Nord Pool companies account for the majority of the share of earnings. The upswing in Nord Pool's result is primarily a result of greater volume on the markets.

Telecom and optical fibre operations
Svenska Kraftnät has a nationwide telecommunications network to control and monitor the national grid. The older parts

of this network are based on power line carrier and on microwave link communication. Since ten years, optical fibre have been installed in the power line earth wires. The telecom traffic is being gradually transferred from the older parts of the network to the optical fibre network. The high capacity offered by this network gives Svenska Kraftnät the opportunity to make network capacity available in the form of passive connections (black fibre) and active connections (band width) to external customers.

The replacement of older telecommunications equipment in Svenska Kraftnät's control telecom network continued during 2004. Of the total 135 plants and installations in the national grid, 111 have now been connected to Svenska Kraftnät's optical fibre-based broadband network.

During 2004, optical fibre cables have been installed on the following sections of power line:

Hjälta (Sollefteå) – Tuggen – Vargfors (Norsjö) – Letsi (Vuollerim) – Messaure – Porjus (Gällivare). The National Post and Telecom Agency has allocated a financial grant for the project. This installation has also meant that most of the national grid stations in the north of Sweden have acquired redundant optical fibrecable connections.

Through own extensions and the leasing of external optical fibre connections, Svenska Kraftnät is attempting to create ring lines that connect together the national grid stations via at least two routes, thereby providing Svenska Kraftnät's control telecom network with greater strength and reliability. By leasing external optical fibre connections, Hemsjö – Nybro – Simpevarp and Ljusdal – Ockelbo have been provided with redundant connection during the year.

At the end of 2004, Svenska Kraftnät's optical fibre network consisted of approximately 5 000 km of line in the form of own cables and some 2 500 km of leased cables from other players. During the course of the year, a decision was taken to install optical fibre cable on the stretch of power line running from Midskog (Östersund) to Borgvik (Karlstad) in connection with upgrading of the power lines. This is planned to be accomplished in stages during the course of 2005 and 2006. In this way, Svenska Kraftnät's control telecom network between central Norrland and the Mälar Valley/Lake Vänern area will be strengthened.

In Västerbotten, Västernorrland and the County of Jämtland, Svenska Kraftnät has together with regional players extended the network so that most of the municipalities are connected, or will be able within the near future to be connected, to the optical fibre network. In southern Sweden, Svenska Kraftnät's telecom network was first built under its own auspices and then in co-operation with Vattenfall, Sydkraft and Fortum. After this, other players have continued with an extensive expansion of their own networks so that most of the municipalities in southern Sweden can choose between several telecom operators.

Expansion of the optical fibre network for leasing out to other players has during 2004 been limited because the market for black fibre is still weak. The extension for Svenska Kraftnät's own requirements according to previous descriptions means, however, that it is or will be possible for the following municipalities to connect up with the Svenska Kraftnät optical fibre network: Svenstavik, Sveg, Älvdalen, Malung and Torsby and – through our co-operation with RegNet – Ockelbo, Ljusdal and Bollnäs.

As a result of our co-operation with IT-Västerbotten, the municipalities of Bjurholm, Nordmaling, Robertsfors, Vindeln, Umeå, Vännäs, Åsele, Dorotea, Lycksele, Malå, Norsjö, Sorsele, Skellefteå, Vilhelmina and Storuman are connected to the common extended optical fibre network in the county.

The overall revenue from the commercial optical fibre operations amounted to SEK 48 (50) million. The operating income was SEK 22 million, which is a deterioration of SEK 1 million compared with the previous year. This is a consequence of the year's reduced revenue. The year's investments within the business segment amounted to SEK 63 (47) million.

With a cost of capital of 7 % on capital employed, the net operative income for the year is SEK 9 (5) million. The cost of capital is based on the assessed total risk of the business segment.

In addition to the revenue from external customers on the optical fibre network Svenska Kraftnät had revenue amounting to SEK 14 (14) million for data networks, telephone networks and the leasing of antenna sites within business segment Telecom.

Telecom's total operating revenue is SEK 94 (96) million. Included in this is SEK 32 (32) million for internal services within the Group for Business Segment Network. The operating income amounted to SEK 29 (27) million.

SEK million	2004	2003
Operating revenue	94	96
Operating expense	–65	–69
Operating income	29	27

Contingency planning

The contingency planning, consisting of electricity preparedness and dam safety, are financed through Government grants.

The activities are in terms of the accounts neutral for Svenska Kraftnät. From the beginning of the year, approximately SEK 265 million was available for preparedness measures. In September, Svenska Kraftnät's right to use preparedness funds was restricted by the Government setting a limit of SEK 20 million. This means that the public utility has had SEK 245 million at its disposal. Basically all these funds have been utilised for the purposes specified in Note 3.

Grants accounts

The table shows the allocated and utilised amounts per subsidy-item (SEK thousand).

The opening balance refers to non-utilised funds from the previous budget year. In addition, appropriation-financed grants have been received from the Swedish Emergency Management Agency in an amount of SEK 12 million. The allocation received is accounted for against an income title, linked to the national budget, in accordance with the table below (page 16).

Grants accounts for the parent entity

Political area Total Defence SEK thousand 6:5 Civil Defence	Opening amount	Withdrawn acc. to the 3%-rule	Allocation for the year as per official appropriation document	Total disposable funds	Deducted expenses	Closing amount
– Appropriation Item 3	3 107	–	250 000	253 107	–232 742	20 365
Electricity Preparedness Measures						

Income title (MSEK)	Amount to be provided	Amount provided
2116 Parent entity's delivered dividend	309	309

Renewable electricity certificates

On 1 May 2003, an electricity certificates system was introduced in order to promote renewable electricity generation in Sweden. The Act gives producers of renewable electricity the opportunity to receive one electricity certificate per MWh of electricity generated. The certificates can be sold to electricity suppliers/electricity consumers, who are bound to purchase electricity certificates corresponding to a certain proportion of their sales/consumption.

Svenska Kraftnät is responsible for issuing and accounting for electricity certificates. The Swedish Energy Agency is responsible for other official tasks.

Svenska Kraftnät has issued just over 10 million electricity certificates for 2004. Since the system started, some 18 million electricity certificates have been cashed in at an average price of SEK 215 per electricity certificate. During 2004, biofuel-fired electricity generation accounted for approximately 73 % of the electricity certificates issued, hydro power for approximately 19 % and wind power for just over 8 %.

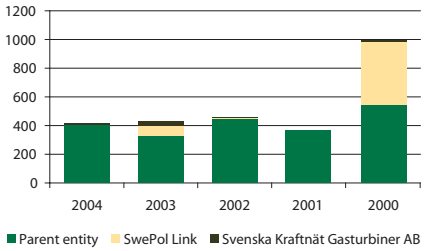
Svenska Kraftnät's revenue from this business segment amounts to SEK 13 (2) million and the operating income was SEK 2 (0) million.

SEK million	2004	2003
Operating revenue	13	2
Operating expense	–11	–2
Operating income	2	0

Investments

The investments made by the Svenska Kraftnät Group amounted during the year to SEK 410 (411) million, see the graph and table below.

Investments (SEK million)



The investments are distributed as follows (SEK million):

Parent entity	2004	2003
Network investments	317	293
Optical fibre investments	39	37
Leased optical fibre connections	24	10
Other intangible assets	23	18
Total for parent entity	**403**	**358**
SwePol Link	**5**	**20**
Svenska Kraftnät Gasturbiner AB	**2**	**33**
Total	**410**	**411**

As was the case last year, the major investment during 2004 was for the ongoing renewal of the DC connection between the Swedish West Coast and Jutland (SEK 122 million). Other major ongoing investments are for the earth wire replacements and optical fibre installation between Letsi and Hjälta (SEK 35 million), the conversion of the 220 kV line between Hallsberg and Moholm (SEK 29 million) and a new system transformer in Järpströmmen (SEK 22 million).

Financing and liquidity

The parent entity finances operations with equity and loans from the National Debt Office. At the end of 2003, borrowing amounted to SEK 559 (665) million and liquid assets to SEK 72 (12) million. Svenska Kraftnät's bank overdraft facility with the National Debt Office can be utilised up to an amount of SEK 1 500 million.

SwePol Link AB has entered into an agreement with Vattenfall AB for a loan of up to SEK 2 750 million. The intention is for this loan to be replaced by loans on the finance market and, if necessary, to a minor extent by partner loans. Svenska Kraftnät has the Government's authorisation to take up a partner loan of up to SEK 500 million for SwePol Link AB. The Government has furthermore authorised the National Debt Office to act as guarantor for up to SEK 1 000 million for loans that SwePol Link AB needs to take up on the finance market.

Borrowing in Svenska Kraftnät Gasturbiner AB increased during the year from SEK 190 million to SEK 195 million. The majority of the financing has previously been on the open finance market, but is now arranged within the Group.

Liquid assets within the Group amounted to SEK 120 (99) million.

Environment

Svenska Kraftnät conducts dedicated environmental work with the aim of preventing and restricting the environmental impact of its operations. The most important areas are:

- The effect of the power lines on people's living environment and immediate surroundings
- The use of environmentally harmful substances
- Energy consumption and climatic impact

Svenska Kraftnät's environmental goals are linked to Sweden's 15 national environmental quality objectives.

Several development projects are in progress with the aim of developing new types of power cables with a low impact on the surroundings. During the course of the year, various solutions have also been tested in practice in order to offset the effects of magnetic fields in schools and homes situated near power lines. Magnetic fields can be reduced by erecting pylons on which the phase conductors are arranged in a triangular structure and with a limited distance between them. This technique has been used in connection with both new installations and with existing pylons, where the conductors have been moved. Another way of further reducing magnetic fields is to divide up at least one of the phases on two separate conductors. This could be a solution in narrow spaces where it is otherwise impossible to achieve an acceptable level for magnetic fields in nearby housing. It is proposed that such pylons be used on the new 400 kV line that is planned to be built outside Gothenburg.

STRI has on behalf of Svenska Kraftnät started a project focusing on how in the future to design transitions between overhead lines and underground cables in a compact pylon, which considerably reduces land encroachment. However, the solution requires the further development of a technique for dry (oil-free) cable termination.

Environmental requirements are always imposed on contractors and suppliers in connection with procurements. Within project and maintenance operations, the contractor has to be able to show that new equipment does not contain harmful substances. Dangerous waste will be separated and disposed of by an authorised company. In two projects during the course of the year it proved possible to recycle nearly all the material from the old equipment. Dangerous waste, for instance PCB-conta-

minated oil and mercury, has been handed over to environmentally-certified treatment companies. When dismantling an old power line, which was built with pylons painted in red lead, the pylons were removed with the aid of a helicopter in order to prevent the paint finding its way into the physical environment.

The emissions of greenhouse gas sulphur hexafluoride (SF_6) from equipment in Svenska Kraftnät's switchgear have also been kept at a low level during 2004. The emissions constitute 0.1 per cent per year of the installed quantity of SF_6 gas in our installations.

During the past year, an inventory has been made of which power line corridors in the national grid are of most interest in connection with different species of animals and biological diversity. The inventory will serve as a basis for the future prioritisation of efforts to preserve the biological diversity. In summer 2004, a new training course was held for forest inspectors in biological diversity. The Swedish University of Agricultural Sciences has for the third year in succession conducted tests with adapted cultivation on a number of test plots in several of our power line corridors. The purpose is to determine whether the species that are linked with hay-making and pasture land benefit from a change in cultivation.

During the course of the year, an environmental management system in accordance with ISO 14001 was introduced for Svenska Kraftnät's construction works. Investment projects and maintenance are now also covered by this system. Svenska Kraftnät's goal is that all personnel shall undergo basic environmental training. During the autumn, a new serious of environmental training courses have been held for some 50 staff who have been employed during recent years.

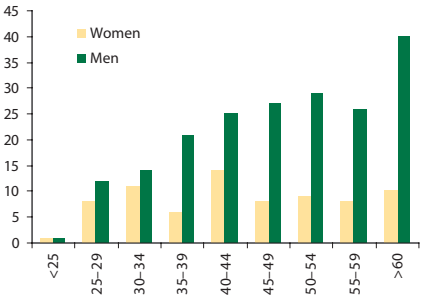
Staff

Svenska Kraftnät shall be an attractive employer with competent employees who are happy in their work.

The number of full-time employed staff in the Group was at year-end 276 (264), of whom 200 (193) were men and 76 (71) women. Staff turnover amounted to 1.5 (2.3) %. Sick leave during the year was 2.9 (3.3) %.

The average age within the company is 47 (47). The total distribution according to age and sex is shown in the table above.

Within a 5-year period, 50 employees are due to retire from Svenska Kraftnät.



Goals for 2004

During 2004, Svenska Kraftnät has performed a number of activities aimed at achieving the following goals:

- The proportion of women and female managers shall increase to 30 %.
- Staff turnover shall remain at a low level.
- Sick leave shall drop to 3 %.
- The age distribution shall increase through the recruitment of younger staff.
- Every employee within Svenska Kraftnät shall have a documented personal development plan based on a detailed skills analysis.
- Svenska Kraftnät shall actively promote a planned transfer of competence from older to younger employees.
- Svenska Kraftnät shall be experienced as an extremely good employer for parents with young children.

During 2004, a total of 15 new staff have been recruited, of whom 8 were women and 7 men. The average age of these new employees is 33. Staff turnover during the year has been very low even if retirements are included. During the year, 7 trainees were appointed, 3 women and 4 men, all graduate engineers. They began their year of training on 1 September. During the year, 11 employees have changed unit or department within the company.

At the beginning of the year, Svenska Kraftnät was reviewed by the Equal Opportunities Ombudsman (Jämo). The conclusion was that the company has an excellent equal opportunities plan. On the other hand, Jämo felt that the presentation of men's and women's salaries should be improved. After supplementation, the salary presentation was also approved. The proportion of female employees has increased somewhat during the year to just over 27 % and the proportion of female managers has increased to 29 %.

During 2004, Svenska Kraftnät started the project called "A Healthier 2007". Keep-fit efforts are organised on the basis of four overall targets aimed at ensuring by 2007 that Svenska Kraftnät is an even fitter and healthier workplace:

- Sick leave shall be max 2.5 %
- The proportion of long-term healthy employees shall exceed 65 %
- Physical fitness shall on average increase by 20 %
- There shall be no work-related long-term sicknesses.

In order to meet these targets, the company is conducting activities in four sub-areas: working environment, leadership, fitness and rehabilitation.

The goal that each employee shall have a documented personal development plan based on a detailed competence analysis has been achieved. The company has during the course of the year invested an average of SEK 15 000 per employee on training activities. Svenska Kraftnät has for a number of years offered managers an advanced leadership programme. During 2004, a total of 7 managers began this programme, which continues for 18 months.

We have conducted an analysis of the experience and competence of all employees who will be leaving the company within the next five years. In this context, an assessment is made of which skills are of critical importance to the company and which in some form must be transferred to other employees. One to two years before the employee goes into retirement, an assessment is made of which activities have to be carried out in order for important knowledge to be retained within Svenska Kraftnät. In some situations it may be a case of making an earlier recruitment in order for the new employee to "work in parallel". In other cases a longer period of planning is needed with activities such as courses, seminars, documentation and scheduled knowledge transfer to other employees.

Sick leave has amounted to 2.9 (3.3) %. Sick leave for men is 3.3 (3.1) % and for women 2.0 (3.6) %. The proportion of long-term sick leave (longer than 60 days) is 1.4 (1.9) %. 56 (54) % of the staff have not had one single day of sick leave during the course of the year.

Sick leave (%)	< 29	30–49	> 50	Total
Women	1,0	2,5	1,4	2,0
Men	1,4	2,3	4,4	3,3
Total	1,3	2,4	3,8	2,9

Goals for 2005

Competence provision shall result in us maintaining our leading role within the area of electricity supply.

Our employees need to develop their own skills in line with the company's development and the changes that this involves in working tasks. Competence development shall also aim at future management provision and the development of specialists. It is also based on changes which require special input, primarily the effect of a large number of retirements.

Svenska Kraftnät's goals for 2005:

- Employees shall experience Svenska Kraftnät as being an attractive employer
- The proportion of female employees shall increase to 28 % and the proportion of female managers to 30 %.
- Staff turnover shall continue to remain at a low level.
- Sick leave shall decrease to 2.8 %.
- Leadership shall be further developed.
- The age distribution shall be increased by the recruitment of younger staff.
- Each employee within Svenska Kraftnät shall have a personal development plan based on a detailed competence analysis.
- Svenska Kraftnät shall work actively to achieve a planned transfer of competence from older to younger employees.
- Svenska Kraftnät shall be known as a company that offers equal opportunities and as an excellent employer for the parents of young children.
- Contacts shall be forged with universities and institutes of higher education that are important for Svenska Kraftnät's recruitment.
- To promote ethnic and cultural diversity through recruitment.

During 2005, we will conduct a survey of how employees experience their work situation.

Goals for the years 2006/2007

Bearing in mind Svenska Kraftnät's age profile, we need to concentrate on measures that mean we can continue in the future to avoid suffering from a lack of competence and manpower.

The possibilities for recruiting skilled employees continue to be good. We shall actively increase the proportion of women and female managers within Svenska Kraftnät, primarily in the engineering departments.

Svenska Kraftnät intends also to invest in measures that further reduce sick leave and increase the number of full-time healthy employees.

Svenska Kraftnät conducts regular employee surveys in order to measure whether employees are satisfied with their work and the company.

The direction activities for 2006/2007 will be:

- Competence analyses and personal development plans for all employees.
- Programmes and activities for the transfer and exchange of competence from older to younger employees
- Leadership development
- Active recruitment of young academics and of female employees and managers
- Sick leave reduced to 2.5 % in 2007 through work on Healthier 2007
- More detailed contacts with universities and institutes of higher education.

Incentive programme

The purpose of Svenska Kraftnät's incentive programme is to create involvement in order to achieve a high level of reliability, a sound financial result and a high level of cost effectiveness. In this way, Svenska Kraftnät's primary objective can be fulfilled, i.e. an operationally reliable and effective national grid.

The programme covers all employees apart from the Director-General, whose financial conditions are determined by the Government.

The incentive programme is structured so that the maximum bonus is a month's salary. Goal achievement for 2004 was 80 % of a monthly salary. The allocation for 2004 is SEK 8.8 million, including social fees.

Board of Directors

Svenska Kraftnät's Board of Directors consists of 9 members, including 2 staff representatives. During the course of the year, the Board has held 5 meetings.

The work of the Board has been primarily focused on:

- The company's long-term development
- The economic efficiency of the operations
- The investment process and major investments
- The Nordic and European electricity markets
- The long-term solution to the capacity issue
- Electricity exchange development
- Competence provision
- Ethics and values within the company.

The Board has studied a review of operations ordered by the Ministry for Industry, Employment and Communications.

The Board has adopted a policy for ethics and values within the company.

The Board has visited Ringhals Nuclear Power Plant and the switchgear station at Horred outside Varberg. The purpose was for the members to inform themselves of the experience gained from the major electricity failure that occurred on 23 September 2003.

Income Statements

SEK million

	Note	Group		Parent entity	
		2004	2003	2004	2003
Operating revenue					
Network revenue	1	2 456	2 215	2 182	1 902
System responsibility revenue	2	1 193	1 416	1 194	1 419
Telecommunications revenue		62	64	62	64
Renewable electricity certificates		13	2	13	2
Government grant for power contingency planning	3	245	267	245	267
Capitalized work for own account	4	21	18	21	18
Total operating revenue		**3 990**	**3 982**	**3 717**	**3 672**
Operating expenses					
Personnel expenses	5	–198	–178	–197	–177
Other operating expenses	6	–2 663	–2 888	–2 658	–2 827
Depreciation of intangible and tangible assets	13, 14	–532	–527	–393	–390
Total operating expenses		**–3 393**	**–3 593**	**–3 248**	**–3 394**
Share of income in associated companies	12	23	19	–	–
Operating income	**7**	**620**	**408**	**469**	**278**
Result from financial investments					
Result from other securities and receivables that are fixed assets	8	5	–4	19	17
Interest income and similar income items	9	7	8	5	4
Interest expenses and similar expence items	10	–79	–122	–17	–22
Income after financial items		**553**	**290**	**476**	**277**
Tax on income for the year	11	–15	1	–	–
Minority shares		–19	–3	–	–
Net income for the year		**519**	**288**	**476**	**277**

Comments on the Income Statements

Operating revenue and expenses
The Group's operating revenue increased by SEK 8 million and amounted to SEK 3 990 (3 982) million.

The Group's network revenue increased by SEK 241 million compared with the previous year. The transmission revenue on the national grid increased by SEK 265 million as a result of increased energy fees and a more normal transmission pattern. The revenue from capacity fees decreased by SEK 38 million, since the difference in price between system price and area price, in connection with the subdivision of the market into price areas, has been lower.

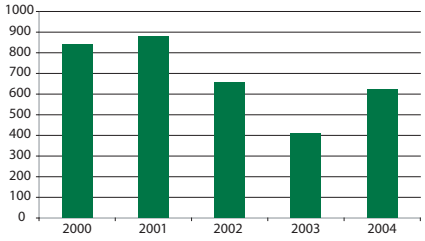
The system revenue decreased by SEK 223 million, which is explained by a lower electricity price for sold balancing power. The revenue from telecom operations decreased by SEK 2 million as result of reduced billing during 2004. Government grant for power contingency planning have amounted to SEK 245 million, which corresponds to the costs of the power contingency planning. Electricity certificate operations generated SEK 13 (2) million. The fees for electricity certificates are set by the Government and regulated in accordance with Ordinance (2003:120).

The Group's operating expenses amounted to SEK 3 393 (3 593) million.

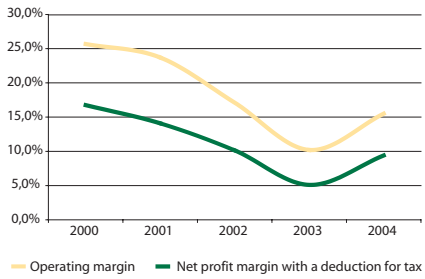
Staff expenses amounted to SEK 198 million, an increase of SEK 20 million.

The Group's other operating expenses decreased by SEK 225 million. The costs of energy losses connected with transmission on the national grid increased by SEK 66 million. During the year, the entire volume was purchased on long contracts. The year's

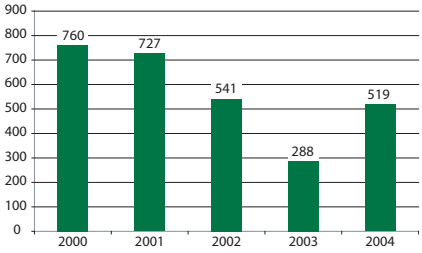
Operating income (SEK million)



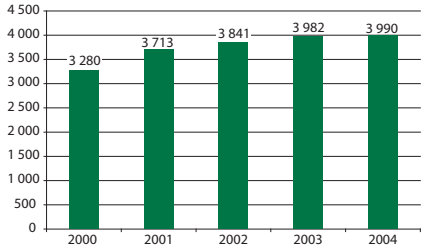
Operating and net profit margin (%)



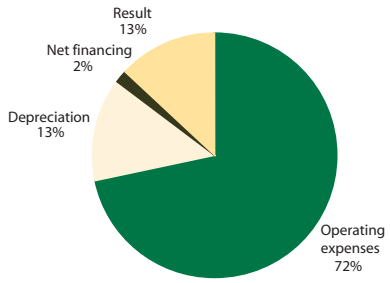
Net income for the year (SEK million)



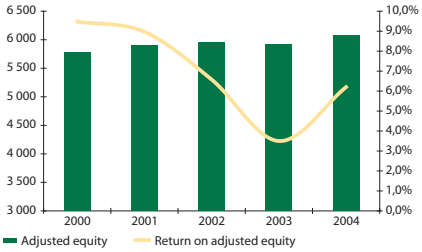
Operating revenue (SEK million)



Cost distribution



Adjusted equity (SEK million) and return on adjusted equity (%)



expenses for balancing power decreased and were SEK 306 million less than last year's level as a consequence of the lower electricity prices.

Operating income

The operating income for the Group improved by SEK 212 million to SEK 620 million.

The operating income consists of the current operations in the Group's business segments and the profit/loss from participations in associated companies. The operating income includes Group depreciation.

The predominant business segment in Svenska Kraftnät's operations is the business segment Network, with an operating profit of SEK 613 (486) million. Certain items concern both the business segments Network and System responsibility. When it has not been possible to link these activities to a business segment, the costs have been distributed on a standard basis.

Business segment System responsibility generated a loss for 2004 of SEK –47 (–124) million. Income for sold balancing power decreased by SEK 274 million and the costs for purchased balancing power decreased by SEK 306 million.

Telecom operations contributed to the operating profit with SEK 29 million compared with SEK 27 million the previous year, which is explained by lower costs.

Companies within the Group whose operations are exposed to competition are Nord Pool ASA, Nord Pool Spot AS and Kraftdragarna AB. Since all of these are associated companies, only Svenska Kraftnät's profit/loss component in each company is included in the consolidated profit/loss. The profit components amounted to SEK 23 million compared with SEK 19 million for the previous year. Nord Pool ASA and Nord Pool Spot AS account for the majority of this.

The operating margin for the Group amounted to 15.5 %, which is 5.3 percentage points better than the previous year.

Net financing

Net financial income/expense amounted to SEK –67 (–118) million. This is an improvement compared with the SEK 51 million of the previous year.

The result from securities and financial receivables amounted to SEK 5 (–4) million and concerns the parent entity. The difference is a result of the fact that in 2003 there was an exchange rate loss on loans to Nord Pool ASA of SEK 9 million. The Group's interest income decreased by SEK 1 million to SEK 7 million as a consequence of the lower interest rate on the finance market. The Group's interest expenses and similar expenses items amounted to SEK 79 million and thus decreased by SEK 43 million. The majority of this amount was for the financing of loans in SwePol Link, which decreased by SEK 25 million compared with the previous year.

The interest coverage ratio amounted to 7.6 (3.3) times.

Net income for the year

The net income for the year amounted to SEK 519 million, which is SEK 231 million better than in 2003. The result means an earnings ratio of 6.2 (3.5) % on adjusted equity. The net profit margin with a deduction for standard tax was 9.4 %, which is an increase of 4.2 percentage points compared with 2003.

Balance Sheets

SEK million

	Note	Group		Parent Entity	
		2004-12-31	2003-12-31	2004-12-31	2003-12-31
ASSETS					
Fixed assets					
Intangible assets	13				
Capitalised expenditure for computer programs		18	14	18	14
Land rights		74	73	74	73
Rights of use		54	33	54	33
Construction in progress		25	12	25	12
Total intangible assets		**171**	**132**	**171**	**132**
Tangible fixed assets	14				
Buildings and land		558	598	184	196
Machinery and equipment		7 972	8 159	6 136	6 254
Construction in progress		386	324	386	289
Total tangible fixed assets		**8 916**	**9 081**	**6 706**	**6 739**
Financial fixed assets					
Shares and participations in Group companies	15	–	–	12	12
Receivables from Group companies		–	–	182	182
Shares and participations in associated companies	16	315	300	177	177
Tax claim		1	8	–	–
Receivables from associated companies		54	54	54	54
Long-term receivables		2	2	3	3
Total financial fixed assets		**372**	**364**	**428**	**428**
Total fixed assets		**9 459**	**9 577**	**7 305**	**7 299**
Current assets					
Inventories, etc.					
Inventories		69	71	–	–
Current receivables					
Accounts receivable – trade		324	281	307	272
Receivables from Group companies		–	–	28	28
Receivables from associated companies		4	5	4	5
Other receivables		31	86	17	76
Receivable from Government cheque account	17	31	49	31	49
Prepaid expenses and accrued income	18	291	256	290	233
Total current receivables		**681**	**677**	**677**	**663**
Cash and bank balances		**120**	**99**	**72**	**12**
Total current assets		**870**	**847**	**749**	**675**
Total assets		**10 329**	**10 424**	**8 054**	**7 974**

Balance Sheets

SEK million

	Note	Group		Parent Entity	
		2004-12-31	2003-12-31	2004-12-31	2003-12-31
EQUITY AND LIABILITIES					
Equity					
Restricted equity					
Government capital		600	600	600	600
Restricted reserves		3 473	3 454	3 314	3 314
Total restricted equity		**4 073**	**4 054**	**3 914**	**3 914**
Unrestricted equity					
Unrestricted reserves		2 250	2 291	2 251	2 283
Net income for the year		519	288	476	277
Total unrestricted equity		**2 769**	**2 579**	**2 727**	**2 560**
Total equity		**6 842**	**6 633**	**6 641**	**6 474**
Minority interests		**50**	**31**	**–**	**–**
Deferred tax liability		**8**	**6**	**–**	**–**
Interest-bearing provision					
Provisions for pensions	19	220	195	220	195
Interest-bearing long-term liabilities	20	**2 423**	**2 667**	**559**	**665**
Non-interest-bearing long-term liabilities					
Advance payments from customers		101	104	101	104
Other long-term liabilities		2	2	2	2
Total non-interest-bearing long-term liabilities		**103**	**106**	**103**	**106**
Interest-bearing current liabilities	21	**128**	**127**	**0**	**0**
Non-interest-bearing current liabilities					
Accounts payable, trade		236	391	228	308
Liabilities to Group companies		–	–	12	1
Other liabilities		42	50	17	37
Accrued expenses and prepaid income	22	277	218	274	188
Total non-interest-bearing current liabilities		**555**	**659**	**531**	**534**
Total equity and liabilities		**10 329**	**10 424**	**8 054**	**7 974**
Pledged assets, etc.		**None**	**None**	**None**	**None**
Contingent liabilities	23, 24	**20**	**20**	**20**	**20**

Comments on the Balance Sheets

Balance sheet total
The consolidated balance sheet total amounted to SEK 10 329 (10 424) million, which is a decrease of SEK 95 million.

Fixed assets
Svenska Kraftnät's intangible fixed assets consist of land rights, rights of use for optical fibre cables, licences and balanced outlays for computer programs. The value of these is SEK 171 (132) million. The increase is a consequence of investments in rights to use optical fibre cable connections amounting to SEK 21 million, land rights amounting to SEK 1 million and computer programs amounting to SEK 17 million.

The tangible fixed assets consist primarily of power cables, stations, buildings and land, optical fibre connections and other technical facilities and construction in progress. The value of the tangible assets amounted to SEK 8 916 (9 081) million, which is a reduction of SEK 165 million. The net investments during the year have been lower than the depreciation.

The financial fixed assets consist of participations in associated companies and long-term receivables from associated companies. Participations in associated companies amounted to SEK 315 (300) million. The profit participation in the financial statements is SEK 23 million, which increased the financial assets. During the year, a dividend of SEK 8 was received from Nord Pool ASA.

Current assets
The Group's current assets amounted to SEK 870 (847) million. The increase is primarily for accounts receivable, which are SEK 43 million higher owing to higher volumes of energy fees at the end of the year compared to December 2003. Liquid assets amounted to SEK 120 million at year-end and have increased by SEK 21 million. The increase is primarily a result of the fact that the parent entity's liquidity was somewhat higher than last year.

Equity
Equity at year-end amounted to SEK 6 843 (6 633) million, of which 2 770 (2 579) million consisted of non-restricted equity. During the course of the year, SEK 309 (356) million has been distributed to the owner. The net Group profit for the year amounted to SEK 519 (288) million.

Provisions
Pension provisions amounted to SEK 220 (195) million, i.e. an increase of SEK 25 million. The provisions are based on an actuarial calculation by the National Government Employee Pensions Board and Svenska Kraftnät's own data. The provision includes a special payroll tax.

Liabilities
The Group's long-term liabilities that are interest-bearing consist of the parent entity's financing with the National Debt Office of SEK 559 (665) million and the external financing of subsidiaries of SEK 1 864 (2 001) million. The borrowing requirement in the Group has decreased during 2004 by SEK 243 million. The short-term component of this borrowing is SEK 128 (127) million. The average interest on the loans for the Group has been 3.0 (4.3) %.

Long-term liabilities that are not interest-bearing consist largely of advance payments from customers within the optical fibre operations and amount to SEK101 (104) million. The agreement periods vary from 15 to 25 years and the advance payments are taken up as income during this period. The level of the net loan debt decreased by SEK 239 million and amounted to SEK 2 651 million. The debt/equity ratio amounted to 0.43 (0.49).

Cash flow statement

SEK million

	Group		Parent entity	
	2004	**2003**	**2004**	**2003**
The year's operation				
Operating income before depreciation	1 129	916	862	668
Adjustment for other items that do not have an influence on cash flow	40	40	48	24
Net interest paid	–80	–112	–16	–18
Cash flow from operations before changes in working capital	**1 089**	**844**	**894**	**674**
Increase (–)/decrease (+) in inventories, etc.	2	-12	–	–
Increase (–)/decrease (+) in current receivables	-4	158	–14	126
Increase (–)/decrease (+) in current liabilities	–105	–148	–3	–132
Cash flow from the year's operation	**982**	**842**	**877**	**668**
Investment activities				
Investments in intangible and tangible fixed assets	–410	–411	–403	–358
Change in long-term receivables	0	0	0	–182
Sale of fixed assets	0	2	0	2
Cash flow from investment activities	**–410**	**–409**	**–403**	**–538**
Financing activities				
Change in interest-bearing liabilities	–243	–164	–106	166
Advance payments from customers	1	21	1	21
Dividend	–309	–356	–309	–356
Cash flow from financing activities	**–551**	**–499**	**–414**	**–169**
Cash flow for the year	**21**	**–66**	**60**	**–39**
Liquid assets at the beginning of the year	99	165	12	51
Liquid assets at year-end	120	99	72	12

Comments on cash flow statement

The purpose of the cash flow statement is to describe the capacity of the Svenska Kraftnät Group to generate liquid assets and to serve as a complement to the income statement and balance sheet descriptions of profitability and financial position. Liquid assets is understood to be cash and bank balances.

The year's operation
The cash flow from the year's operation before changes in operating capital increased by SEK 245 million compared with the previous year and amounted to SEK 1 089 million. The cash flow from the year's operation amounted to SEK 982 (842) million. The improvement is primarily a result of the increase in operating profit.

Investing activities
The Group's investments amounted to SEK 410 (411) million. Investments in the parent entity amounted to SEK 403 million, SEK 5 million in SwePol Link and SEK 2 million in Svenska Kraftnät Gasturbiner AB. Investments were made in the parent entity during 2003 of SEK 358 million and in the subsidiary SwePol Link of SEK 20 million and SEK 33 million in Svenska Kraftnät Gasturbiner AB.

Financing activities
Interest-bearing liabilities in the Group decreased by SEK 243 (164) million. Interest-bearing liabilities in the parent entity decreased by SEK 106 million, and in the subsidiary SwePol Link external interest-bearing liabilities dropped by SEK 122 million and in Svenska Kraftnät Gasturbiner AB by SEK 15 million. A dividend has been paid of SEK 309 (356) million.

Changes in equity

SEK million

Group	Government capital	Restricted reserves	Unrestricted reserves	Net income for the year
Equity brought forward according to adopted balance sheet	600	3 454	2 291	288
Allocation of the result of the year according to Gov. decision:				
– carried forward to new account	–	–	288	–288
– dividend	–	–	–309	–
Transfer between restricted and unrestricted reserves	–	19	–19	–
Net income for the year	–	–	–	519
December 31, 2004	**600**	**3 473**	**2 251**	**519**

During the financial year, the Group has not changed any accounting principles. The proposed allocation of profit/loss in the Annual Report for 2003 was adopted by the Government.

Parent entity	Government capital	Restricted reserves	Non-restricted reserves	Net income for the year
Equity brought forward acc. to adopted balance sheet	600	3 314	2 283	277
Allocation of profit acc. to Gov. decision				
– carried forward to new account	–	–	277	–277
– dividend	–	–	–309	–
Net income for the year	–	–	–	476
December 31, 2004	**600**	**3 314**	**2 251**	**476**

Five-year reviews

Key figures

The table below shows the development in Group key figures over the past five-year period.

The comparative figures have been converted to the definitions for 2003.

Group	2004	2003	2002	2001	2000
Return on adjusted equity after tax, %[1]	6,2	3,5	6,6	8,9	9,5
Return on adjusted equity after tax, %[2]	6,3	3,6	7,3	9,1	9,5
Return on total capital, %	5,8	3,9	6,4	8,3	7,7
Return on capital employed, %	6,7	4,6	8,4	10,6	9,7
Equity/assets ratio, %	58,7	56,7	55,2	55,4	53,9
Operating margin, %	15,5	10,2	17,1	23,7	25,9
Net profit margin after tax, %	9,4	5,2	10,1	14,1	16,7
Capital turnover ratio, %	9,6	9,4	9,0	8,7	7,5
Debt/equity ratio, times	0,43	0,49	0,50	0,51	0,58
Self financing level, times	2,6	2,0	2,3	3,3	1,2
Interest coverage ratio, times	7,6	3,3	4,6	5,6	11,2
Cash flow from operation before changes in working capital, SEK million	1 089	844	989	1 230	1 123
Net liabilities, SEK million	2 651	2 897	2 982	3 062	3 383
Investments, CAPEX, SEK million	410	411	460	363	998

[1] The required return on adjusted equity was 9 % in 1998 and has subsequently been 7 % up to and including 2002. Since 2003, the required return has been 6 % and is modified compared with 2002. Adjusted equity is understood to mean the year's restricted equity brought and carried forward and 72 % of the non-restricted equity.

[2] Return excluding costs for remaining electrification and added power.

Financial income, etc. for the five-year period

The following income statements are presented for the Group in summarised form for the latest five-year period.

Income statements, summary (SEK million)	2004	2003	2002	2001	2000
Operating revenue	3 990	3 982	3 841	3 713	3 280
Operating expenses excl. depreciation	–2 861	–3 066	–2 712	–2 377	–2 055
Depreciation	–532	–527	–512	–493	–404
Share of income from participations in associated companies	23	19	40	37	21
Operating income	**620**	**408**	**657**	**880**	**842**
Result from other securities and receivables accounted for as fixed assets	5	–4	27	0	0
Interest income	7	8	14	14	8
Interest expenses	–79	–122	–150	–159	–82
Tax on income for the year	–15	1	–5	6	–
Minority share	–19	–3	–2	–14	–5
Net income for the year	**519**	**288**	**541**	**727**	**763**

The increase in operating revenue is a consequence of a change in the settlement model, which gives more gross balancing power. In addition the settlement of so-called remaining power was added in 2001.

A summary of balance sheets for the same period is presented below:

Balance sheets, summary as per 31/12 (SEK million)	2004	2003	2002	2001	2000
Fixed assets	9 459	9 577	9 722	9 676	9 844
Current assets, excl. liquid assets	750	748	894	777	735
Liquid assets	120	99	165	212	139
Total assets	10 329	10 424	10 781	10 665	10 718
Equity	6 842	6 633	6 701	6 634	6 485
Loans[1]	2 601	2 825	2 982	3 133	3 393
Other liabilities and pension provisions	886	966	1 098	898	840
Total equity and liabilities	**10 329**	**10 424**	**10 781**	**10 665**	**10 718**

[1] Including minority interests

Accounting principles

At the end of 2004, the Svenska Kraftnät Group consisted of the parent entity Svenska Kraftnät, which is a public utility, three subsidiaries and six associated companies. The subsidiaries and associated companies are limited liability companies or companies with a corresponding legal status abroad.

One of the subsidiaries, SwePol Link AB, has in turn its own wholly-owned subsidiary in Poland.

System of rules and regulations

Svenska Kraftnät's accounts concur with Ordinance (2000:606) on public authority book-keeping and ESV's (The Swedish National Financial Management Authority) regulations and general advice. The ordinance concurs with the Book-keeping Act but is adapted to the special preconditions that apply for Government authorities and utilities. With certain exceptions that are stipulated in the document on Government appropriations, the Annual Report is drawn up in accordance with the Ordinance (2000:605) on annual reports and budget input and ESV's regulations and general advice. Part of Svenska Kraftnät's operations – contingency planning – is financed via Government grants. For this particular activity, the provisions of Ordinance (1996:1189) on grants also applies, which among other things regulates the principles for grant settlement and how non-utilised funds may be retained between different budget years. Svenska Kraftnät shall also follow the recommendations of the Swedish Financial Accounting Standards Council and the recommendations of the Swedish Society of Financial Analysts where these are applicable for public utilities.

Svenska Kraftnät has adapted its accounts to the new accounting recommendations in Ordinance (2000:606) and to those of the Swedish Financial Accounting Standards Council, which came into force on 1 January 2002. Of the new recommendations, only RR 15 Intangible assets has led to any change in the accounting principles with a significant impact on amounts. This recommendation means that the land rights from and including 2002 have been written off after the assessed period of use. During previous years, land rights have not been subject to depreciation.

For 2004, Svenska Kraftnät has adapted its income statements to the new structural arrangement of the National Financial Management Authority for public utilities and the guidelines published by FAR (the Institute for the Accounting Profession in Sweden) on annual reports for limited liability companies.

For the companies in the Group, the Book-keeping Act, Annual Reports Act and corresponding national acts, primarily the Companies Act, apply. Two of the associated companies are Norwegian, and in their case equivalent national laws apply.

The supervisory authority for network operations is the Swedish Energy Agency.

Consolidated accounts

The consolidated accounts cover Svenska Kraftnät together with all subsidiaries and associated companies in Sweden and abroad. Subsidiary is understood here to mean a legal person in which Svenska Kraftnät holds or has control over more than half the votes or owns shares in the legal person and has the right to alone exercise a considerable influence over this as the consequence of an agreement or some other regulation. Associated company means a legal person that is not a subsidiary, but in which Svenska Kraftnät owns participations and exercises a considerable influence over the legal person's operational and financial control.

The consolidated accounts are drawn up in accordance with the acquisition method, which means briefly that the acquisition cost for the shares in the subsidiary are eliminated against the equity that exists in the subsidiary at the time of the acquisition. The recommendation of the Swedish Financial Accounting Standards Council concerning consolidated accounts is applied.

Minority participations in the net profit and equity in part-owned subsidiaries are presented separately in the calculation of the Group's net profit and equity.

Internal profits and balances within the Group are eliminated in the consolidated accounts.

Associated companies are reported in accordance with the equity method. This means that the book value of shares and participations in associated companies in the consolidated accounts is valued at the Group's share of the associated companies' equity and non-depreciated goodwill. In this way, Svenska Kraftnät's share of the associated companies' result is included in the Group's result reduced for the depreciation of goodwill and dividend distributed. The share is included in the restricted reserves.

From and including 2005, all listed companies within the EU shall prepare their consolidated accounts in accordance with International Financial Reporting Standards (IFRS). According to guidelines from the Ministry for Industry, Employment and Communications, state-owned companies and public utilities shall also follow these regulations. The recommendations of the Swedish Financial Accounting Standards Council concur largely with existing IAS/IFRS, which means that Svenska Kraftnät's consolidated accounts are largely adapted to the new regulations.

IFRS shall be applied from and including 1 January 2005, and the comparison year 2004 shall be translated. The transition will have no material effects on the consolidated income statement and balance sheet.

Accounting of foreign currency

Receivables and liabilities in foreign currency have been valued at the exchange rate on the balance sheet date. Unrealised exchange rate gains and exchange rate losses are included in the result.

Country	Currency	Average exchange rate 2004	Average exchange rate 2003	Balance sheet rate 2004-12-31	Balance sheet rate 2003-12-31
Norway	NOK	1,0905	1,1418	1,0880	1,0805
Poland	PLZ	2,0192	2,0787	2,2100	1,9400

Translation of foreign subsidiaries and associated companies
The subsidiary SwePol Link AB's Polish subsidiary's annual accounts have been translated into Swedish kronor in accordance with the monetary method, which means that monetary items are translated into the balance sheet date rate and non-monetary items into the rate at the time of the investment. The translation difference between monetary assets and liabilities is included in the net profit/loss for the year for the Group and is reported in the income statement.

The monetary method is used because the operations of the Polish company are regarded as an integrated part of SwePol Link AB's activities.

Important currencies used in the consolidated annual accounts are specified above.

Revenue accounting
Svenska Kraftnät's network revenue consists of both subscriber fees as well as energy-dependent fees. Subscriber fees or power charges are fixed annual fees that are reported as income linearly throughout the period in which the fee is meant to cover, while the energy-dependent fee is reported as income in connection with the use of Svenska Kraftnät's services.

The system revenue consists of power sold for balance services, revenue for the use of the IT system Ediel and revenue in order to cover the costs of power reserves. The sold balancing power is invoiced per 14-day period. If the customer has all in all purchased power during the period, this is shown as an income for Svenska Kraftnät whereas if the customer has instead all in all sold power, it is reported as a balancing power cost.

Other operating revenue is reported as revenue in conjunction with the provision of the service. To a certain extent, customers can pay in advance. The advance payment is then deducted against income as the service is carried out.

Intangible fixed assets
Intangible fixed assets consist of land rights, rights of use in optical fibre connections, licences, construction in progress and development costs for computer programs.

From and including 2002, Svenska Kraftnät will write off land rights after the assessed period of use, which for a cable concession is often 40 years. Before 2002, land rights were not usually written off.

Rights of use are for optical fibre cables and are written off over a period of between 15 and 25 years.

Tangible fixed assets
Tangible fixed assets, which usually consist of station and cable facilities, machinery, equipment buildings and land, are reported at their acquisition value with a deduction made for accumulated depreciation. Investments are regarded as being new construction as well as conversions and extensions that in the long term increase standard, quality or performance. Included under maintenance are works that are needed in order for it to be possible for a facility to be used in the original way intended, but which do not increase its performance or significantly extend its lifetime. Maintenance is cost accounted on a continuous basis.

External contributions to investments reduce the acquisition value of the investment by the corresponding amount.

Interest expenses during the construction period are activated with the construction of facilities in excess of SEK 50 million.

Depreciation according to plan
Depreciation according to plan is calculated linearly on the original acquisition value of the assets with depreciation periods that are decided after assessment of the financial and technical lifetimes. Annual depreciation rates are as follows (table below):

Cables, excluding sub-marine cables and associated cables	2.5 %
Sub-Marine cables, excluding SwePol Link, and associated cables	3.3 %
SwePol Link	5.0 %
Control centre components in stations	6.7 %
Other station components	3.3 %
Optical fibre connections	4.0 %
Reserve material	6.7 %
Telecom and information systems	6.7–20.0 %
Gas turbine plants	5.0 %
PCs and equipment	33.3 %
Goodwill	10.0 %

Taxes
Svenska Kraftnät's subsidiaries are obliged to pay income tax for limited liability companies, whereas Svenska Kraftnät, as a state-owned public utility is free from income tax. Deterred tax for differences between the reported and fiscal result is not reported by the public utility and the Group, with the exception of SwePol Link Poland and for untaxed reserves in the Swedish subsidiaries. Deferred tax receivables are reported to the extent that sufficient taxable surplus is deemed likely to be available within the foreseeable future.

Inventories
The stock has been valued at the lowest of the acquisition value and the real value.

Pension Commitments
Svenska Kraftnät follows the state pension provisions PA-91 and PA-03 depending on the age category between employees.

The capital value of the pension undertakings is calculated on the basis of insurance principles and reported as provision. The calculation has been made on the basis of a recommendation from the Board for Government Collective Agreement Insurances. The interest component in the years pension expenses is reported under financial expenses.

Svenska Kraftnät pays a special payroll tax on paid out pensions in accordance with Ordinance (1991:704) on the establishment of special payroll tax on state pension expenses and not based on allocations for pensions. Since the pension provision is for future pension outlays, an allocation is made for special payroll tax based on the size of the pension provision.

Notes

The amounts in the Notes are specified in SEK million, unless otherwise specified. Amounts in brackets refer to 2003.

1 Network revenue

	Group		Parent entity	
	2004	2003	2004	2003
Power fee, national grid	1 082	1 096	1 115	1 113
Energy fee, national grid	788	509	788	509
Energy fee, abroad	0	0	0	0
Capacity fees	125	163	125	163
Transit revenue	125	74	125	74
Transmission on Swe Pol Link	305	280	–	–
Other revenue	31	93	29	43
Total	**2 456**	**2 215**	**2 182**	**1 902**

2 System revenue

Sold balancing power is for invoiced revenue for the imbalance that those bodies responsible for balancing have caused in the national electricity system.

	Group		Parent entity	
	2004	2003	2004	2003
Sold balancing power	757	1 033	758	1 036
Sold remaining power	140	81	140	81
Sold output power	29	27	29	27
Sold regulation power	46	105	46	105
Power reserve	204	156	204	156
Ediel	17	14	17	14
Total	**1 193**	**1 416**	**1 194**	**1 419**

3 Government grant for contingency planning

The Government grants are used to finance power contingency planning. The grants tally with an equally sized operating expense for power contingency planning and thus give a zero result for the parent entity.

The grants consumed during the course of the year amounting to SEK 245 (267) million have been used, among other things, as a contribution to the emergency reserve, measures in control centres and other plants, the training of civil defence staff, safeguarding the restoration of the electricity system after disruptions, measures to increase preparedness within dam safety and procurement, and the operation and maintenance of strategic material.

4 Activated work on own account

This item concerns labour costs for Svenska Kraftnät's own personnel that are activated against investment projects. Investment products refer on the one hand to construction work in progress and on the other to activated IT development projects. Since the activation is reported on the income side, a gross account of personnel expenses is given.

	Group		Parent entity	
	2004	2003	2004	2003
Construction in progress	14	12	14	12
Activated development of computer programs	7	6	7	6
Total	**21**	**18**	**21**	**18**

5 Staff expenses

The mean number of employees during 2004 was in the Group 269 (261), of whom 267 (259) in the public utility and 2 (2) in the SwePol Link Group.

The distribution between men and women at year end can be seen from the table below.

	Group		Parent entity	
	2004	2003	2004	2003
Women	76	71	75	69
Men	200	193	199	193
Total	**276**	**264**	**274**	**262**

The Group's staff expenses amounted to 198 (178), of which the payroll costs amounted to 119 (108). To this shall be added social costs of 68 (60). Included in these amounts are pension costs of 30 (24). The remaining costs are other personnel expenses.

The fee paid to the Chairman amounted to SEK 78 996. The fees paid to other Board members amounted to SEK 52 992 each. No fees are paid to Board members who are employed within Svenska Kraftnät, apart from normal salaries.

The Director-General's salary amounted to SEK 1.1 (1.1) million and the pension expense for the year to SEK 0.8 (0.3) million. The Deputy Director-General's salary amounted to SEK 0.9 (0.9) million. As far as the Director-General is concerned, pension conditions concur with the Ordinance on state pensions for managerial staff and follow the conditions of PA-91 pursuant to calculations from the National Government Employee Pensions Board.

The composition of the Board, excluding staff representatives, can be seen from the table below.

	2004	2003
Women	3	4
Men	4	3
Total	**7**	**7**

6 Other operating expenses

	Group		Parent entity	
	2004	2003	2004	2003
Purchase of electricity	689	623	689	623
Operation and maintenance	213	233	178	169
Leases on fixed assets	57	53	57	53
Transit	140	51	140	51
Purchased balancing power	853	1 159	853	1 159
System operation services	195	264	228	275
Peak-power reserve	163	107	185	117
Supplementary peak-power contribution	0	15	0	15
Own preparedness measures	8	8	8	8
Research and development	14	15	14	15
Disposal expenses	5	8	5	8
Contingency costs	196	227	196	227
Other	130	125	105	128
Total	**2 663**	**2 888**	**2 658**	**2 827**

Included in System operation services are costs for counter-purchasing as a balance service provided amounting to 5 (14).

Included in the item Other are payments to accountants in the following amounts.

Fees and expenses

	Group		Parent entity	
	2004	2003	2004	2003
Swedish National Audit Office with prescribed auditor	0,9	0,8	0,9	0,8
Other auditors	0,3	0,5	–	–
Auditing duties	**1,2**	**1,3**	**0,9**	**0,8**
Other tasks	1,0	0,3	–	–
Total fees and expenses	**2,2**	**1,6**	**0,9**	**0,8**

Auditing fees comprise examination of the annual accounts and book-keeping as well as the administration of the Board of Directors and the Director-General/Managing Directors and other expenses that fall within the responsibility of the parent entity/company's auditors to perform. Included among other expenses are consultations in subsidiaries.

7 Business segments

	Group			
	Operating revenue		Operating income	
	2004	2003	2004	2003
Network	2 477	2 233	613	486
System responsibility	1 193	1 416	–47	–124
Telekom	94	96	29	27
Other companies exposed to competition	–	–	23	19
Contingency planning	245	267	0	0
Renewable electricity certificates	13	2	2	0
Segment elimination	–32	–32	–	–
Total	**3 990**	**3 982**	**620**	**408**

The predominant business segments within the Group are Network and System responsibility.

Included in the operating result are the business segments' external income and expenses.

The business segment Telecom has performed services for Network for SEK 32 (32) million, which is reported as operating income for Telecom and a corresponding increase in operating expense for Network. Activated own work is included in the business segment Network's income in an amount of SEK 21 (18) million.

8 Result from other securities and receivable accounted for as fixed assets

	Group		Parent entity	
	2004	2003	2004	2003
Dividend on shares and participations in associated companies	0	0	8	17
Interest income	5	5	11	9
Exchange rate difference	0	–9	0	–9
Total	**5**	**–4**	**19**	**17**

9 Interest income and similar items

	Group		Parent entity	
	2004	2003	2004	2003
Interest income	7	8	5	4
Exchange rate difference	0	0	0	0
Total	**7**	**8**	**5**	**4**

10 Interest expenses and similar items

	Group		Parent entity	
	2004	2003	2004	2003
Interest expenses, National Debt Office loan	10	15	10	15
Interest expenses, Other loans	64	93	0	0
Interest expenses, Pension provision	4	4	4	4
Activated interest, building	–1	0	–1	0
Exchange rate difference	–58	0	0	0
Translation difference	56	6	0	0
Other financial expenses	4	4	4	3
Total	**79**	**122**	**17**	**22**

11 Tax on income for the year

Since the majority of the Group's profit/loss before tax is earned in the parent entity, which is relieved from income tax, no account is given of the connection between the tax expense for the year and the reported income before tax in the Group.

	Group	
	2004	**2003**
Current tax	–7	4
Deferred tax	–8	–3
Total	**–15**	**1**

12 Share of income from associated companies

The share of income from associated companies is presented after tax and includes the depreciation of goodwill with SEK 5 (3) million. The share of income from the other associated companies was less than SEK 1 million.

	Group	
	2004	**2003**
Nord Pool ASA	16	14
Nord Pool Spot AS	6	5
Kraftdragarna AB	1	0
Total	**23**	**19**

13 Intangible fixed assets

Intangible fixed assets consist of land rights in the form of easements and line rights, rights of use for optical fibre cables, licences and capitalised expenditure for computer programs.

Group and Parent entity	**Capitalised expenditure for computer programs**	**Land rights**	**Rights of use for optical fibre cables**	**Construction in progress**	**Total**
Opening acquisition value	15	166	36	12	229
Investments	0	–	2	45	47
Sales/disposal	–	0	–	–	0
Reclassifications	11	3	24	-32	6
Closing accumulate aquisition value	**26**	**169**	**62**	**25**	**282**
Depreciation brought forward	1	93	3	–	97
Sales/disposal		0		–	0
Depreciation for the year	7	2	5	–	14
Accumulated depreciation carried forward	**8**	**95**	**8**	**0**	**111**
PLANNED REMAINING VALUE CARRIED FORWARD	**18**	**74**	**54**	**25**	**171**
Depreciation previous fiscal year	1	4	2	–	7

14 Tangible fixed assets

Group	Buildings and land	Machinery and other technical facilities	Construction in progress	Total
Opening acquisition value	911	15 462	324	16 697
Investments	2	7	354	363
Sales/disposal	0	–27	–	–27
Depreciation in connection with disposal	–	–5	–	–5
Reclassifications	–9	294	–292	–7
Closing accumulated acquisition value carried forward	**904**	**15 731**	**386**	**17 021**
Depreciation brought forward	313	7 303	–	7 616
Sales/disposal	0	–28	–	–28
Depreciation for the year	33	484	–	517
Accumulated depreciation carried forward	**346**	**7 759**	**0**	**8 105**
CLOSING PLANNED RESIDUAL VALUE	**558**	**7 972**	**386**	**8 916**
Depreciation previous fiscal year	33	487	–	520

Parent entity	Buildings and land	Machinery and other technical facilities	Construction in progress	Total
Opening acquisition value	430	13 169	289	13 888
Investments	–	2	354	356
Sales/disposal	0	–27	–	–27
Depreciation in connection with disposal	–	–5	–	–5
Reclassifications	–	251	–257	–6
Closing accumulated acquisition value carried forward	**430**	**13 390**	**386**	**14 206**
Opening depreciation	234	6 915	–	7 149
Sales/disposal	0	–28	–	–28
Depreciation for the year	12	367	–	379
Closing accumulated depreciation	**246**	**7 254**	**0**	**7 500**
CLOSING PLANNED RESIDUAL VALUE	**184**	**6 136**	**386**	**6 706**
Depreciation previous fiscal year	11	372	–	383

The item Machinery and other technical facilities includes in particular switchgear equipment, power cables, marine cables, control centre components, optical fibre activities as well as telecom and information systems. Disposals arise primarily in connection with the operational start-up of facilities or after reinvestments.

The tax value for properties in the Group amounts to SEK 361 (292) million.

15 Shares in Group companies

Company	Corporate ID number	Domicile	Shares of equity, %	Number	Nominal value	Book value
Svenska KraftKom AB	556575-7274	Stockholm	100	1	0	0
Svenska Kraftnät Gasturbiner AB	556451-0260	Stockholm	100	900	9	9
SwePol Link AB	556530-9829	Stockholm	51	306 000	3	3
Total					**12**	**12**

16 Shares in associated companies

Company	Corporate ID	Domicile	Shares of equity, %	Quantity	Book value Group	Book value Parent entity
Nord Pool ASA	NO 965662952	Lysaker	50	100 000	290	172
Nord Pool Spot AS	NO 984058098	Lysaker	20	2 880	14	0
STRI AB	556314-8211	Ludvika	25	375	6	4
Kraftdragarna AB	556518-0915	Västerås	50	5 000	5	1
Elforsk AB	556455-5984	Stockholm	25	750	0	0
Triangelbolaget D4 AB	556007-9799	Stockholm	25	525	0	0
Total					**315**	**177**

The acquisition value is the same as the book value in the parent entity.

17 Liability/receivable on public utility's overdraft facility

The receivable carried forward of SEK 31 (49) million consists of the difference between withdrawn/deposited funds from the public utility's overdraft facility and deducted expenses/deposited income against the Government budget as follows:

Group and Parent entity (SEK thousand)	2004	2003
Balance brought forward (receivable +, liability –)	48 651	87 981
Settled against Government budget:		
Appropriation	232 742	250 670
Income titles, dividend and small-scale energy	–309 000	–356 000
Settled against public utility's overdraft facility:		
Appropriation funds withdrawn	–250 000	–290 000
Dividend paid in	309 000	356 000
Balance carried forward	**31 393**	**48 651**

18 Prepaid expenses and accrued income

	Group 2004	Group 2003	Parent entity 2004	Parent entity 2003
Prepaid expenses, optical fibre cable	0	5	0	5
Prepaid expenses, maintenance	3	15	3	15
Prepaid expenses, miscellaneous	8	13	7	8
Accrued income, Network	210	173	210	155
Accrued income, System responsibility	60	45	60	45
Accrued income, miscellaneous	10	5	10	5
Total	**291**	**256**	**290**	**233**

19 Provision for pensions

The pension provision has changed in the following way during the course of the year. During 2003, the part of the pension provision that is for supplementary retirement pensions, KÅPA, was redeemed by Svenska Kraftnät. Subsequently, premiums have instead been paid for this part.

	Group and Parent entity 2004	Group and Parent entity 2003
Opening balance	195	190
Pensions paid	–2	–1
Annual indexation	22	16
Redemption, KÅPA	–	–14
Provision for payroll tax	5	4
Closing balance	**220**	**195**

20 Interest-bearing long-term liabilities

	Group 2004	Group 2003	Parent entity 2004	Parent entity 2003
Liability to National Debt Office	559	665	559	665
Liability to credit institute	1	16	–	–
Loans, other external	1 863	1 986	–	–
Total	**2 423**	**2 667**	**559**	**665**

The liability to the National Debt Office is for the current bank overdraft. Of the other external loans, a total of SEK 639 (637) million falls due for payment after five years in the case of the Group and SEK 0 (0) million for the parent entity.

21 Interest-bearing current liabilities

	Group		Parent entity	
	2004	2003	2004	2003
Current part of long-term loans, other external	128	127	–	–
Total	**128**	**127**	**–**	**–**

22 Accrued expenses and prepaid income

	Group		Parent entity	
	2004	2003	2004	2003
System responsibility – Purchased balancing power	73	43	73	43
Loss power	68	60	68	60
Peak-power reserve	19	3	19	3
Transit compensation, net	21	19	21	19
Accrued salaries	24	18	24	18
Facility leases, maintenance	30	17	27	17
Preparedness activities	2	6	2	6
Interest expenses	2	4	2	4
Accrued expenses, other	12	44	12	14
Prepaid investments in optical fibre cables	8	–	8	–
Prepaid income, power reserve	15	–	15	–
Prepaid income, other	3	4	3	4
Total	**277**	**218**	**274**	**188**

23 Contingent liabilities

A guarantee has been issued for a loan of SEK 20 (20) million to STRI AB for the acquisition of a property.

In the parent entity's assessment, Svenska Kraftnät and its subsidiaries are not party to any legal material proceedings that could have a significant negative impact on the Group's result.

24 Future leasing commitments

Agreed future leasing fees fall due for payment as indicated below. All rental agreements are operational leasing agreements. The amounts in the case of the public utility also include commitments to the subsidiary Svenska Kraftnät Gasturbiner AB.

	Group		Parent entity	
	2004	2003	2004	2003
Within one year	257	279	290	311
Later than one year but within five years	266	444	396	575
Later than five years	6	7	170	203
Total	**529**	**730**	**856**	**1 089**

Proposed disposition of earnings

The Group's non-restricted equity amounts to SEK 2 770 million, of which the result for the year amounts to SEK 519 million. The Board of Directors proposes that no allocation be made to restricted equity. Of the parent entity's non-restricted equity of SEK 2 727 million, of which the result for the year amounts to SEK 476 million, it is proposed that SEK 337 million of the result for the year be allocated for dividend and that the surplus of SEK 139 million be carried forward.

Stockholm, 18 February 2005

Sven Hulterström
Chairman

Jan Magnusson
Director-General

Yvonne Gustafsson
Deputy Chairman

Viktoria Aastrup

Christer Samuelsson

Anna-Stina Nordmark-Nilsson

Tomas Bruce

Agata Persson
Staff representative

Dan Lems
Staff representative

Auditor's Report

The Swedish National Audit Office has audited the public utility Svenska Kraftnät's annual accounts, the consolidated accounts, the underlying accounting records and the administration of the management for the financial year 2004.

The management is responsible for ensuring that the operations are conducted efficiently and constitutionally. This responsibility includes ensuring that the Government receives reliable feedback on the operations in the annual accounts. It is the responsibility of the Swedish National Audit Office, in accordance with good auditing standards, to examine the authority's annual accounts and consolidated accounts with the aim of judging whether the accounts and underlying accounting records are reliable and the books true and correct, and whether the administration of the management follows applicable regulations and special decisions.

The audit has been conducted in accordance with sound auditing standards. These standards require that the audit be planned and conducted with the aim of obtaining reasonable grounds to assess whether the annual accounts and the consolidated accounts are true and correct. The audit has thus been made on a selection of important transactions and administrative decisions.

The audit carried out has provided reasonable grounds on which to base the following statement.

The annual accounts and the consolidated accounts have been prepared in accordance with the Ordinance on annual accounts and budget data, the Government's appropriations document and other rulings relating to the authority.

The Swedish National Audit Office hereby deems that the annual accounts and the consolidated accounts are in all essential respects true and correct.

Director of Auditing, Kerstin Jönsson has passed judgement in this matter. Director of Auditing, Göran Selander has acted as the especially appointed submitter.

The Auditor's Report of the National Swedish Audit Office was submitted on 28 February 2005.

Kerstin Jönsson

Göran Selander

Increased reliability – experience and measures in the wake of the outages

The power outage in Southern Sweden and Eastern Denmark on 23 September 2003 was the most major disruption on the grid for 20 years. The event was to become one of a close succession of major outages throughout the world. It is a given objective that managers on different levels will make use of the experience and lessons accruing from these events. It is a case here of not just reducing the risks of the same thing happening again, but also of creating increased robustness, something which will also assist us in coping with new and unforeseen contingencies.

In November 2003, Svenska Kraftnät published its final report on the outage (available in a brief version at www.svk.se). It contained an analysis of the course of events as well as proposed measures totalling eight points. The results of this are set out in what follows. The objective is to increase the reliability of the national grid, and of the comprehensive system level, so that extensive disruptions become even rarer. The measures should be seen in the light of ongoing efforts directed at both new and re-investments in grid facilities and replacement programmes aimed at using better components and support systems. Additionally, methods and expertise are gradually being developed in order to effectively be able to deal with the reliability oriented work.

Rules for maintaining reliability

The ability to withstand rapidly arising contingencies is being tested on the system level by means of simulations and calculations, ahead of decisions regarding the reinforcements or how heavily the networks can be loaded during operation. One common method is to safeguard the electricity system's resistance to losing any of its most important components (the n-1 criterion). By applying this, in principle, simple method to the most strained operational situations, the system will obtain an inherent capacity to cope with more severe disturbances as well (n-2, n-3 etc.), when less heavily loaded.

The analysis of the course of events of the disruption on 23 September 2003 showed that the strain that the grid was exposed to was far more severe than it could be expected to cope with. In comparison with the applied n-1 criterion, what happened can on the whole be described as about three times more severe. Thus, it has been concluded that the grid was being utilized well within the limits of current grid security rules.

It has still been deemed justifiable to review these rules against the background of society's increased susceptibility to power outages. A study is thus being conducted on the Nordic level which will show whether or not the rules need to be modified. A preliminary result is that it can hardly be justifiable to generally tighten up the requirements to an n-2 level. On the other hand, the work indicates the importance of the grid security rules being applied in a consistent way and reliability risks, in unusual situations, being noticed and remedied systematically.

During the severe storm in January 2005, the lines of the national grid coped with the strain caused by the wind. The design principles are on a par with international standards. In several countries, a review is being conducted with regard to anticipated climatic change, with more frequently occurring severe weather conditions. Svenska Kraftnät has initiated a study to survey the need for an augmented dimensioning.

Transmission capacity augmented

The transmission capacity of the grid is closely associated with its reliability. Further augmentation of the transmission capacity to Southern Sweden had been under discussion even before the outage occurred, against the background of the supply security during periods of high consumption and electricity market conditions in general.

The outage added extra weight to the reliability reasons for augmenting the grid capacity through a new link from Central Sweden down to Scania. One project - the Southern Link – has been launched and studies are ongoing regarding the choice of technology and possible line routes. The intention is that an investment decision will be made during the first half of 2005, with commissioning 2009-10.

Further improvements in reliability as well as the possibility of utilizing transmission capacity can be achieved by establishing advanced system protection schemes which can monitor critical system states and activate remedial measures. Such systems, featuring sufficient reliability, will be possible through new technology soon becoming available for detection and communication. Studies have been initiated within Svenska Kraftnät and Nordel to evaluate how such system protection functions should be designed and optimally utilized.

Switchyards being rebuilt at Horred and elsewhere

Switchyards are of great significance to the grid reliability. In the event of faults on the network, the affected parts should be disconnected immediately to prevent personal injury or damage to plant and equipment. Important switchyards are built in order to be able to be divided up so as to minimise the extent of disconnections

during faults. At the Horred switchyard, on 23 September, both a component failure and a subsequent fault arose leading to the entire switchyard being disconnected. This weakened the network too much. By means of a minor modification at Horred during the summer of 2004, the risk of this ever happening again was eliminated.

Many switchyards on the grid are today 30-40 years old. Individual components have been gradually replaced, but the auxiliary systems and the logical design are antiquated in many cases. They are thus in need of general renovation. Using new technology for circuit breakers, for instance, switchyards can today be built using fewer critical components, primarily disconnectors, and with a more secure structure. An extensive programme to renew the important switchyards has been embarked upon and will be conducted at the rate of two rebuilds per annum. There will be prioritization with regard to the switchyards' age and condition, as well as with the intention of eliminating, as soon as possible, any identified reliability risks.

Requirements concerning electricity production facilities

In order to retain the cohesion of the power system during severe disruptions, it is not enough that the grid's various parts are working perfectly. The power plants' behaviour and resilience during disturbances are of exceptional significance as to their ability to support the grid and avoid unnecessary disconnection, thereby entailing severe consequences for the system. At the same time, power plants must be protected from costly damage during all too turbulent courses of events by disconnecting themselves from the grid. During the restoration phase following an outage, power plants must be rapidly available in order to be able to supply reconnected consumers with power.

The technical conditions governing how the collaboration between the grid and the power plants is to be conducted during critical situations must thus be clear. Svenska Kraftnät has intensified the previously commenced work of surveying the technical requirements needing to be met and regulated in the form of a mandatory directive. As part of this work, particular attention has been paid to the major production plants' capability to transfer to house turbine operation during severe disturbances. The aim is that they will rapidly be able to return to full production when reconnected to the grid.

Clearer control of maintenance

Extensive outages are usually due to a sequence of minor faults or events which, taken separately, would not necessarily be crucial to the electricity system. A simple but effective strategy for avoiding ma-

jor outages would thus be to minimize, through careful maintenance and renewal of the plants, the occurrence of faults.

Maintenance of its plant stock is an activity of central importance to a network operator, with regard to economics and reliability. At an early stage, Svenska Kraftnät carried out procurements, by means of open competition, of all its maintenance services. This has proven to be very cost-efficient, but the time is now right to test whether or not the conditions are changing, so that this approach will need to be modified. The average ages of the plants are rising, especially on the transmission line side. The maintenance contractors' fields of activity and expertise are changing. Certain shortcomings have been established in the routines for updating maintenance instructions and reporting faulty components.

In the view of these circumstances, Svenska Kraftnät has completed an investigation into which focus the maintenance operation should have. The conclusion is that there is no reason to change the model of procuring the maintenance services. On the other hand, Svenska Kraftnät needs to control and monitor maintenance measures in a clearer way. This requires increased efforts by personnel, with relevant technical expertise. An augmentation of the maintenance organisation has thus been decided upon.

Reduced risk of faults in disconnectors

Disconnectors are, technically-speaking, simple components, but they are often afflicted by faults and the cause of disturbances. For that reason, an extensive programme of measures had already been launched prior to the outage on 23 September 2003. The disconnector fault which then occurred at Horred caused the programme of measures to be extended to include several other types of disconnectors and damage risks. In doing so, a total of several hundred disconnectors will be rectified by 2006. A program for specially inspecting and replacing critical circuit breakers has also been embarked upon.

Restoration, reliable remote control

A significant reliability factor is the ability to rapidly restore the power supply following an extensive outage. For the national grid, there is a clear strategy for restoration, which was applied on 23 September 2003, among other occasions. It is based upon a large number of personnel and technical functions having to function in a very strained situation.

A combined project for both reviewing and practicing routines for restoration is being conducted under the working name of "Start Sweden up". A necessary part of the project is the collaboration and joint training courses with operation managers of the country's production and regional network companies.The real time simulator Aristo, developed by Svenska Kraftnät, is a central resource in these training courses.

During restoration, the substations must be able to be remote controlled. There is a risk of the stations' power reserve being depleted during a complicated and time-consuming restoration. Thus, Svenska Kraftnät has decided to augment the battery capacity of the grid stations so that it will last for at least twelve hours. At important stations, the reserve power supply is also augmented by a diesel unit.

The disruption on 23 September revealed a shortcoming in the installation of telecommunications equipment, which put the remote control function out of action at one station. The reason for this has been clarified and dealt with. An inventory is being compiled regarding what may need to be done at other stations to eliminate similar problems.

Cooperation and information

In an international perspective, the power outages in the US/Canada and Italy, in particular, have shown the importance of operational management on different sides of national or organisational boundaries having a well-developed cooperation and exchange of information. These outages, which affected over 100 million people, could have been avoided through coordinated action at the right time.

In the Nordic area, a high degree of operational cooperation is built into the system operators' reciprocal relationships. Nordel's committees lay down joint rules as in the current system operation agreement, for instance. On a daily basis, checks are made as regards reliability conditions allowing which transmission capacity may be used in NordPool's electricity spot market. The joint balance regulation requires hourly contact between the system operators' operating managements. This work structure develops a cooperation habit which can be crucial during critical situations.

In order for the responsible operating managements to be able to perform their duties in the electricity system under all circumstances, it is necessary that the support systems, in the form of control centres and telecommunications, works. Svenska Kraftnät is working on devising a recommended technical standard for the industry which will be needed to ensure the monitoring and control of the electricity system's entirety and parts under different forms of stress and strain.

The provision of information to public institutions and the public is a strategically important task during outages. Experience of the outage on 23 September showed the need to improve the ability to effectively disseminate information under such circumstances. Routines have been revised and internal exercises have been conducted.

Conclusion

When the measures initiated by Svenska Kraftnät, both as a consequence of the outage in 2003 and for other reasons, have been implemented, the reliability of the grid and the electricity system in general will have improved considerably. Calculations show that the anticipated time between very extensive outages due to faults on the national grid could double – or to put it another way – our reliability will double.

Svenska Kraftnät and the environment:

A strong commitment to the environment

Svenska Kraftnät's vision for the coming three-year period shows that we have a strong commitment to the environment within the company. Additionally, we will be investing in R&D focusing on the environment. One important area to develop concerns the electrical and magnetic fields around our power lines and stations. We describe here some of the projects we have been working on during the past year and which concern current environmental issues.

For several years now, we have been participating in development projects to produce new types of lines which affect their surroundings as little as possible. We have also tested, in practice, various solutions to problems that local residents experience from existing power lines. Also during the coming years, development work in this field will be prioritized.

We are also working with the prevention of other environmental impacts resulting from our operations. For instance, the visual aspects are important when developing new facilities. Furthermore, we are continuing to strive towards having and emitting less environmentally-harmful substances.

New pylons produce weaker magnetic fields

In built-up areas, we sometimes choose to erect compact pylons which have a very small footprint. The three phase conductors are located in a triangle, entailing that the magnetic field is considerably lower than with normal pylons.

Even when using compact pylons, it can be difficult in very tight situations to obtain an acceptable level for the magnetic fields in adjacent dwellings. In such situations, a split phase pylon is one possible solution for further reducing magnetic fields. The split phase pylon is a variation of the compact pylon whereby at least one of the phases is carried on two conductors. However, these pylons are considerably more expensive than other constructions, which is why their use is limited.

In the Hallsberg area, we rebuilt an old 220 kV line during 2004. On certain parts of the route, the line comes close to housing estates. Here, we have especially designed the pylons to reduce magnetic fields. By locating the phases in a triangle and closer together, we have been able to halve magnetic fields. The compact design, however,

During the dismantling of a 220 kV line, the pylons were flown by helicopter to a specially-prepared site …

… where they were cut down into smaller sections and loaded into skips. The ground was covered with sheets so that flakes of red lead and cutting residue could easily be gathered up. The sections of pylon were then recycled.

increases the risk of a corona (discharges which cause noise interference), which is why we have increased the dimension of the phase conductors.

In accordance with the wishes of a borough administration in western Stockholm, we have rebuilt two sections of an old 220 kV line. The line passes close to a school, a daycentre, and houses. On the existing pylons, the phase conductors have been rearranged so that they form a triangle. This location of the conductors together with the short phase distances has cut magnetic fields by about 60 percent.

EU directive regarding employee exposure

The EU has issued a directive aimed at protecting employees from the health and safety risks which can arise during exposure to electrical and magnetic fields at work. In order to prepare ourselves ahead of the upcoming Swedish legislation and obtain more knowledge about what these requirements will mean for our operations, we have initiated studies in this area.

The directive covers known and immediate effects on the human body caused by induced and contact currents. The long-term effects of exposure to electrical and magnetic fields are not included. Threshold values are specified for induced current density in the human body. As it is difficult to measure currents in the body, the EU has also specified reference values for field forces, which have been calculated on the basis of the threshold values.

During 2004, STRI AB, as commissioned by Svenska Kraftnät and Statnett of Norway, studied methods which can simply calculate the induced current density. This is important in order to be able to assess the relationship between the threshold values (for the induced current density) and the reference values (for the field strength).

In a couple of other studies conducted during the year, measurements and calculations have been made regarding power lines and switchyards in the national grid in order to determine whether these facilities will be able to cope with future threshold values for exposure. Results indicate that the magnetic fields caused by our facilities are very much weaker than the EU reference values, whereas the strength of the electric fields could lie around the specified levels.

The calculation of induced currents in the human body and methods of measuring electric fields are urgent areas for development. We will continue working with these during 2005 as well.

New solution for transition between overhead lines and cables

In the future, it will probably also be appropriate to lay underground cables for 400 kV in metropolitan areas. This primarily applies to the Stockholm area, where even today there are underground cables for 220 kV. Usually, cables are laid along sections of the route close to developed areas, while the rest of the line is overhead. This entails transitions between the overhead line and the cable. Today, these transitions are built in enclosed switchyards which take up a lot of space.

At our request, STRI AB has conducted a pre-study wherein proposals are described regarding solutions that will reduce the level of land encroachment by having the cable transition on a compact pylon without an enclosure. The solution requires technology for dry (oil-free) cable terminations to be developed. The next step is to develop a prototype. Then, further development will be needed before the technology is ready to be commissioned.

Material recycled when old equipment is dismantled

When procuring construction services, we require the contractor to sort all waste by source and ensure that the material is recycled whenever possible. Dangerous waste is to be separated out and competent companies are to deal with it. Following completion of the project, the contractor is to indicate how the waste has been dealt with.

Rebuilding of the Hemsjö 400 kV switchyard in the County of Blekinge is one example of a project where almost all the material from the old switchyard has been recycled. The scrap metal was sorted – into copper, brass, bronze, aluminium, and steel – and sent to smelting works and steelworks. About 450 kg of lead batteries were sent for recycling, as were 2,000 litres of oil. Dangerous waste in the form of PCB-contaminated oil and mercury from lighting sources was sent to an approved company for special processing.

A fire-damaged transformer from the converter station at Lerum, northeast of Gothenburg, was scrapped during the year. In this case, too, almost all the material could be recycled. The transformer contained 21 tonnes of copper which was granulated and sent as alloying metal to

In western Stockholm, a 220 kV line has been rebuilt in order to reduce magnetic fields.

On the initiative of the landowner, a foundation from the old line built in the 1920s was saved and a commemorative plaque was put up.

foundries. The electroplate which formed the core of the transformer was shipped to India where it was punched out to make plate for use in small transformers. Steel plate from vessels was sold on the world market and wood and paper residue went to heating plants for energy recovery. Breakers containing mercury were sent for special processing and excess oil was dealt with by environmentally-certified processing companies.

During the year, we dismantled a 220 kV line dating from the 1920s. The approximately 280 pylons were made of steel and painted with red lead. To avoid the risk of red lead contaminating the countryside, we dismantled the pylons using a helicopter. Then, the pylons were flown to a specially prepared site where they were cut down into smaller sections and loaded into skips. There, the ground was covered with sheets so that flakes of red lead and cutting residue could easily be gathered up. The sections of pylon were then recycled.

Species-rich power lanes surveyed

Since 2002, we have been conducting various activities in order to adapt the management of the power lanes. In doing so, we can take into consideration the environments which are especially sensitive and thus benefit biological diversity.

During the past year, we have made a survey, using GIS (geographic information system) technology, of which of our power lanes are of greatest interest with regard to biological multiplicity. Using various indicators, e.g. geology and registered habitats for protected species, we have identified the power lanes thought to be most species-rich and thus of interest to proceed with.

In the summer of 2004, we also trained forest inspectors in biological diversity. Twelve forest inspectors were trained in order to help us, in the future, to find valuable biotopes along the power lanes and propose a suitable style of management for them.

For the third year in a row, the Institution for Conservation Biology at the Swedish University of Agricultural Sciences (SUAS), has made an inventory of the flora on a number of sample plots along some of our power lanes. The SUAS is conducting trials on these sample plots using different types of management. The objective is to see if species linked with meadows and pastures will benefit from a changed style of management.

Committed co-workers and good routines

During the year, we introduced an environmental management system, in accordance with ISO 14001, for the sections of Svenska Kraftnät's operations having the largest impact on the environment. Primarily, it is

our facilities that are involved, where work on investment projects and maintenance has now been provided with improved routines. Civil duty training at Åsbro is another sphere of activity where augmented environmental routines have been produced. To conclude the project, there was an environmental audit, the result of which will form the basis for the continuing work on environmental improvements to our operations.

One prerequisite for smoothly-functioning environmental work is committed and skilled co-workers. Svenska Kraftnät's objective is that all staff will be given basic environmental training. During this training, the most important global issues will be dealt with, as will the environmental impact of our operations and our environmental work. During the autumn of 2004, we held a new round of these training courses for co-workers who have been hired during recent years. A total of fifty or so co-workers took part in the three courses.

Environment and economics

When reporting Svenska Kraftnät's environmental costs and environmentally-related investments, we have applied the definitions that Statistics Sweden uses when investigating corporate expenditure on environmental protection. This expenditure relates to measures and activities where the main purpose was to prevent, reduce, or eliminate a negative environmental impact.

Some environmental data	**2004**	**2003**	**2002**
Energy losses, proportion of exit energy, %	2,2	2,1	2,2
Emissions of CO_2, own gas turbines, tonnes	1892	40 297	3 611
Emissions of sulphur, own gas turbines, kg	852	21 901	1 995
Emissions of nitric oxides, own gas turbines, kg	4138	197 913	8 133
Volume of replenished SF_6 gas, kg	18,5	21	31
Emissions of SF_6 gas, proportion of installed volume, %	0,1	0,1	0,2
No. of business trips per employee per annum	9,9	9,3	10,7

Environmental overheads for 2004 (kSEK)	
Environmental management	181
Environmental training	55
Oil decontamination	90
Decommissioning and decontamination, pylon depository	100
Environmental impact analysis, switchyard	20
Soil analyses, Hallstavik	116
Biological diversity, training and measures	197
Environmental surveys relating to fish, SwePol Link	549
R&D	
– Electrical and magnetic fields, Elforsk and STRI	763
– Compact pylon for 220 kV, STRI	240
– Cable transition to pylon 400 kV, pre-study	290
– Biological diversity in power lanes	100

Environmentally-related investments 2004 (kSEK)	
Measures to reduce magnetic fields	3 500
Renovation of back-up diesel generators, Råcksta	100
Dismantling of pylons using helicopter	500

A vision for Svenska Kraftnät and the electricity market in 2007

How should Svenska Kraftnät and its operations look in three years' time? Under which conditions will we be working? Which improvements do we want to make in a three-year perspective?

These are some questions that we at Svenska Kraftnät have been asking ourselves over the past year. We have done internal work to create a vision of developments in the energy sector and for our company during the coming years. The working name was "SvK 2007". Here we account for the parts primarily applying to external developments.

Electricity increasingly important

Modern society's dependence on electricity will further increase demands for a very good grid reliability in the future.

In 2007, the growth of the electricity market has continued, especially on the continent of Europe. The European Commission and the regulatory authorities have been the initiators of this. This has entailed a more stringent system of rules, for instance for the grid operators. No one here in the Nordic area has really felt any great need for this, but European developments also apply to us. To bring about a smooth adaptation to and application of the rules, we have retained and developed close and beneficial collaboration with authorities and trade associations.

The organisation for co-operation between the Nordic system operators, Nordel, has been active as regards the further development of an integrated and harmonised Nordic electricity market. We have reached a decision regarding a package of extensive investments to boost the capacity for power transmissions between the Nordic countries. We have also introduced a Nordic market fee. This enables us to take and finance such measures as the market players would like to see implemented over and above what is needed for the physical transmission of power.

In Sweden, the electricity industry has implemented a raft of measures aimed at improving the electricity market's functionality – thus restoring the industry's good reputation. Among other things, a central facility register has been established enabling changes of supplier to take place without problems. Svenska Kraftnät has taken part in and supported the industry associations in this work, without assuming their responsibility.

Balance in electricity production

Several new production facilities have been decided upon and, for these projects, appropriate preparedness and security measures have been taken. Large groups of wind power plants have come into existence in Southern and Central Sweden.

The electricity companies collaborate actively with customers who, in exchange for compensation, are then able to reduce their consumption during consumption peaks in the country. The trade in power has started up. Thus, an extension of the transitional solution for the power reserves is not deemed necessary.

Extended sphere

In 2005, Svenska Kraftnät will become the system operator in the natural gas sphere.

A major expansion of the natural gas network in Sweden is being planned and we will have an important role in promoting the growth of this additional infrastructural system.

The trade in renewable energy certificates is extensive and includes both Sweden and Norway. Several European countries are *en route* to joining the system.

Major grid projects ...

Svenska Kraftnät is busy implementing a number of major grid extensions: Nea – Järpströmmen, Fenno-Skan 2 and the Southern Link. For a number of years now, our substations are undergoing renovation at the rate of two per annum. This will entail a halving of the risk of outages originating from the national grid.

Renovation of the power supply in the Stockholm region has been decided upon and is under way. The new network is more reliable as well as more environmentally-friendly.

... providing more robust networks

The robustness of the grid and the entire power supply system has also improved due to durable auxiliary power being installed at all major production and network facilities.

The outage strategy for the grid has been refined, now enabling us to adapt more rapidly to the prevailing conditions. In doing so, we will constantly be able to create margins that are as good as possible for dealing with any faults arising.

Augmented maintenance measures have entailed that the performance of grid facilities has been retained, despite increasing age.

Operational cooperation with Germany and Poland has evolved and is now just as good as with the Nordic countries.

A joint mobile radio system for the Swedish electricity industry is currently being established.

Electrical safety continues to have a high priority. No serious accidents have occurred.

Strong commitment to the environment

Electromagnetic fields from power lines continue to be the dominant environmental issue in our operations. A balanced standard value for magnetic field exposure has been established, creating clear prerequisites for the planning of facilities.

Svenska Kraftnät has continued to work with preserving and reporting on biological diversity in its power lanes.

We have commenced an environment-oriented R&D programme, where the focus will lie on developing new environmentally-friendly technology. The objective is to create new types of lines meeting requirements regarding weak electrical and magnetic fields which at the same time blend into the environment well. For our stations, we support the development of new technical solutions, and environmentally-adapted products and materials.

More development

Svenska Kraftnät has been given increased responsibility for conducting R&D in power transmission. Among other things, we will be working towards realizing the results of this operation at demonstration facilities. Our endeavours are also beneficial to the growth of Swedish industry in this sphere.

Low tariffs and good contact with customers

Svenska Kraftnät continues to have low costs and tariffs. We have developed our market information and enjoy close and beneficial cooperation with our customers, partners, and other interested parties.

Yes, we would like the energy sector, our outside world, to be developed during the coming three-year period. When it comes to our internal operations, we have set targets regarding expertise development, equal opportunities, improved health figures etc. We will follow up, on an annual basis, how we are developing and approaching the goal of our vision.

Simulator supports the training of grid operators

Since 1996, the Aristo simulator has been used to train operators monitoring the power system from Svenska Kraftnät's control centres. This training increases understanding of phenomena limiting the power system's capability to transmit power and withstand contingencies. Using realistic role play, the operators are trained to deal with disturbances and restore the system to normal operation following critical faults.

The Aristo simulator is unique. Using a detailed level of simulation, both normal and extreme operating conditions can be covered. The interactive interface and exercises conducted in real time provide great freedom to experiment with different faults and show the consequences of these faults, as well as the measures the operator has to take. Since 2002, the simulator has been integrated into Svenska Kraftnät's ordinary system operation monitoring system, making training even more realistic.

Why train operators using a simulator?

We require our operators to be able to utilize the capacity of the power system efficiently. At the same time, the power system is becoming ever more complex, with sophisticated automated systems and protection. Deregulation of the electricity market has also entailed a broader division of the operational responsibility, in that the production responsibility and the network responsibility have been split between different companies. Major disruptions and breakdowns seldom occur, providing little or no natural training.

All of this means that operators need to train. A simulator with Aristo's characteristics, i.e. with the possibility of simulating a complex reality, provides operators with a unique training environment. In this environment, staff can practice normal as well as disturbed and extreme operating conditions.

Started out as an R&D project

The idea behind the simulator emerged from experiences gained from the extensive disruption in 1983. Would it be possible, as regards training operators, to simulate such complex conditions? Thus, an R&D project was started up at the Royal Institute of Technology in Stockholm, supported by the then Swedish State Power Board. In 1990, the project resulted in a prototype on which faults with a rapid course of events could be simulated and studied in real time speeds at reasonable cost.

In a new project, Svenska Kraftnät completed the first version of its new simulator in 1993. Ever since then, this simulator has continued to be developed. In parallel with this, a detailed network model of the entire power system was produced and is now in use in Aristo.

Both rapid and slow courses of events can be simulated

In Aristo, speed and robustness are combined. The simulated power system can be subjected to serious faults. By means of calculations made in the simulator, the faults can result in lines and other facilities being disconnected, the network being divided up into electrical islands, or in a breakdown – either entire or partial. During and after the course of events, the operator can take measures to try to limit the disruptions and restore the system to normal operation. Aristo can simulate all of this continuously, without needing to be halted.

Using Aristo, we can study a power system's ability to cope with both rapid and slow courses of events. The simulator is so fast that the situation being simulated is calculated 50 times a second.

In Svenska Kraftnät's ordinary system for system operation monitoring, the current status of the network can be stored. This can then be transferred to the simulator environment and used as the basis for simulations. A special event occurring in reality can thus be stored and used to train operators.

The major disruption of 2003 analysed using Aristo

A good example of an area of application is the major disruption in Southern Sweden on 23 September 2003. This was analysed using Aristo. The course of events could be simulated sufficiently accurately to explain the breakdown and provide good supporting data for the report which Svenska Kraftnät published after the disruption. Besides this, we also obtained answers regarding what would have happened under other different states of operation, and drew important conclusions from this. This scenario can now also be used during training.

In the models used in the simulator, most of the equipment used in the real power system can be represented. For instance, switchyards with an, in principle, arbitrary design can be created. Svenska Kraftnät's model of the Nordic power system now has almost 3,000 switchyards and connection points and 1,400 generators. Almost 20,000 circuit breakers and disconnectors are represented.

Training environment resembles reality

The training environment at Svenska Kraftnät is built around two subsystems, the Aristo simulator and the training environment of the ordinary operational monitoring system. In 2002, these were completely integrated with each other. This enables us, in the training environment, to utilize

almost all the functions and associated images that the operators normally have access to in order to be able to monitor, control, and analyse the power system. Thus, the operators see very little difference between the real environment and the training environment.

The practice systems are located in training premises where there is a replica of all operators' workstations in Svenska Kraftnät's national control centres. Normally, two workstations are used; one for the instructor and one for the operative being trained. During major training exercises, the environment is supplemented with more workstations.

The Aristo system is also available for training at other locations in Sweden, Norway etc.

About 3,000 hours of instruction during 2004

During 2004, Svenska Kraftnät held fifteen or so different courses for operators, totalling about 3,000 hours of instruction. About 75 percent of these hours were used on our own control centres and operating staff, while the rest were used on other staff from Svenska Kraftnät and from external companies.

Half of the training courses were simulator-supported, while the rest consisted of lectures, practical exercises, and self-tuition. The simulator-supported part has increased considerably over the past two years. In total, all training corresponds to about five working days per operator per annum, and two to three days for other operating staff.

The most appreciated and important training courses conducted include joint exercises with the staff of Statnett, Svenska Kraftnät's counterpart in Norway. Several different disruption scenarios of varying severity have been drilled using role-play with students and instructors from Statnett, as well as ourselves.

We hope and believe that this form of joint exercise will increase in extent during coming years. Hopefully, more of the system operators of the Nordic area will take part, as well as other network and production companies in Sweden.

Kenneth Walve (left) and Lars Karlström are two of Svenska Kraftnät's instructors on courses where, among other things, the Aristo simulator is used.

Lena Johansson, Fredrik Wik (centre) and Tobias Larsson, all from Svenska Kraftnät, regularly train in managing of power system events using the simulator.

Different types of Aristo training

Comprehension training	The simulator is used to illustrate different phenomena in the power system. The instructor can set up disturbances of various types and demonstrate the consequences. The instructor and the student are free to experiment with various measures in order to see and understand the best way of restoring the power system to normal operation.
Role training	The student takes on the role of the operator. He or she will then be able to see events occurring in the power system, contact people by phone, and perform switching etc. Several groups of operators can be trained at the same time. It could be a case of the duty engineer and the operation manager of Svenska Kraftnät training together with operation managers from, for instance, companies responsible for regional networks and electricity production.
Crisis training	Here the focus is on one or more crisis and management groups training in how to collaborate and deal with the mass media and the authorities, for instance. Using the simulator, the course of events of the exercise will be facilitated greatly as more realistic times are taken into account. The consequences of the events and the orders issued can be shown and become natural elements of continued training.

Endeavours in expertise development

Within a five-year period, about fifty or so of our staff will have left Svenska Kraftnät due to retirement. For the same reason, a third of our workforce of almost 300 will have left our employ in about ten years. Additionally there is normal staff turnover, whereby our people move on to other employers.

Vigorous endeavours in measures enabling us to avoid suffering a lack of expertise and manpower in the future will thus be necessary.

At Svenska Kraftnät, this work has focused on three areas:

- Age distribution will increase through the recruitment of younger co-workers.
- All our staff will have a documented personal development plan based on a thorough analysis of their expertise.
- We will actively work towards planned transfer of expertise, from senior to junior co-workers.

Analyses form the foundation

We are continually analysing the experience and expertise of all our staff who will be leaving us within a five-year period. We will then be assessing which knowledge is company-critical and must be transferred, in some way, to our other employees.

One to two years before a person retires, we will assess which activities have to be conducted in order for important know-how to be retained within Svenska Kraftnät. In some cases, it might be a question of bringing recruitment forward so that the new employee will have time to ”pair up” with the old one. In other cases, more long-term planning will be required, with a number of activities such as courses, seminars, documentation and agreements regarding the transfer of knowledge to other employees.

Tobias Larsson (right) is happy to listen when Kenneth Walve shares his knowledge of the Swedish power system. ”We at Svenska Kraftnät think it’s important to transfer the expertise of those of us approaching retirement to our junior collegues”, says Kenneth.

– I think it's very stimulating to share my knowledge with others, says Kerstin Larm-Lundgren working in Svenska Kraftnät's Settlement and Market Support Unit. She is pictured here together with Birger Fält who also works in the Settlement Unit.

Important to preserve experience

One of our most experienced employee, Kenneth Walve, emphasizes the importance of planned expertise development.

– For thirty years, I have been accumulating experience and knowledge regarding factors of significance to the reliability and dimensioning of the power system. It is important that this experience is preserved so that problems in the electricity network, for instance, can be managed even more effectively in the future. Among other things, Svenska Kraftnät has to realize previous ideas and reuse methods of creating a power system which is more resilient to disruptions, says Kenneth.

– I myself work with the transfer of experience and knowledge in various ways. I hold courses both internally and externally on the dynamics and technical solutions of the power system. I write reports which others can read regarding the events and the various phenomena of the electricity system, as well as showing how these can be managed during operation. It is also important to work together and openly collaborate and solve problems together with one's junior collegues, Kenneth tells us.

– It is important for the company to allocate time to transferring knowledge from those of us with lengthy experience to those who will be taking over. I am convinced that this will pay dividends in the long-run. It is also essential to give our experienced staff the chance to write reports and in this way "download" their experience to others.

Beneficial for the recipients as well

Tobias Larsson is one of our junior employees. He thinks that the systematic exchange of expertise provides a good opportunity and incentive for junior staff to acquire new knowledge, thus making their jobs at Svenska Kraftnät more interesting.

– I'm a recipient myself; I particularly need deeper knowledge of dynamic analyses and operating issues, especially regarding occasions when the electricity network has been exposed to severe stress and strain, says Tobias.

– It is a good thing that the company aims to implement expertise exchange in a planned way; I've been on a few such interesting courses myself. It is also important for me to work with one of our senior specialists on planned occasions. Then, we will be able to carry out analyses, as well as get involved in more theoretical discussions.

– For me it is important to adhere to the written plan drawn up between the person transferring the knowledge and myself as the recipient. If we do this, we will avoid the risk of losing our important knowledge and experience, something which in the long-run might impact upon our reliability, concludes Tobias.

Acknowledgement for important work

Kerstin Larm-Lundgren, who will soon be retiring, has been working actively for a long time with transferring knowledge and experience to other collegues in her department.

– For me, it is very stimulating to transfer knowledge to my successor. For this, my manager and I have reached an agreement. In doing so, I receive acknowledgement that my work has been very important and will feel greater satisfaction when I retire. It is also valuable for our junior staff to be given the sum total of my experience as this creates continuity in our operation, Kerstin tells us.

– I'm currently working with documentation and involving my colleagues. I appreciate the company focusing on this issue so that we can avoid "last minute" actions, with unnecessary stress as a result.

The Board

Sven Hulterström, Chairman
Born in 1938, apptd. 2003.

Other directorships: Chairman of AB Stokab

Yvonne Gustafsson, Deputy Chairman
Born in 1952, apptd. 1995, Dep. Chairm. 2001.
Director General, the Swedish National Financial Management Authority.

Other directorships: Bofors Defence AB, The National Government Employee Pensions Board, Nuclear Waste Fund, Styrelseakademien Stockholm

Viktoria Aastrup
Born in 1971, apptd. 2001.
Deputy Director, the Ministry for Industry, Employment and Communications.

Other directorships: Lernia AB, Förvaltningsaktiebolaget Stattum.

Tomas Bruce
Born in 1944, apptd. 2004.
MD of AB Tomas Bruce

Other directorships: Euroheat & Power, Capital Cooling Europé AB, AB Borlänge Energi, Laxå Pellets AB, Gaia Leadership AB, the Swedish Orienteering Association.

Anna-Stina Nordmark-Nilsson
Born in 1956, apptd. 2004.
Chief Executive Officer and Deputy Director of the Stockholm County Council.

Other directorships: Chairman of Södersjukhuset AB. Board member of Setra Group AB, Västerbottenkuriren AB, Feelgood AB

Christer Samuelsson
Born in 1954, apptd. 2001.
MD and Partner, Sensa Corporate Advisors AB.

Jan Magnusson
Born in 1948, apptd. 1998.
Director General of Svenska Kraftnät.

Other directorships: Chairman of Nordel, Dep. Chairman of Nord Pool ASA.

Agata Persson
Born in 1946, apptd. 2004.
Staff representative.

Representative of the Swedish Confederation of Professional Associations.

Dan Lems
Born in 1959, apptd. 2004.
Staff representative.

Representative of the Swedish Federation of Civil Servants.

Power industry terms

Ancillary services
Procured services, primarily from power producers, which are necessary for the technical operation of the system. These services primarily include frequency regulation and access to gas turbines as a emergency reserve.

Balance provider
Power trading company that has entered into a balance responsibility agreement with Svenska Kraftnät. Balance providers are obliged to ensure that a state of balance exists between the supply and consumption of power in respect of their undertakings.

Balance settlement
Svenska Kraftnät's calculation of the balance providers' imbalances on an hourly basis (balance power). This results in a financial settlement being produced every fourteen days in the form of an invoice (Svenska Kraftnät has sold balance power) or payment (the balance provider has sold balance power).

Balance power
The imbalance that the balance provider has caused in the national electricity system.

Constraint
Congested sector on the grid or cross-border interconnectors where the capacity to transmit power is less than the demand.

Counter trading
The purchase/sale of electricity by the system operator, i.e. Svenska Kraftnät in Sweden, to reduce the transmission of electricity in a constraint on the grid. Counter trading prevents customers from experiencing transmission limitations.

Final power
The difference between the actual, metered values after 14 months and the provisionally-calculated values.

Final settlement
Svenska Kraftnät calculates the difference between the balance providers' actual deliveries to profile customers (customers whose consumption is not measured on an hourly basis) and their provisionally-calculated deliveries to these customers. Final settlement means that the costs are redistributed between the balance providers.

Island operation
Entails an electricity system being operated locally within a limited geographic area (production, transmission and consumption). The area may have been disconnected automatically from the rest of the network or planned for island operation.

Load frequency control
Svenska Kraftnät is responsible for permanently maintaining the frequency of the electrical grid at around 50 Hz. Deviations are compensated for via the rapid regulation of production.

Point of connection tariff
Charging model for utilizing the electricity network. The size of the charge is dependent upon, among other things, the connection point's geographical location.

Profile settlement
A model for calculating and distributing the volume of consumed electricity not measured on an hourly basis. In doing so, deliveries can be distributed among the players concerned.

System protection
A system for boosting transmission capacity and/or operational reliability. For example, system protection exists on the DC links between Southern Sweden and the Continent. System protection immediately reduces electricity exports on the DC links if transmission levels in constraint 4 (a line running approximately from Oskarshamn to Varberg) risk becoming too high.

Spot market
Nord Pool's spot market, which is a marketplace for power. Agreements are made at lunchtime for all 24 hours of the following calendar day.

System-responsible company, System Operator
A company responsible for the reliability and balance of the national electricity system. Svenska Kraftnät has this role in Sweden.

Transit
The transmission, or transiting, of power via a "third country".

Transmission losses
The energy losses occurring in a network.

Definitions

Degree of self-financing
The degree of self-financing is defined as the cashflow prior to changes in the operating capital and investments in relation to the investments for the year.

Debt-equity ratio
The debt-equity ratio is defined as interest-bearing liabilities divided by adjusted equity including minority shares.

Earning capacity of adjusted equity
The earning capacity is defined as the income for the year with deductions for standard tax (28%) divided by adjusted equity defined as the mean value of the restricted equity at the start of the year and at yearend (treasury capital and restricted reserves) and 72% of the unrestricted equity.

Earning capacity of employed capital
The result for the year plus interest charges in % of the average employed capital, i.e. the balance sheet total less non interest-bearing liabilities including deferred standard tax in equity.

Earning capacity of total capital
This earning capacity is defined as the ratio between the income for the year plus interest charges, and the total average capital.

Equity/assets ratio
The equity/assets ratio is defined as the adjusted equity at yearend divided by the total capital. Adjusted equity is defined under Earning capacity of adjusted equity above.

Net loan liability
Allocation and interest-bearing liabilities with deductions for financial interest-bearing assets.

Net profit margin
The income for the year with deductions for standard tax at 28% in relation to operating revenues.

Operating margin
Operating income in relation to operating revenues.

Times interest earned
The income for the year plus interest charges divided by interest charges. Specifies how much greater the income is when compared with the interest charges.

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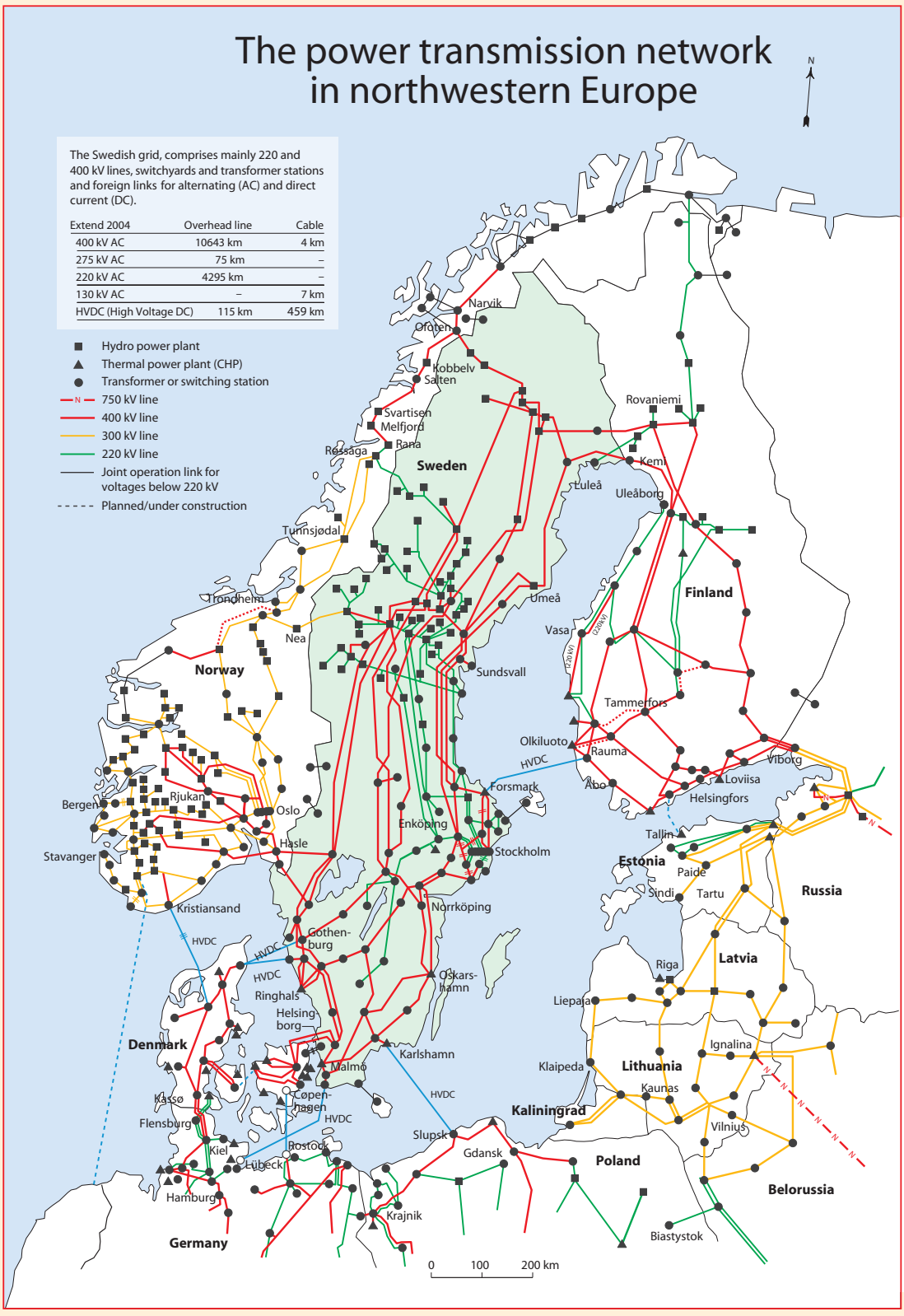
The power transmission network in northwestern Europe



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