



**PVO GROUP**

ANNUAL REPORT 1998

## **A N N U A L R E P O R T 1 9 9 8**

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## BUSINESS IDEA

The PVO Group is a privately-owned energy enterprise producing power and heat for its shareholders as well as offering solutions and services related to their procurement also for other customers, mainly major end-users and wholesale customers in Finland and its neighbouring countries.

KEY FIGURES*)		1998	1997	1996
Production	GWh	21 564	22 158	21 718
Turnover	FIM million	3 378	3 468	4 037
Growth	%	- 3	- 14	21
Operating margin	FIM million	1 061	1 092	1 298
as percentage of turnover	%	31	32	32
Operating profit	FIM million	532	457	670
Net financial expences	FIM million	- 316	- 307	- 428
as percentage of turnover	%	9	9	11
Net interest-bearing liabilities	FIM million	5 194	5 606	5 983
as percentage of turnover	%	154	162	148
Equity to assets ratio	%	46	42	40
Total assets	FIM million	13 680	13 949	14 403
Investments	FIM million	444	1 390	735
as percentage of turnover	%	12	40	18
Personnel, average		1 421	1 419	1 397

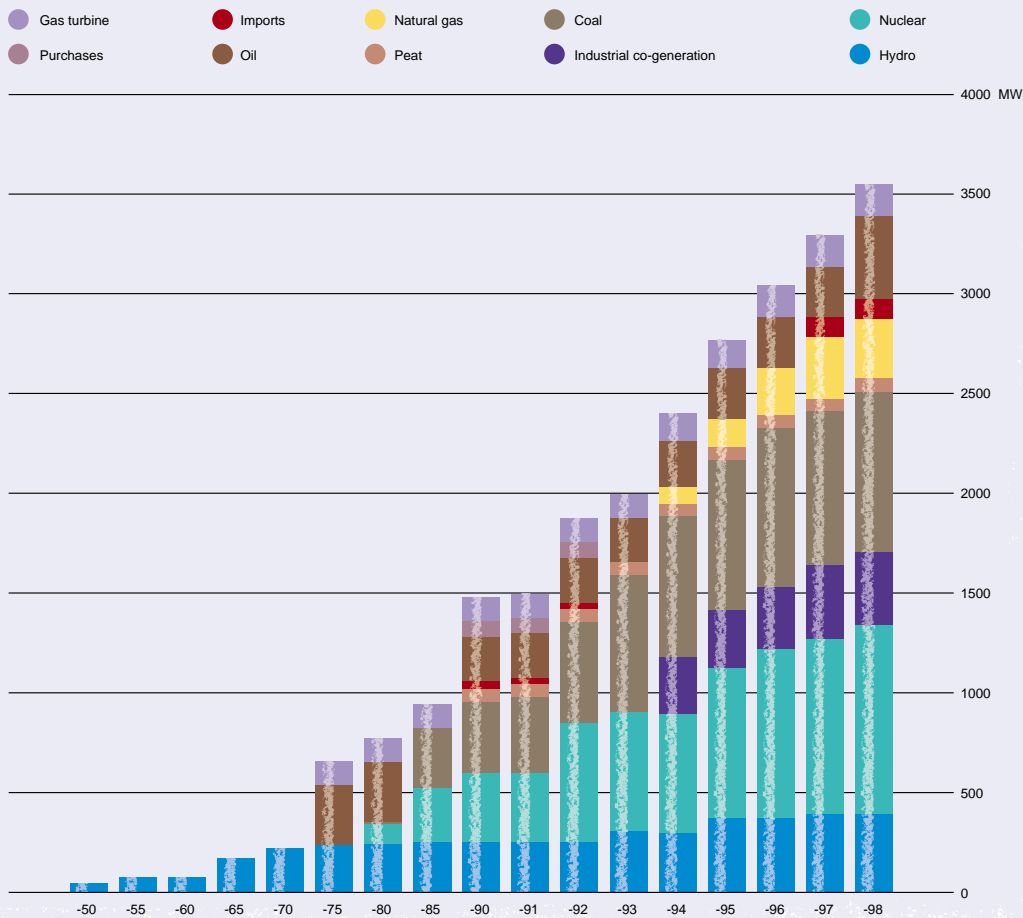
\*) Teollisuuden Voima became a subsidiary on 1 January 1998. The previous years' figures are pro forma.

## GROUP KEY FIGURES

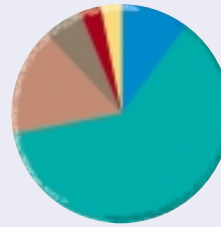
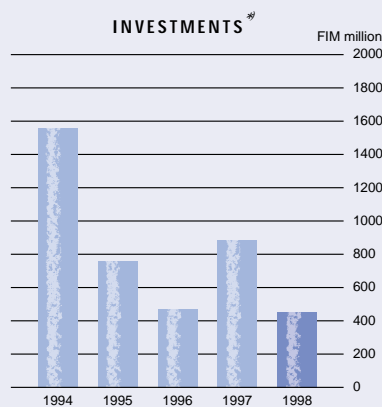
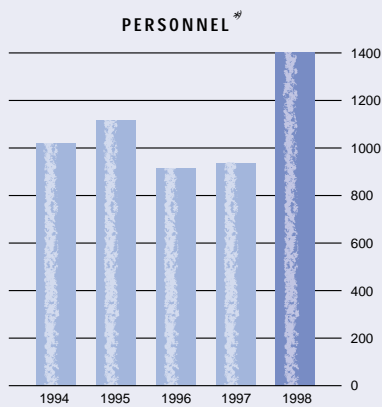
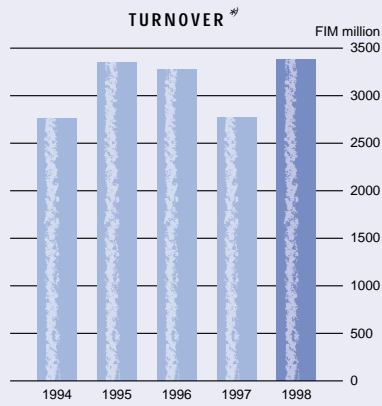
### SHAREHOLDERS AND DISTRIBUTION OF SHARES ON JANUARY 1, 1999

Shareholders	%	Shareholders	%
Ahlström Energy Ltd	0,5	Metsä-Serla Oyj	2,5
Etelä-Pohjanmaan Voima Oy	5,0	Mylykoski Oyj	1,4
City of Helsinki	1,4	City of Oulu	0,1
Pension Insurance Company Ilmarinen Ltd	4,4	Perhönjoki Oy	1,7
Kemira Oyj + Neliapila Pension Fund	6,0	City of Pori	1,2
City of Kokkola	2,0	Päijät-Hämeen Voima Oy	1,3
Kotkan Energia Oy	1,4	Stora Enso Oyj	19,9
Kymppivoima Oy	2,1	UPM-Kymmene Corporation	46,3
Kyro Corporation	0,2	Vantaan Energia Oy	0,5
Oy Metsä-Botnia Ab	2,1	Total	100,0

### CAPACITY

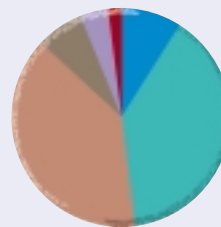


# GROUP KEY FIGURES



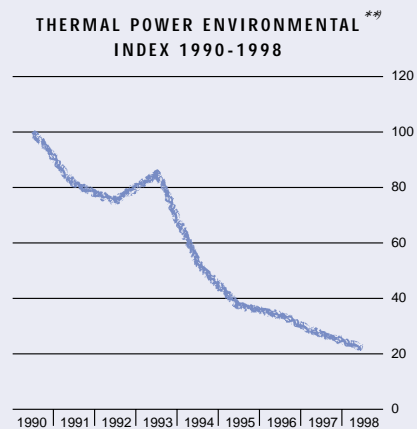
**POWER PROCUREMENT 1998**  
21 564 GWh

Hydro	10%
Nuclear	62%
Condensing and back-pressure power	16%
Industrial cogeneration	6%
Gas turbine	0%
Imports	3%
Temporary purchases	3%



**CAPACITY 1998**  
4 351 MW

Hydro	9%
Nuclear	39%
Condensing and back-pressure power	39%
Industrial cogeneration	7%
Gas turbine	4%
Imports	2%



<sup>\*)</sup> Previous years' figures have not been adjusted to the present Group structure.

<sup>\*\*)</sup> The thermal power production environmental index illustrates the change in environmental burden per each energy unit produced. All factors of the index – the specific emission values of carbon dioxide, sulphur dioxide, nitrogen oxides and particles, as well as the quantities of heaped by-products – have an equal weight in the index.





*Timo Rajala President*

Energy production is a capital-intensive industry. Relatively large investments must be planned and decided upon within a perspective of several decades of utilisation. The industry must, however, also be able to adapt to several factors of change imposed by the world at large.

During the past fifty years, the industry has lived through several stages of development which have followed the same basic pattern. First, for some reason, one basic solution seems to be the most popular, if not the only, possible solution. A little later, again for some reason, attitudes change to quite the opposite. The change is reflected in legislative restrictions, refused applications for the required permits, unpredictable fiscal policy, negative attitudes within society, etc. All forms of production, whether hydro,

oil, coal, nuclear or peat power, have seen the same development cycle. However, the energy industry has been able to adapt. As a consequence, Finland now has a power and heat production system which is not easy to parallel. The industry has been able to meet the needs of a constantly developing society, while at the same time providing competitive conditions for the country's energy-intensive basic industry. Not only is it efficient, the system is today also characterised by versatility, a feature that ensures a reliable power supply.

This way of proceeding has been possible since the new competitive solutions have always been found. At the same time, however, available solutions have become increasingly scarce in number, with higher cost structures and less reliable power supplies. As a result, Finland's national prosperity is now faced with problems related both to power supply and production cost structure.

During 1998, Finnish power consumption totalled 76.5 TWh. Imports from Russia accounted for 5 TWh, less than had been contracted, while imports from Sweden set absolute records owing to exceptionally abundant rainfall. On the same order as Swedish nuclear power production, the country's hydro power production in 1998 almost

equalled total Finnish power consumption. Swedish net exports rose to 10.7 TWh, compared to 2.6 TWh in 1997. In 1999, their exports are predicted to be 2.3 TWh while it is anticipated that in 2000 Sweden will not export any electricity but have a 2.3 TWh need of imports. Sweden is becoming export-dependent; Finland already is, as far as peak consumption is concerned.

The reporting year's short-term conditions tend to blur longer-term predictions. In addition to the exceptionally abundant supply of hydro power, the market was influenced by the increasingly economical possibilities to use the Nordic transmission capacity as well as by the complete liberalisation of the national electricity market. These factors contributed to extremely short-span behaviour on the electricity market. For most of 1998, spot prices on the Nordic electricity exchange were in practice determined by the coal-driven condensing capacity of PVO and other producers. Owing to its availability, it provided returns in terms of an economical electricity price level. However, the excessive stocks of non-used coal caused additional costs.

There is a risk that the reporting year will lead to simplified conclusions. Firstly, we must remember that import prices have been

favourable because there is an existing domestic production alternative. Secondly, a year with abundant rainfall is not the rule but the exception.

Thirdly, work is underway to build new cable connections between Scandinavia and Continental European markets with their higher margins. As a result, competition for the availability of import electricity will take place at higher prices. Fourthly, Finland's other import source, Russia, must be regarded as a country risk due to its internal problems.

It has been widely proposed that Finland's growing needs are to be met through the use of natural gas, wood chips and so-called new energy forms. However, these alternatives are problematic as far as security of supply is concerned. According to EU recommendations, no single supplier should account for more than 30% of natural gas supplies to guarantee secure supplies. In Finland, that percentage is 100. To increase gas consumption on the current basis would be to increase the country risk. Proposed pipeline connections to Continental Europe still seem remote and frightfully expensive. The possibilities to increase the use of wood chips are limited in view of the desired scale of basic power production. Finland's present biomass production is already many times greater than the EU

long-term objective. As regards the so-called new energy forms, the discussion concerns a positive issue as such, yet insignificant as reflected against the basic power needs.

Unfortunately, the emotionally-conditioned public debate has got out of hand. In part, this is due to errors in scale, but mostly to the fact that price and cost problems have attracted almost no public interest and debate. In an openly competitive economy, no company would, of course, operate in such a manner. Nor is it any way for a country that is interested in the prosperity of its citizens to operate.

Natural gas is unfortunately too expensive a fuel. As concerns wood chip harvesting and transport costs, I am pleased to say that the outlook includes some positive developments. Should they materialise, it may mean that wood chip competitiveness would improve. In the best of cases, however, the economically sound, additional supply would be limited compared to the total need. Despite the ample support shown for wind power, this energy form is not an economically competitive solution, even if reserve power costs are not taken into account.

Finnish liability in relation to the decrease of greenhouse gases in accordance with the Kyoto Protocol

was specified during the reporting year. Finnish interests were, unfortunately, rather poorly defended in this process. The measures available to other countries have already been implemented in Finland, amply in excess of the targeted levels. Be that as it may, Finnish energy policy has now assumed a new dimension. Energy policy must be compatible with climate policy.

The principal question is whether we wish to provide continuous and growing prosperity to citizens of this country. This would require growth in the important engine of prosperity, basic Finnish industry. If and when the answer to this question is positive, we need to draw unambiguous conclusions.

A secure national power supply must be guaranteed in a cost-conscious, competitive manner which is also acceptable from the climate policy point of view. Secure and reasonably priced electricity and heat is a prerequisite for the prosperity of every citizen, and basic industry which is able to avail itself of competitive energy costs is the builder of the country's prosperity. It goes without saying that raising the Finnish energy taxes – already record high – would lead to the opposite.

To solve this considerable problem faced by the country, we must make use of all available measures:

- A large contribution must be made to wood chip harvesting technology.
- The use of coal – modest in quantity but important as price-setter – must continue.
- Nuclear power production – free from greenhouse gas emissions – must be increased. Finnish nuclear power expertise has been ranked best in the world, providing the country with its best starting point for the future.
- A secure availability of natural gas and its competitiveness must be promoted through a cost-conscious contribution.
- Waterways which have already been harnessed for energy production must be taken into full capacity use.
- Efforts must be made to render peat acceptable from a climate policy point of view.
- The policy to support new energy forms must be continued.
- Government must take action so that the so-called Kyoto mechanisms are formulated in a way that can be exploited by Finland.

Pohjolan Voima's shareholders have made contributions to all of the above production alternatives, and this policy should continue in future. During the past ten years, PVO has introduced 1,150 MW of new capacity, clearly more than any other operator in Finland. The Alholma power plant in Pietarsaari will continue this policy. It is an investment that will be implemented as a joint project. The 240 MW power and 160 MW thermal capacity plant will be the world's largest operator to process biomass into energy. Plans are underway for other plants based on the same concept. A key role will

be played by the biomass acquisition costs which should be brought down to a competitive level: the final share of biomass utilisation will depend on the price. An agreement of intent has been signed for the utilisation of the waste gases from the Rautaruuki Raahe plant in energy production.

However, all these projects can only be partial solutions in meeting the needs of basic power. Government must take its responsibility and secure that the entire selection of measures be available, without any factors interfering with healthy competition.

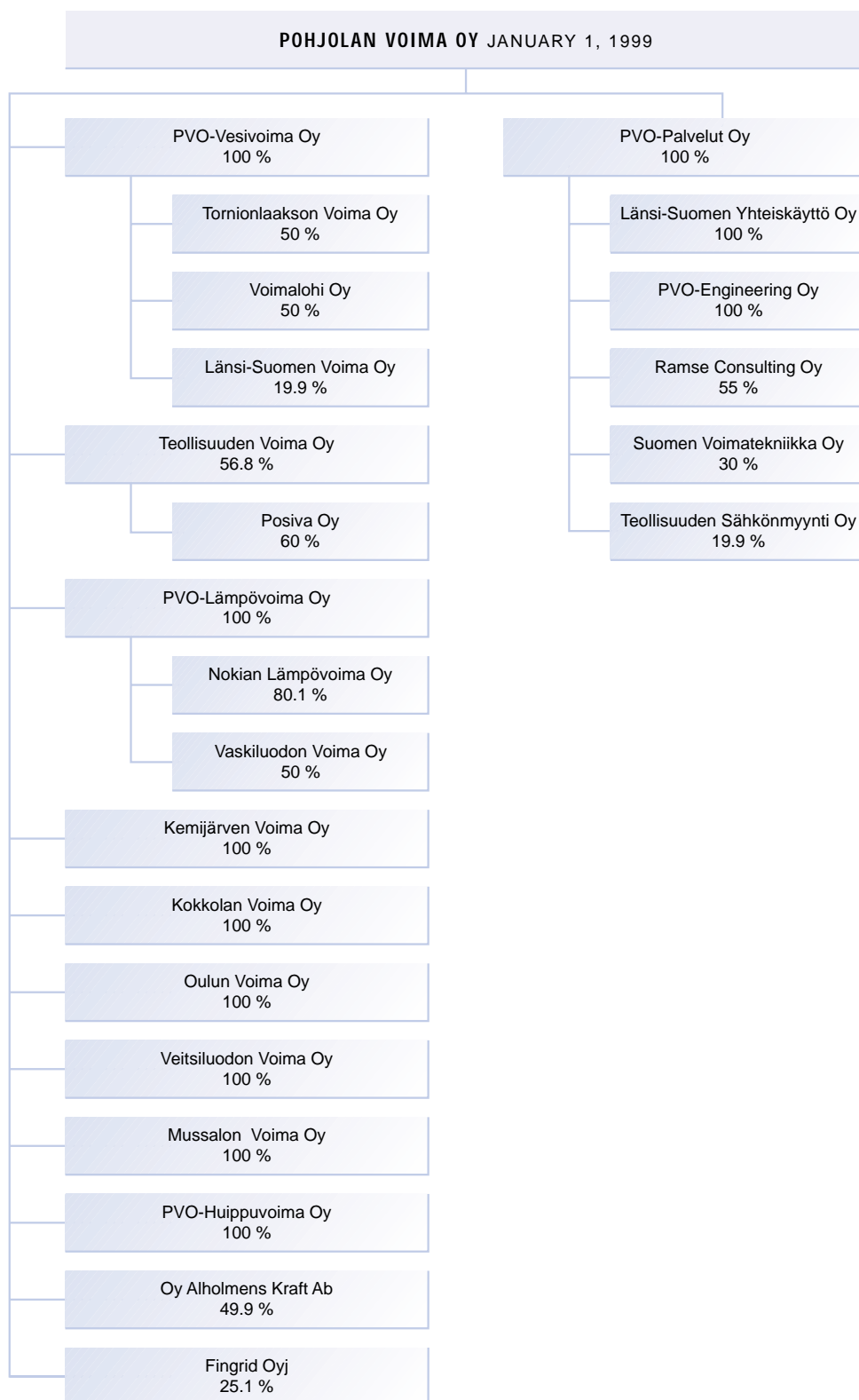
The mission of Pohjolan Voima is to serve the company shareholders in meeting their energy needs. In practice, this not only means providing support to the operative conditions of Finnish basic industry located in Finland, but also taking care of the service task related to public consumption. As a result of good co-operation, Pohjolan Voima's responsibilities continue to grow.

Pohjolan Voima's production machinery is in good shape and in good hands. The high-level competence of our personnel and their natural co-operative spirit provide the best guarantee for future.

I would like to express my gratitude to Pohjolan Voima's shareholders and personnel for the year 1998.



## COMPANY STRUCTURE



**SUBSTANTIAL NUCLEAR  
POWER AND HYDRO  
POWER PRODUCTION**

Owing to abundant rains in the summer and autumn, hydro power production rose from 1437 GWh in 1997 to 2059 GWh in 1998. Hydro power accounted for ten percent of the Group power procurement.

Pohjolan Voima's subsidiary, Teollisuuden Voima, runs two

nuclear power plant units in Olkiluoto, Eurajoki. Thanks to the good availability and recent modernisation of the units, new production records were set in 1998, nuclear power production totalling 13415 GWh. The modernisation project also involved an increase in capacity, and now the combined capacity of the units is 1680 MW.

The heavy rainfall throughout Scandinavia contributed to an abundant supply of power that was more

economical than thermal power. As a consequence, the annual production of conventional condensing power decreased to 3483 GWh in 1998.

The 100 MW electricity imports from Russia continued, amounting to a total of 667 GWh.

**POWER PLANT RENEWALS**

Turbine renewal and modification work was implemented in Vaskiluoto. A new 230 MW turbine was

*Total electricity consumption in Finland*

*Electricity production in Finland*

*PVO's electricity production*



JANUARY

connected to the coal-fired burner while the existing 160 MW turbine operated in connection with the oil-fired burner during consumption peaks.

The unit 1 machinery at the Melo hydro plant in Nokia was overhauled.

Waterway improvement work continued at hydro power plants and in the water regulation impact areas. Some of the work was conducted in collaboration with the regional

environment centres and other interest groups.

**ENVIRONMENTAL  
MANAGEMENT SYSTEMS  
DEVELOPMENTS**

The thermal power plants continued to develop their environmental management systems. At the Seinäjoki power plant, the environmental management system in compliance with the ISO 14001 standard ob-

tained the respective certification. The corresponding certification work proceeded at other power plants, and the objective of the PVO Group is to have certified environmental management systems operative at all Group thermal power plants by 2000.

Work was also underway in view of an ISO 14001 environmental management system for hydro and nuclear power plants.



FEBRUARY

MARCH

APRIL

Länsi-Suomen Yhteiskäyttö Oy (LSY) is responsible for the production control of the PVO power plants as well as for the operating centre services related to power procurement. Besides PVO Group companies and Pohjolan Voima shareholders, LSY also provides its services to other parties operating in the electricity market. At year's end, LSY

held a portfolio of 75 service contracts.

The LSY business operations also include metering and balance report services as well as grid monitoring. In 1998, LSY continued to perform Fingrid Oyj operating and monitoring services related to the national grid.

As in the previous year, LSY was also involved in short-term

trading and was active in the Scandinavian electricity spot market (Nord Pool ASA). Towards the end of the year, LSY became an operator at the domestic electricity exchange, EL-EX, which started operating in connection with Nord Pool.

As a prerequisite for the power procurement and grid control operative functions, the processing of both metering and control information

*Total electricity consumption in Finland*

*Electricity production in Finland*

*PVO's electricity production*



MAY



## OPERATION

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must be rapid and smooth. To secure this objective, LSY continued the project focusing on the renewal of the operating control systems which had been launched in 1997. This investment, called the KJV-2000 project, will be completed by the middle of 2000.

Energy management systems were developed in order to continue to perform power balance services efficiently in the future. LSY also provides new service solutions for its clients, helping them to become more efficient in meeting the challenges of the electricity market.



JUNE

JULY

AUGUST

PVO-Palvelut (PVOP), a new, separate group incorporating all PVO Group service sector businesses, was launched in January 1999. Fully owned by the PVO Group parent company, Pohjolan Voima Oy, PVOP focuses on such special expertise as will promote the operative efficiency and know-how of the PVO Group companies, PVO shareholders and associated companies. The service sector includes PVO-Engineering Oy, an engineering and project management company; Länsi-Suomen Yhteiskäyttö Oy, which is a company focusing on power system operating services; as well as Ramse Consulting Oy, a consultant agency. Among the

PVOP associated companies, Suomen Voimatekniikka Oy is a transmission line constructor while Teollisuuden Sähkömyynti Oy sells electricity to distribution companies and large-scale end users of electricity. PVOP's objective is to be among the leading Finnish players in these selected areas of expertise.

During the reporting year, the companies implemented and participated in several significant power plant and power grid projects, the most important being the modernisation of the Vaskiluodon Voima power

plants. Several power grid and power station design and implementation projects were managed for Fingrid Oyj, including the Rauma and Alapitkä 400/100 kV power station projects as well as the Pernoonkoski 110 kV switching plant modernisation, the most recent among the projects implemented.

The efficiency of the services sector is based on competent and responsible personnel and the sector's ability to implement customised solutions tailored to meet clients' needs. To improve the services pro-

*Total electricity consumption in Finland*

*Electricity production in Finland*

*PVO's electricity production*



SEPTEMBER



## S E R V I C E   S E C T O R

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vided for clients, the entire service group personnel is involved in continuous training for their personal development.

The services sector for power plants and forest industry energy operations continued to develop auditing services through new information technology and information management expertise.

The PVOP expertise resources were almost entirely booked. In addition to the above projects, several minor hydro and thermal power

plant projects were carried out for the PVO Group companies and industry. A number of power grid assignments ordered by power companies and industry were also performed, including design of power lines and 110 kV power stations. Mast deliveries both to Finland and to Estonia continued at last year's level, as did the control and consulting of the Nepal power grid project.

Most of the information technology resources were focused on the Group companies' energy manage-

ment, operating control, communications and other information system projects.

The implementation and system management services related to information systems were further developed. The most important ongoing project involved the information systems for operation maintenance, financial management and document management, uniformly adopted throughout the PVO Group and centrally supplied by PVO-Engineering Oy.



OCTOBER

NOVEMBER

DECEMBER

## BOARD OF DIRECTORS



*Front from left: Juhani Pohjolainen, Tauno Matomäki, Heikki Sara, Juhani Paananen  
Back from left: Timo Rajala (President), Esa Tirkkonen, Rauno Hakkila, Arto Piela (Secretary of the Board of Directors)*

### ORDINARY MEMBERS

**Tauno Matomäki**  
CHAIRMAN OF THE BOARD  
Chairman of the Board  
UPM-Kymmene Oyj

**Jukka Härmälä**  
VICE CHAIRMAN OF THE BOARD  
CEO  
Stora Enso Oyj

**Rauno Hakkila**  
CEO  
Etelä-Pohjanmaan Voima Oy

**Heimo Karinen**  
President  
Kemira Oyj

**Antti Oksanen**  
President  
Metsäliitto-Yhtymä

**Juhani Paananen**  
Director  
Kokkolan Energialaitos

**Heikki Sara**  
Senior Vice President  
UPM-Kymmene Oyj

### DEPUTY MEMBERS

**Juha Niemelä**  
President and CEO  
UPM-Kymmene Oyj

**Juhani Pohjolainen**  
M.Sc. (eng.)  
Stora Enso Oyj

**Mikko Lind**  
CEO  
Vaasan Sähkö Oy

**Esa Tirkkonen**  
Deputy CEO  
Kemira Oyj

**Erkki Varis**  
CEO  
Oy Metsä-Botnia Ab

**Sven Sohlström**  
CEO  
Perhonjoki Oy

**Martin Granholm**  
Executive Vice President  
UPM-Kymmene Oyj

### AUDITORS

SVH Pricewaterhouse Coopers Oy  
Authorised Public Accountants

## EXECUTIVE OFFICERS



*Front from left: Minna Korkeaaja, Timo Rajala, Timo Väinämö (Deputy to the President until 31 May 1999), Matti Kaisjoki  
Back from left: Jussi Kivimäki (Secretary of the Executive Team), Arto Piela, Aappo Kontu, Mauno Paavola*

## GROUP ADMINISTRATION







**THE OPERATIVE ENVIRONMENT  
AND THE OUTLOOK FOR THE NEAR FUTURE**

In 1998 the Finnish consumption of electricity was 76.5 TWh, a 3.9 percent increase on the previous year. Industry and construction accounted for 41.7 TWh, or 54.5 percent, of total electricity consumption. Industrial consumption grew by almost 4.0 percent.

The electricity acquisition of Pohjolan Voima Oy in 1998 was 21.6 TWh, or about 28 percent of the total Finnish consumption of electricity.

Due to factors of uncertainty pertaining to the global economy, the growth of the Finnish export industry is expected to slow down. It is estimated that industrial electricity consumption will increase by less than 2 percent, corresponding to the long-term growth estimate for the industrial consumption of electricity.

Climate issues continued to play an increasingly important role in energy and environmental policies. In June, the EU Council of Ministers of the Environment finalised the decision on the distribution of the environmental burden between the countries. According to the decision, Finnish greenhouse gas emissions during 2008 – 2012 must not exceed the 1990 level. While not reaching any significant results, the Buenos Aires climate conference, however, did enhance the status of the UN climate convention. No decisions have been taken concerning the national implementation of the convention.

**CHANGES IN BUSINESS OPERATIONS  
AND GROUP STRUCTURE**

Owing to the amended regulations of the Companies Act and Bookkeeping Act, Teollisuuden Voima Oy was consolidated as of 1 January 1998 as a subsidiary in the Group financial statements. For this reason, the 1997 figures are not comparable with the figures for the reporting year.

Pohjolan Voima bought the entire capital stock of Kokkolan Voima Oy from the town of Kokkola in November.

In December, Pohjolan Voima incorporated the company PVO-Palvelut Oy, and as of the beginning of

1999, this company became the owner of the shares of Länsi-Suomen Yhteiskäyttö Oy, PVO-Engineering Oy, Ramse Consulting Oy, Suomen Voimatekniikka Oy and Teollisuuden Sähkönmyynti Oy.

The Electricity Market Act was amended, allocating the liability for the management of the national electricity balance to Fingrid Oyj (former Suomen Kantaverkko Oyj). As a consequence, the gas turbine plants, acting as a short-notice reserve, lost some of their significance for electricity producers. In January 1999, PVO-Lämpövoima Oy and Mussalon Voima Oy sold their gas turbines in Tahkoluoto, Kristiinankaupunki and Tolkkinen to Fingrid Varavoima Oy, a subsidiary of Fingrid Oyj.

**GROUP R&D PROJECTS**

The project to modernise the operation and maintenance systems at the condensing power and hydro power plants continued. The first plant project to be completed is that of Tahkoluoto in April-May 1999, followed by the others after revisions in the autumn.

The necessary alterations in the information systems in view of the millennium change have been charted out, and the respective risk analyses have been prepared. The next step in the work is the strategy phase in which a decision will be taken regarding the measures and acquisitions made necessary by the risks. The objective is to have the year 2000 problems of the PVO Group resolved by 1 September 1999.

Posiva Oy, a Teollisuuden Voima subsidiary, has been conducting research on the final disposal of spent nuclear fuel. The choice of the site for final disposal will be selected by the end of 2000 from four areas: Olkiluoto in Eurajoki, Romuvaara in Kuhmo, Hästholmen in Loviisa and Kivetty in Äänekoski.

A study was carried out at the Tahkoluoto power plant on the possibilities of conserving energy. This was done within the framework of the Ministry of Trade and Industry's energy-saving agreement.

Development projects included in the PVO Group technology programme are ongoing in the fields of power plant technology and plant concepts, transmission



network engineering and energy management systems. The financing of these projects has been supported by EU and Finnish authorities.

#### PENDING LEGAL ACTIONS

Towards the end of 1996 the Pohjolan Voima subsidiary PVO-Vesivoima Oy (former Iijoen Voima Oy) filed an action for damages against the Finnish Government due to a breach of contract related to the River Rapids Protection Act. The contract between Pohjolan Voima and the Finnish Government on the construction and regulation of the Iijoki River was signed in 1959. In PVO-Vesivoima's opinion, the Finnish Government violated the contract unilaterally by including the river Iijoki in the sphere of the River Rapids Protection Act that took force in 1987. The documentary part of preparatory phase of the proceedings was finalised during the reporting year, and the main hearing will probably be held in April 1999.

PVO-Vesivoima appealed to the Supreme Court against a decision issued by the Land Court in relation to appeals against compensation proceedings in accordance with the River Rapids Protection Act. The Supreme Court is expected to give its verdict during 1999.

PVO-Vesivoima and PVO-Lämpövoima appealed to the Supreme Administrative Court against the Natura decision taken by the Council of State. The future development possibilities of the Iijoki and Kristiinankaupunki plants would be impaired if the areas pertinent to the appeal were included in the EU's Natura programme.

#### FUTURE PROSPECTS

During the past few years, PVO has been preparing and implementing power plant projects which are in line with the principles of sustainable development and the UN Framework Convention on Climate Change. The planning of the coal-fuelled power plants has been suspended for the time being. The premise of the energy policy programme is to match the increasing electricity needs of industry with the objective of decreased carbon dioxide emissions. Energy efficiency will be improved through an energy saving programme and new technology

projects. PVO will also launch new research projects to investigate the improved competitiveness of new forms of energy.

Pohjolan Voima in co-operation with the town of Kokkola has studied the technical and economic feasibility of a power plant producing district heat and electricity, to be built in Kokkola. To be driven on domestic fuels, the plant's electrical capacity is planned at 35 MW and the district heating capacity at 50 MW. The power plant has proven economically competitive.

In February 1999, a decision was taken to build a new power plant, fuelled principally by wood, bark, forest waste and peat, at the UPM-Kymmene Oyj Pietarsaari plant. The project will be implemented by Oy Alholmens Kraft Ab. The electrical capacity of the plant will be 240 MW while its combined steam and district heating production capacity will be 160 MW. A new series of shares will be established at Pohjolan Voima, entitling its owners to 49.9 per cent the production of Oy Alholmens Kraft Ab.

In collaboration with Rautaruukki Oyj, PVO has been investigating the feasibility of a power plant planned at the Rautaruukki Raahe production facilities. Fuelled by the by-product gases from steel production, the electrical capacity of the plant would be 150 MW and it would also produce cogeneration steam and district heating. During 1998, the environmental impact assessment of the project was performed and the respective environmental permit application was filed with the authorities. The investment decision can be made in March 1999, and the new plant could be in use by late 2001.

Eesti Energia, Helsingin Energia, Gräningeverkens ABp and ABB Corporation have been investigating with PVO the possibilities of linking the Estonian and Finnish electricity systems through a modern direct-current power cable connection based on HVDC Light technology. The investigation will be completed during 1999.

#### PRODUCTION

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Pohjolan Voima supplies the electricity produced at the power plants of its subsidiaries and associated companies



to its shareholders at cost, in proportion to their shares entitling them to the subsidiary and associated company production.

The breakdown of the Group's available electrical capacity and supply of electricity were as follows:

ELECTRICAL CAPACITY	31.12.1998 MW	Share in %	31.12.1997 MW	Share in %
Hydro power	399	9	399	10
Nuclear power <sup>*)</sup>	1 680	39	1 570	39
Condensing and back-pressure power <sup>*)</sup>	1 699	39	1 433	36
Industrial cogeneration	317	7	370	9
Gas turbine power <sup>**)</sup>	156	4	156	4
Imports	100	2	100	2
<b>Total capacity</b>	<b>4 351</b>	<b>100</b>	<b>4 028</b>	<b>100</b>

SUPPLY OF ELECTRICITY	1998 GWh	Share in %	1997 GWh	Share in %
Hydro power	2 059	10	1 437	6
Nuclear power <sup>*)</sup>	13 415	62	12 431	56
Condensing and back-pressure power <sup>*)</sup>	3 483	16	6 345	29
Industrial cogeneration	1 267	6	1 226	5
Gas turbine power <sup>**)</sup>	1	0	1	0
Imports	667	3	127	1
Temporary purchases	672	3	591	3
<b>Total</b>	<b>21 564</b>	<b>100</b>	<b>22 158</b>	<b>100</b>

<sup>\*)</sup> The Teollisuuden Voiman production is included in full.

The data for comparison has been adjusted accordingly.

<sup>\*\*) Sold to Fingrid Varavoima Oy in January 1999.</sup>

Procurement of nuclear power grew as a result of the Olkiluoto modernisation project. 1998 was a very rainy year and the water reservoirs were filled. The market price for electricity went down in the Nordic countries and the Finnish condensing power production decreased from the level of the previous year.

The objective set for coal procurement was to ensure sufficient stores until the beginning of the open waster season in 1999. However, consumption was lower than expected, resulting in a level of storage in excess of the objectives. Group coal procurements totalled 1.3 million tons. Poland was the main source of coal, followed by Indonesia, Russia, Columbia, South Africa and Spitsbergen.

All Group power plants were able to comply with the existing environmental permits. Owing to the exceptional climatic conditions, fish planting diverged slightly from the plan approved by the authorities. The shortfall will be covered during the next few years.

The emissions of the condensed power plants de-

creased significantly from the previous year as a result of the lower utilisation rate of the plants. Many specific emissions of the plants could be further diminished. The materialised emission levels were at 20 % - 75 % of the permitted levels, depending on the type of emission. The electricity produced by the PVO Group does very well in an European emission comparison.

The development of environmental management systems proceeded according to plan. Among the PVO Group plants, the Seinäjoki power plant was the first to comply with the ISO 14001 standard and obtain the respective certification. According to PVO objectives, all Group production should meet the certification criteria by 2000.

Pohjolan Voima revised the Group environmental policy which is the basis for the environmental management systems. The company also publishes a separate environmental report which focuses on production and its development. Moreover, Teollisuuden Voima compiles its own environmental report regarding nuclear power production. Neither Pohjolan Voima nor its subsidiaries or affiliated companies are aware of any environmental liabilities that have not been met.

## INVESTMENTS

### GROUP COMPANIES

The 400 kV transmission line project Kymi-Vainikkala is stagnant. Pertaining to the electricity import from Russia, the project will proceed depending on developments on the Russian side.

The project to modernise the Olkiluoto units of Teollisuuden Voima was finalised. The new operation license granted by the Council of State extends to the end of 2018. The new nominal capacity of each of the plant units is 840 MW. The Olkiluoto plant received international recognition from "Electric Power International", an energy-branch specialist journal which sited Olkiluoto's good production results and the updated condition of the plant in presenting the award.

Länsi-Suomen Yhteiskäyttö Oy continued its project of updating regional power measurement and

control systems as well as energy management systems. These investments will be completed by the middle of 2000. The renewal of the Group finance management information system was completed in 1998. The implementation of associated systems will continue in 1999.

#### ASSOCIATED COMPANIES

The new Vaskiluodon Voima Oy 230 MW turbine plant in Vaasa was completed. At the same time, a 160 MW oil condensing plant, built in the 1970s, was brought on line again. This plant is owned by the Pohjolan Voima subsidiary PVO-Huippuvoima Oy. The projects were completed according to plan and their total cost amounted to 460 million Finnish markka.

#### ECONOMY AND FINANCE

Due to lower-than-expected condensing power production, the comparable Group turnover was 2.6 percent less than in 1997.

Group liquidity remained good. Comparable net liabilities subject to interest decreased by 411.0 million Finnish markka to 5 193.8 million markka at year's end, 97.2 percent of which were Finnish markka loans and the rest foreign currency loans. Interest expenses decreased by 18.3 million markka from the previous year, resulting from decreased net liabilities and lower interest rates. The interest rate and exchange rate gains realised by the Group decreased by 27.3 million markka.

Equity to assets ratio was 45.8 percent at the end of the financial year. Not expected to be realised, the deferred tax liability is not included in the calculation of the ratio.

#### SHAREHOLDERS' EQUITY AND SHARE ISSUES

The following issues were subscribed to during the reporting year:

- Increase of share capital through 250,000 new series of shares H at the total subscription price of 20.8 million markka directed to Etelä-Pohjanmaan Voima Oy. After this issue, Etelä-Pohjanmaan Voima accounted for 5.0 percent of the entire Pohjolan Voima share capital and for 60.4 percent of the series H shares, compared with the earlier ownership of 4.3 percent and 20.7 percent, respectively.

- Establishment of the new series of shares D3, with 100,000 shares at the total subscription price of 20.0 million directed to the City of Kokkola. After this issue, the City of Kokkola accounted for 2.06 percent of the entire Pohjolan Voima share capital and for 100.0 percent of the series D3, compared with the earlier ownership of 1.77 percent and 0 percent, respectively.
- Increase of share capital through 32,000 new series of shares D4 at the total subscription price of 23.7 million and 100,000 new D6 shares at the subscription price of 74.0 million, directed to Stora Enso Oyj. After these issues, Stora Enso Oyj accounted for 20.3 percent of the entire Pohjolan Voima share capital and for 100.0 percent of both the D4 and the D6 shares, compared with the earlier ownership of 19.9 percent and 100.0 percent, respectively.

UPM-Kymmene Oyj, Stora Enso Oyj and Pension Fund Neliapila sold 38,350 shares of series C to the City of Oulu which became a new Pohjolan Voima shareholder with a share of ownership of 0.1 percent. The transactions were recorded in the Pohjolan Voima share and shareholder registers in February 1999.

#### PERSONNEL

Launched in 1997, Strategy and Organisation training and the Working Capacity project continued. At the Tahkoluoto and Mussalo power plants, the entire personnel received training in change management.

A new salary system covering office personnel in the energy field was introduced in the PVO Group.

As of the beginning of 1999, PVO-Lämpövoima Oy took over the entire staffs of Nokian Lämpövoima Oy and Mussalon Voima Oy. In the future, PVO-Lämpövoima Oy will provide operating and maintenance services to these companies. This arrangement aims at intensifying the production of condensing power and improving its competitiveness on the Nordic electricity market.

The Group employed an average of 1,421 persons, 678 of whom were salaried employees and 743 were wage-earners. For the parent company, an average of 87 persons were employed: 75 salaried employees and 12 wage-earners.

During the financial year, the following wages and salaries, including fringe benefits were paid:

In Finnish markka	Group	Parent company
Board of Directors and President	6 496 120,94	1 912 029
Other personnel employed by the company	305 462 218,87	19 623 725

**C O N S O L I D A T E D   P R O F I T   A N D   L O S S   S T A T E M E N T**

<b>FIM million</b>	<b>Jan 1 - Dec 31, 1998</b>		<b>Jan 1 - Dec 31, 1997</b>	
Turnover	( 1 )	3 377.7		2 766.7
Increase (+)/Decrease (-) in inventories of finished goods		- 0.1		0.0
Production for own use		9.4		12.2
Other operating income	( 2 )	17.8		180.6
<b>Expenses</b>				
Energy purchases and transmission fees		656.0	1 444.2	
Share in results of participating interest		- 80.1	10.8	
Fuel purchases		742.8	536.2	
Materials, supplies and products		34.4	28.5	
Change in inventories		2.9	- 37.9	
Personnel expenses	( 3 )	382.0	218.0	
Rents and leases		57.5	62.1	
Real estate taxes		28.4	11.8	
Other expenses		<u>519.9</u>	<u>234.0</u>	2 507.7
Operating margin		1 061.0		451.8
Depreciation on fixed assets and other long-term expenses	( 4 )	528.7		259.7
Operating profit		532.3		192.1
<b>Financial income and expenses</b>				
Dividend yields	( 5 )	1.1	0.8	
Interest income on long-term investments		72.0	11.9	
Other interest income		18.9	16.4	
Exchange rate differences		16.2	16.3	
Interest expenses		- 413.4	- 201.5	
Other financial income and expenses		<u>- 10.7</u>	<u>- 0.9</u>	- 157.0
Profit (loss) before voluntary provisions and income taxes		216.4		35.1
<b>Income taxes</b>				
For the financial period		- 6.3	- 28.7	
For previous financial periods		- 1.7	-	
Change in deferred tax liability		<u>- 47.6</u>	<u>30.6</u>	1.9
Profit for the period before minority share		160.8		37.0
Minority share of the result for the period		- 58.2		- 0.6
Profit for the financial period		<u>102.6</u>		<u>36.4</u>

C O N S O L I D A T E D   B A L A N C E   S H E E T

ASSETS FIM million	Dec 31, 1998		Dec 31, 1997	
FIXED ASSETS AND OTHER LONG-TERM INVESTMENTS				
Intangible assets				
Intangible rights		8.1	0.3	
Other long-term expenses	( 6 )	<u>377.8</u>	<u>83.2</u>	83.5
Tangible assets				
Land and water areas	( 6 )	234.7	216.9	
Buildings and constructions	( 6 )	1 412.4	828.2	
Canals, dams, tunnels, basins, harbours and waterways	( 6 )	1 429.3	1 388.2	
Machinery and equipment	( 6 )	6 323.9	2 937.9	
Advance payments and work in progress for own use		<u>55.5</u>	<u>33.9</u>	5 405.1
Financial assets				
Shares in participating interest companies		207.7	1 898.1	
Shares in other companies		219.0	207.2	
Loans receivable	( 6 )	1 287.0	208.0	
Other investments		<u>21.0</u>	<u>1.2</u>	2 314.5
CURRENT ASSETS	( 9 )			
Inventories				
Materials and supplies		16.7	-	
Fuel		1 341.6	255.7	
Work in progress		<u>16.0</u>	<u>22.9</u>	278.6
Receivables				
Accounts receivable		294.9	315.8	
Loans receivable		15.4	0.4	
Share issue receivables		97.7	-	
Deferred assets		90.9	28.5	
Other receivables		<u>2.4</u>	<u>2.8</u>	347.5
Cash in hand and at banks			227.6	392.5
TOTAL ASSETS		<u>13 679.6</u>	<u>8 821.7</u>	

C O N S O L I D A T E D   B A L A N C E   S H E E T

LIABILITIES FIM million	Dec 31, 1998		Dec 31, 1997	
SHAREHOLDERS' EQUITY (9)				
Restricted equity				
Share capital	339.5		336.0	
Share issue	97.7		-	
Share premium reserve	37.3		-	
Reserve fund	1 669.9		1 669.9	
Revaluation reserve	<u>1 300.0</u>	3 444.4	<u>1 300.0</u>	3 305.9
Distributable equity				
Retained earnings (losses)	854.1		817.7	
Profit for the period	<u>102.6</u>	956.7	<u>36.4</u>	854.1
MINORITY INTEREST		952.6		7.6
LIABILITIES (10)				
Long-term				
Bond loans	1 221.6		0.0	
Loans from financial institutions	2 308.4		2 035.9	
Pension fund loans	58.3		-	
Deferred tax liability	901.7		358.5	
Other long-term liabilities	<u>2 597.3</u>	7 087.3	<u>1 458.9</u>	3 853.3
Short-term				
Bond loans	363.7		-	
Loans from financial institutions	142.6		90.8	
Pension fund loans	9.7		-	
Other long-term liabilities	34.1		94.9	
Advances received	10.8		18.1	
Accounts payable	172.3		290.5	
Deferred liabilities	496.3		306.3	
Other short-term liabilities	<u>9.1</u>	1 238.6	<u>0.2</u>	800.8
TOTAL LIABILITIES		<u>13 679.6</u>		<u>8 821.7</u>

C O N S O L I D A T E D F U N D S S T A T E M E N T

FIM million	1998	1997
<b>Business operations</b>		
Funds from operations		
Operating profit	532.3	192.1
Depreciation	528.7	280.2
Financial income and expenses	- 315.9	- 157.0
Taxes	- 55.6	1.9
	<u>689.5</u>	<u>317.2</u>
Change in working capital		
Current assets, increase (-)/decrease (+)	16.2	- 37.5
Short-term accounts receivable, decrease (+)	44.1	594.8
Short-term non-interest-bearing liabilities, decrease (-)	- 98.8	- 49.7
	<u>- 38.5</u>	<u>507.6</u>
<b>Cash flow from operations</b>	<b>651.0</b>	<b>824.8</b>
<b>Investments</b>		
Net investments	- 418.5	- 64.0
<b>Cash flow before financing</b>	<b>232.5</b>	<b>760.8</b>
<b>Financing</b>		
Increase (-) in long-term receivables	- 73.0	- 208.0
Decrease (-) in long-term liabilities	- 331.0	- 147.4
Decrease (-) in short-term liabilities	- 125.5	- 141.7
Share issue	138.5	-
Change in value adjustments	-	- 25.6
Changes in other capital items	-	- 5.0
	<u>- 391.0</u>	<u>- 527.7</u>
<b>Increase (+)/decrease (-) in liquid funds according to Funds Statement</b>	<b>- 158.5</b>	<b>233.1</b>
<b>Increase (+)/decrease (-) in liquid funds according to Balance Sheet</b>	<b><u>- 158.5</u></b>	<b><u>233.1</u></b>



**PROFIT AND LOSS STATEMENT OF THE PARENT COMPANY**

<b>FIM million</b>		<b>Jan 1 - Dec 31, 1998</b>	<b>Jan 1 - Dec 31, 1997</b>
Turnover	( 1 )	2 416.8	2 319.4
Other operating income	( 2 )	8.1	155.1
<b>Expenses</b>			
Energy purchases and transmission fees		2 320.9	2 461.9
Personnel expenses	( 3 )	24.5	24.6
Rents and leases		8.4	8.9
Other expenses		<u>42.9</u>	<u>31.6</u>
		2 396.7	2 527.0
Operating margin		28.2	- 52.5
Depreciation on fixed assets and other long-term expenses	( 4 )	9.6	10.4
Operating profit		18.6	- 62.9
<b>Financial income and expenses</b>			
Dividend yields	( 5 )	18.1	1.7
Interest income on long-term investments		124.3	130.5
Other financial income		14.6	14.1
Exchange rate differences		2.2	16.8
Interest expenses		- 156.9	- 167.9
Other financial income and expenses		<u>- 5.7</u>	<u>- 1.4</u>
		- 3.4	- 6.2
Profit (loss) before voluntary provisions and income taxes		15.2	- 69.1
Depreciation less than plan	( 4 )	10.2	124.5
Decrease (+) in reserves		-	12.2
<b>Income taxes</b>			
For the financial period		- 8.0	- 26.7
For previous financial periods		- 1.7	-
Profit for the period		<u>15.7</u>	<u>40.9</u>

BALANCE SHEET FOR THE PARENT COMPANY

ASSETS FIM million	Dec 31, 1998		Dec 31, 1997	
FIXED ASSETS AND OTHER LONG-TERM INVESTMENTS				
Intangible assets				
Intangible rights		0.0	0.0	
Other long-term expenses	( 6 )	<u>9.3</u>	9.3	<u>14.4</u>
				14.4
Tangible assets				
Land and water areas	( 6 )	1.0		1.0
Buildings and constructions	( 6 )	18.2		18.8
Machinery and equipment	( 6 )	32.8		43.3
Advanced payments and work in progress for own use		<u>16.5</u>	68.5	<u>13.0</u>
				76.1
Financial assets				
Shares in Group companies		3 757.1		1 918.2
Shares in participating interest companies		172.6		1 964.8
Shares in other companies		4.7		5.8
Loan receivables	( 7 )	2 037.3		2 135.7
Other investments		<u>21.0</u>	5 992.7	<u>1.2</u>
				6 025.7
CURRENT ASSETS	( 8 )			
Receivables				
Accounts receivable		175.6		218.2
Loans receivable		0.3		0.4
Share issue receivables		97.7		-
Deferred assets		5.3		22.5
Other receivables		<u>1.2</u>	280.1	<u>1.2</u>
				242.3
Cash in hand and at banks			209.5	454.8
TOTAL ASSETS			<u>6 560.1</u>	<u>6 813.3</u>

BALANCE SHEET FOR THE PARENT COMPANY

LIABILITIES FIM million	Dec 31, 1998		Dec 31, 1997	
SHAREHOLDERS' EQUITY (9)				
Restricted equity				
Share capital	339.5		336.0	
Share issue	97.7		-	
Share premium reserve	37.3		-	
Reserve fund	1 649.2		1 649.2	
Revaluation reserve	<u>1 300.0</u>	3 423.7	<u>1 300.0</u>	3 285.2
Distributable equity				
Retained earnings	196.7		155.8	
Profit for the period	<u>15.7</u>	212.4	<u>40.9</u>	196.7
ACCUMULATED DEPRECIATION IN EXCESS OF PLAN (6)		34.0		44.2
LIABILITIES (10)				
Long-term				
Loans from financial institutions	978.9		1 283.4	
Other long-term liabilities	<u>1 415.7</u>	2 394.6	<u>1 330.0</u>	2 613.4
Short-term				
Loans from financial institutions	73.1		89.5	
Accounts payable	225.6		326.0	
Deferred liabilities	150.2		176.7	
Other short-term liabilities	<u>12.0</u>	460.9	<u>1.1</u>	593.3
Group payables		34.5		80.5
TOTAL LIABILITIES		<u>6 560.1</u>		<u>6 813.3</u>

FUNDS STATEMENT OF THE PARENT COMPANY

FIM million	1998	1997
<b>Business operations</b>		
Funds from operations		
Operating profit	18.6	- 62.9
Depreciation	9.6	10.4
Financial income and expenses	- 3.4	- 6.2
Taxes	- 9.7	- 26.7
	<u>15.1</u>	<u>- 85.4</u>
Change in working capital		
Short-term accounts receivable decrease (+)	- 37.9	533.3
Short-term liabilities decrease (-)	- 178.5	- 108.5
	<u>- 216.4</u>	<u>424.8</u>
<b>Cash flow from operations</b>	<b>- 201.3</b>	<b>339.4</b>
<b>Investments</b>		
Net investments	- 62.5	- 86.7
Loan receivables included in fixed assets	98.5	245.9
	<u>36.0</u>	<u>159.2</u>
<b>Cash flow before financing</b>	<b>- 165.3</b>	<b>498.6</b>
<b>Financing</b>		
Decrease (-) in long-term liabilities	- 218.7	- 185.1
Increase in share capital	138.5	-
Change in value adjustments	-	- 25.6
	<u>- 80.2</u>	<u>- 210.7</u>
<b>Increase (+)/decrease (-) in liquid funds according to Funds Statement</b>	<b>- 245.5</b>	<b>287.8</b>
Merger-related liquid funds	<u>-</u>	<u>26.1</u>
<b>Increase (+)/decrease in liquid funds according to Balance Sheet</b>	<b>- 245.5</b>	<b>313.9</b>

**SCOPE OF THE CONSOLIDATED  
FINANCIAL STATEMENTS**

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These financial statements consolidate the parent company and all companies in which the parent company directly or indirectly holds more than half of all votes secured by the shares, or which it otherwise controls as referred to chapter 1, section 3 of the Companies Act. Kokkolan Voima Oy is included in the consolidated financial statements as of the day of its acquisition. The group subsidiaries and participating interest companies are listed under section 14 of the notes to the financial statements.

**ACCOUNTING PRINCIPLES OF THE  
CONSOLIDATED FINANCIAL STATEMENTS**

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**MUTUAL SHARE OWNERSHIP**

The consolidated financial statements have been compiled according to the purchase method. The price in excess of the equity of the subsidiary has been capitalised in full. This consolidation difference will be depreciated in accordance with the depreciation plan of the said fixed asset item.

**INTER-COMPANY TRANSACTIONS  
AND MARGINS**

The group's inter-company transactions, group receivables and liabilities and margins on internal services have been eliminated.

**MINORITY INTERESTS**

Minority interests have been excluded from the consolidated shareholders' equity and from voluntary reserves, and they are presented as a separate balance sheet item.

**ASSOCIATED COMPANIES**

Associated companies have been consolidated according to the equity method.

**ITEMS IN FOREIGN CURRENCIES**

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The value of the foreign currency debts and receivables as well as liability commitments has been adjusted to the

Bank of Finland exchange rate quoted on the date of the financial statements, or to a contractual rate. Exchange rate gains or losses from translation of debts and receivables have been entered as exchange rate differences in the income statement.

**INVENTORIES**

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According to the FIFO principle, the value of inventories has been adjusted to correspond to the historical cost. The probable reacquisition cost of the inventories on the day in which the accounts were closed would be 73.5 million markka lower. Complying with the absorption principle, however, this difference has not been recorded as an expense.

**FIXED ASSETS**

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The fixed assets have been recorded in the balance sheet at their historical cost less the planned depreciation. The revaluation of fixed assets is included in the balance sheet values.

Planned depreciation is calculated according to the expected useful life.

Useful lives have been defined as follows:

- hydro power plants	40 – 50 years
- nuclear power plants	10 – 41 years
- condensing power plants	25 years
- cogeneration plants	4 – 40 years
- power grids	30 years
- other fixed assets	5 – 15 years

In implementing the depreciation plan, the annual utilisation of each plant has also been accounted for.

**VOLUNTARY RESERVES**

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Voluntary reserves, including the accumulated depreciation difference, have been divided between distributable equity and deferred tax liability. The change in voluntary reserves during the financial year has been divided between the result for the period and change in deferred tax liability.

NOTES TO THE FINANCIAL STATEMENTS

FIM million	Group		Parent company	
	1998	1997	1998	1997
<b>(1) TURNOVER</b>				
Sales of electricity	2 759.6	2 026.2	2 087.7	2 021.1
Sales of heat	336.3	327.0	274.3	264.7
Other sales	281.8	413.5	54.8	33.6
	3 377.7	2 766.7	2 416.8	2 319.4
<b>(2) OTHER OPERATING INCOME AND EXPENSES</b>				
Gains from sales of fixed assets	5.1	170.1	3.4	154.9
Rent income	10.3	7.6	5.6	3.9
Other income and expenses	2.4	2.9	- 0.9	- 3.7
	17.8	180.6	8.1	155.1
<b>(3) PERSONNEL EXPENSES</b>				
Wages and salaries	308.9	171.0	20.5	19.3
Pension expenses	42.3	33.7	3.0	5.3
Other indirect employee costs	30.8	13.3	1.0	0.0
Personnel expenses in Income Statement	382.0	218.0	24.5	24.6
Fringe benefits	1.5	1.2	0.6	0.6
Total personnel expenses	383.5	219.2	25.1	25.2
<b>(4) DEPRECIATION</b>				
Depreciation according to plan				
Other long-term expenses	31.0	14.5	2.2	3.4
Buildings and constructions	55.9	18.6	0.7	0.3
Canals, dams, basins, etc.	8.9	5.6	-	0.0
Machinery and equipment	432.9	213.6	6.7	4.0
Investments in fixed assets	-	5.4	-	2.7
Value adjustments	-	2.0	-	-
	528.7	259.7	9.6	10.4
Change in depreciation difference				
Other long-term expenses			0.0	- 17.0
Buildings and constructions			0.1	0.5
Machinery and equipment			- 10.3	- 100.9
Investments in fixed asset			-	- 7.1
			- 10.2	- 124.5
<b>(5) GROUP FINANCIAL INCOME</b>				
Net interest income from Group companies				
Net interest income from long-term investments			115.6	118.6
Other interest income			0.6	0.6
Interest expenses paid to Group companies				
Interest expenses			6.1	4.9



NOTES TO THE FINANCIAL STATEMENTS

FIM million	Land and water areas	Other long-term expenses	Buildings and constructions	Canals, dams, tunnels, basins, harbors and waterways	Machinery and equipment
<b>(6) TANGIBLE AND INTANGIBLE ASSETS</b>					
<b>GROUP</b>					
Acquisition cost on 1 Jan	234.5	691.3	2 076.0	1 507.3	9 942.3
Increases	0.2	17.9	20.4	1.3	355.8
Decreases	0.0	- 3.0	- 0.9	0.0	- 8.7
Acquisition cost on 31 Dec	234.7	706.2	2 095.5	1 508.6	10 289.4
Accumulated depreciation difference according to plan on 31 Dec	-	- 328.4	- 683.1	- 79.3	- 3 965.5
Book value on 31 Dec, 1998	234.7	377.8	1 412.4	1 429.3	6 323.9
Book value on 31 Dec, 1997	216.9	83.2	828.2	1 388.2	2 937.9
Revaluation included in the acquisition cost on 31 Dec			394.8	1 182.3	
Production machinery and equipment on 31 Dec					5 701.8
<b>PARENT COMPANY</b>					
Acquisition cost on 1 Jan	1.0	21.3	20.9	-	56.8
Increases		0.0	0.1	-	1.7
Decreases		- 3.0	-	-	- 8.1
Acquisition cost on 31 Dec	1.0	18.3	21.0	-	50.4
Accumulated depreciation according to plan on 31 Dec		- 9.0	- 2.8	-	- 17.6
Book value on 31 Dec, 1998	1.0	9.3	18.2	-	32.8
Book value on 31 Dec, 1997	1.0	14.4	18.8	-	43.3
Accumulated difference between total and planned depreciation, 1 Jan	-	0.4	0.8	-	43.0
Increase in depreciation difference	-		0.1	-	
Decrease in depreciation difference	-	0.0		-	- 10.3
Accumulated difference between total and planned depreciation, 31 Dec	-	0.4	0.9	-	32.7
Revaluation included in acquisition costs on 31 Dec			0.7		
Production machinery and equipment on 31 Dec					28.6

NOTES TO THE FINANCIAL STATEMENTS

FIM million	Group		Parent company	
	1998	1997	1998	1997
<b>TAXABLE VALUES OF FIXED ASSETS</b>				
Taxable values				
Real estate	2 252.9	1 323.2	12.3	12.2
Shares and holdings	201.5	563.1	1 595.0	1 596.5
	2 454.4	1 886.3	1 607.4	1 608.7
<b>(7) LONG-TERM LOAN RECEIVABLES</b>				
Group companies				
Loan receivables			1 824.1	1 927.7
Associated companies				
Loan receivables	213.0	208.0	213.0	208.0
<b>(8) CURRENT ASSETS</b>				
Receivables falling due within one year or later				
Loan receivables	13.1	0.4	0.3	0.4
Receivables and debts/Group companies and associated companies				
Sales receivables/Group companies	-	-	17.0	6.6
Sales receivables/associated companies	8.7	13.7	4.6	0.5
Loan receivables/Group companies	-	-	0.0	0.0
Other receivables/Group companies	-	-	1.0	0.0
Other receivables/associated companies	12.8	2.0	0.0	-
Advances received/associated companies	-	10.7	-	-
Short-term accounts payable/Group companies	-	-	254.4	114.9
Short-term accounts payable/associated companies	13.5	161.9	1.9	147.8
Deferred liabilities/Group companies	-	-	83.3	-
Deferred liabilities/associated companies	-	78.4	-	78.4
Other short-term liabilities/Group companies	-	-	46.5	80.4
Other short-term liabilities/associated companies	13.3	0.9	-	-
<b>(9) SHAREHOLDERS' EQUITY</b>				
RESTRICTED EQUITY				
Share capital on 1 Jan	336.0	336.0	336.0	336.0
Transfer from share issues	3.5	-	3.5	-
Share capital on 31 Dec	339.5	336.0	339.5	336.0
Share issue on 1 Jan	-	-	-	-
Transfer to share capital	- 3.5	-	- 3.5	-
Transfer to share premium reserve	- 37.3	-	- 37.3	-
Share issues during financial period	138.5	-	138.5	-
Share issue on 31 Dec	97.7	-	97.7	-
Share premium reserve on 1 Jan	-	-	-	-
Share premium	37.3	-	37.3	-
Share premium reserve on 31 Dec	37.3	-	37.3	-
Reserve fund on 1 Jan	1 669.9	1 669.9	1 649.2	1 649.2
Reserve fund on 31 Dec	1 669.9	1 669.9	1 649.2	1 649.2
Revaluation reserve on 1 Jan	1 300.0	1 300.0	1 300.0	1 300.0
Revaluation reserve on 31 Dec	1 300.0	1 300.0	1 300.0	1 300.0

NOTES TO THE FINANCIAL STATEMENTS

FIM million	Group		Parent company	
	1998	1997	1998	1997
DISTRIBUTABLE FUNDS				
Distributable equity on 1 Jan	854.1	817.7	196.7	155.8
Profit for the period	102.6	36.4	15.7	40.9
Distributable equity on 31 Dec	956.7	854.1	212.4	196.7
TOTAL SHAREHOLDERS' EQUITY				
	4 401.1	4 160.0	3 636.1	3 481.9
DISTRIBUTABLE FUNDS				
Distributable equity	956.7	854.1		
Untaxed reserves included in distributable equity	- 987.1	- 921.9		
Distributable funds on 31 Dec	- 30.4	- 67.8		
Untaxed reserves on 31 Dec				
Accumulated depreciation difference	3 219.9	1 280.4		
Deferred tax liability related to untaxed reserves	- 901.5	- 358.5		
Utilised in acquisition cost calculation	- 723.7			
Minority share	- 607.6			
Untaxed reserves included in distributable equity on 31 Dec	987.1	921.9		

**SHARE CAPITAL BY SHARE CATEGORY**

	shares	á markka	markka
Series A	13 350 077	10.00	133 500 770
- entitling to electricity produced or acquired by PVO-Vesivoima Oy			
Series B	6 534 572	10.00	65 345 720
- entitling to 49.6 % of Teollisuuden Voima Oy's production or acquisition			
Series C	8 314 455	10.00	83 144 550
- entitling to power and heat produced or acquired by PVO-Lämpövoima Oy			
Series D3	100 000	10.00	1 000 000
- entitling to electricity and heat produced by Kokkolan Voima Oy			
Series D4	200 000	10.00	2 000 000
- entitling to electricity and heat produced by Veitsiluodon Voima Oy			
Series D5	100 000	10.00	1 000 000
- entitling to electricity and heat produced by Kemijärven Voima Oy			
Series D6	200 000	10.00	2 000 000
- entitling to electricity and heat produced by Oulun Voima Oy			
Series E	4 654 743	10.00	46 547 430
- entitling to electricity and heat produced by Mussalon Voima Oy as well as to 7.2 % of the production of Teollisuuden Voima Oy			
Series H	500 000	10.00	5 000 000
- entitling to electricity and heat produced by PVO-Huippuvoima Oy			
			339 538 470

The owners of each series of shares are responsible for the fixed costs of the series in question, irrespective of the fact whether the capacity or energy share has been used or not, and for the variable costs in proportion to the amount of energy received.

NOTES TO THE FINANCIAL STATEMENTS

FIM million	Group		Parent company	
	1998	1997	1998	1997
<b>(10) LIABILITIES</b>				
Debts maturing after five years or later				
Loans from financial institutions	514.3	593.4	20.7	113.9
Other long-term loans	2 528.2	1 371.0	1 414.3	1 328.7
Total	3 042.5	1 964.4	1 435.0	1 442.6
Bond loans				
1992-1999 DEM	304.0			
Paid	- 304.0			
1991-2001 CHF	369.8			
1993-2000 JPY	223.9			
1993-2003 JPY	447.7			
1997-2004 FIM	70.0			
1990-2000 USD	122.3			
Paid	- 61.2			
	1 172.5			
Adjustment of swap loans and receivables	49.1			
	1 221.6			
<b>(11) PLEDGES AND CONTINGENT LIABILITIES</b>				
On corporate debt				
Mortgages	387.8	380.8		
	387.8	380.8		
On associated company debt				
Guarantees	361.4	431.3	361.4	431.3
	361.4	431.3	361.4	431.3
On behalf of others				
Guarantees	4.3	4.5	4.3	4.5
Other own liabilities				
Leasing and repurchase commitments	879.8	228.9	-	-
Other commitments	7.9	9.8	252.0	13.6
	887.7	238.7	252.0	13.6
Total				
Mortgages	387.8	380.8	-	-
Guarantees	365.7	435.7	365.7	435.8
Leasing commitments	879.8	228.9	-	-
Other commitments	7.9	9.8	252.0	13.6
	1 641.2	1 055.2	617.7	449.4
Nuclear waste management liabilities				
Nuclear waste management liability	3 728.0	-	-	-
Assets in nuclear waste management fund (31 March, 1999)	3 490.5	-	-	-
Guarantee in virtue of section 44 of the Nuclear Energy Act	663.3	440.7	376.7	440.7
Nuclear waste management receivables pledged to government nuclear waste management fund	1 073.8	-	-	-
<b>(12) DERIVATIVE CONTRACTS</b>				
The capital values of the derivative contracts related to hedging against exchange rate risks were the following:				
Foreign currency forward contracts	25.0	9.2	-	7.2
Foreign currency and interest rate swap contracts	2 438.0	932.1	665.3	932.1
Interest rate swap contracts	1 540.0	993.4	750.0	903.4
Cap contracts	1 025.2	-	-	-
	5 028.2	1 934.7	1 415.3	1 842.7

**(13) INFORMATION REQUIRED BY THE ELECTRICITY MARKET ACT**

**GRID OPERATIONS**

Grid business consists of the Pohjolan Voima Oy regional grid operations.

**ALLOCATION OF JOINT ITEMS**

The joint cost items are allocated according to the matching principle. The capital structure of the balance sheet is based on the equity to assets ratio requirements set by Pohjolan Voima on the Group companies.

**VALUATION OF FIXED ASSETS**

The fixed assets have been recorded according to the valuation principles followed within the Group.

**RETURN ON INVESTMENT**

Return on investment (ROI) was 8 percent.

$$\text{ROI} = 100 \times \frac{\text{profit before extraordinary items + interest and other financial expenses}}{\text{invested capital (annual average)}}$$

**PERSONNEL**

The persons involved in grid operations averaged 1.5. The necessary maintenance services were bought from outside sources.

**INVESTMENT**

The investments in the grid amounted to 3.0 million Finnish markka.

**GRID OPERATION**

**PROFIT AND LOSS STATEMENT FIM million**

	<b>Jan 1 - Dec 31, 1998</b>	<b>Sep 1 - Dec 31, 1997</b>
Turnover	29.0	18.0
Other operating income and expenses	- 2.0	-
Expenses		
Energy purchases and transmission fees	17.3	12.8
Personnel expenses	0.9	0.0
Rents and leases	0.0	0.0
Other expenses	<u>1.7</u>	<u>1.5</u>
Operating margin	7.1	3.7
Depreciation on fixed assets and other long-term expenses	3.5	1.5
Operating profit	3.6	2.2
Financial income and expenses		
Interest income	0.5	-
Interest expenses	<u>0.0</u>	<u>- 0.2</u>
Profit before voluntary provisions and taxes	4.1	2.0
Difference between book and planned depreciation (+)	9.4	1.0
Direct taxes		
For the financial period	<u>- 3.8</u>	<u>- 0.8</u>
Profit for the period	<u>9.7</u>	<u>2.2</u>

NOTES TO THE FINANCIAL STATEMENTS

**GRID OPERATION**

**BALANCE SHEET FIM million**

**Dec 31, 1998**

**Dec 31, 1997**

**ASSETS**

FIXED ASSETS AND OTHER  
LONG-TERM EXPENSES

Intangible assets

Other long-term expenses

6.8

11.6

Tangible assets

Grid

26.3

35.7

Advance payments  
and work in progress

16.4

42.7

12.8

48.5

CURRENT ASSETS

Receivables

Accounts receivable

5.1

13.6

Deferred assets

0.9

6.0

10.7

24.3

Cash in hand and at banks

8.9

-

64.4

84.4

**LIABILITIES**

SHAREHOLDERS' EQUITY

Calculated equity

16.9

16.9

Retained earnings

2.2

0.0

Profit for the period

9.7

28.8

2.2

19.1

RESERVES

Accumulated depreciation in excess of plan

26.3

35.7

LIABILITIES

Short-term

Accounts payable

1.3

8.5

Deferred liabilities

8.0

12.7

Other short-term liabilities

-

9.3

8.4

29.6

64.4

84.4

NOTES TO THE FINANCIAL STATEMENTS

(14) SHARES AND HOLDINGS	Ownership share %	Share of votes %	Share of equity in FIM 1 000	Shares		Book value in FIM 1 000	Profit/loss according to the latest financial statements
				Number	Nominal value in FIM 1 000		
<b>SHARES IN SUBSIDIARIES</b>							
Owned by the parent company:							
Kemijärven Voima Oy	100.0	100.0	10 000	10 000	10 000	10 000	152
Kokkolan Voima Oy	100.0	100.0	19 977	19 984	19 984	20 000	20
Länsi-Suomen Yhteiskäyttö Oy	100.0	100.0	2 097	1 500	1 500	1 957	44
Mussalon Voima Oy	100.0	100.0	218 607	243 607	243 607	243 607	- 25 000
Oulun Voima Oy	100.0	100.0	20 000	20 000	20 000	20 000	0
PVO-Engineering Oy	100.0	100.0	10 928	2 000	2 000	2 000	4 491
PVO-Huippuvoima Oy	100.0	100.0	20 537	20 800	20 800	20 800	- 263
PVO-Lämpövoima Oy	100.0	100.0	- 11 316	1 000 000	10 000	10 000	0
PVO-Palvelut Oy	100.0	100.0	10 000	1 000 000	10 000	10 100	0
PVO-Vesivoima Oy	100.0	100.0	1 585 778	1 000 000	10 000	1 586 483	85
PVO-Voimaverkko Oy	100.0	100.0	15	15	15	15	0
Raahen Voima Oy	100.0	100.0	50	50	50	50	0
Rouhialan Voimansiirto Oy	100.0	100.0	5	150	15	15	0
Teollisuuden Voima Oy	56.8	49.9	443 681	405 691 729	405 691	1 789 207	0
Veitsiluodon Voima Oy	100.0	100.0	39 145	40 000	40 000	40 000	0
Housing and real estate companies						2 901	167
						3 757 135	
Owned by subsidiaries:							
Nokian Lämpövoima Oy	80.1	80.1	21 624	80 100	801	18 257	- 49
Ramse Consulting Oy	55.0	55.0	2 618	550	550	2 124	2 599
Synton Oy	100.0	100.0	15	15	15	15	0
TVO Nuclear Services Oy	100.0	100.0	49	1 000	50	50	- 1
Housing and real estate companies						1	
						20 447	
<b>PARTICIPATING INTEREST COMPANIES</b>							
Owned by the parent company:							
Fingrid Oyj	25.1	33.4	239 016	834	83 400	166 800	205 077 *)
Porvoon Alueverkko Oy	33.3	33.3	22	40	40	40	- 55
Suomen Voimatekniikka Oy	30.0	30.0	8 596	1 620	1 620	4 860	7 678
Housing and real estate companies						910	
						172 610	
*) Profit of the Group							
Owned by subsidiaries:							
Tornionlaakson Voima Oy	50.0	50.0	555	500	500	500	- 189
Vaskiluodon Voima Oy	50.0	50.0	8 000	300	3 000	5 042	0
Voimalohi Oy	50.0	50.0	880	1 000	1 000	1 000	- 345
Posiva Oy	60.0	60.0	6 000	6 000	6 000	6 000	0
						12 542	

The financial statements of all participating interest companies were made on Dec. 31, 1998 and their financial period is 12 months.

OTHER SHARES AND HOLDINGS	Ownership share %	Number	Nominal value FIM 1 000	Book value FIM 1 000
Länsi-Suomen Voima Oyj	19.9	3 980	3 980	200 283
Tahkoluodon Polttoöljy Oy	32.0	640	640	643
Teollisuuden Sähkömyynti Oy	19.0	532	532	534
Housing and real estate companies				12 681
Others				4 820
				218 961
<b>OTHER INVESTMENTS</b>				
Finnish Government Bonds			1 000	1 002
Floating rate note			20 000	20 009
				21 011

P R O P O S A L   O F   T H E   B O A R D   O F   D I R E C T O R S  
C O N C E R N I N G   T H E   F I N A N C I A L   R E S U L T

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The distributable equity of the PVO group is 956,721,474.42 Finnish markka of which 987,060,911,83 markka are items transferred from voluntary reserves to equity. The profit and loss statement of the parent company Pohjolan Voima shows a profit of

15,726,549.93 markka, and the distributable equity totals 212,495,165.48 markka. The Board proposes to the Annual General Meeting that the profit be transferred to retained earnings and no dividend be distributed.

Helsinki, March 24, 1999

Tauno Matomäki  
Chairman

Jukka Härmälä  
Deputy Chairman

Rauno Hakkila

Heikki Sara

Heimo Karinen

Antti Oksanen

Juhani Paananen

Timo Rajala  
President and CEO

A U D I T O R S '   R E P O R T

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To the shareholders of Pohjolan Voima Oy

We have audited the Pohjolan Voima Oy bookkeeping, financial statements and management for the financial period from Jan 1 to Dec 31, 1998. The financial statements compiled by the Board of Directors and the President include the annual report as well as the consolidated and parent company income statements, balance sheets and notes to the financial statements. On the basis of the audit, we present the following report on the financial statements and management.

The audit has been conducted in accordance with generally accepted auditing standards. Bookkeeping and the principles, contents and presentation of the financial statements have been examined sufficiently to obtain reasonable assurance about whether the financial statements are free of material misstatement. In the management audit, the legality of the actions by the Board members and the President has been examined in view of the stipulations of the Companies Act.

As our report, we state that the financial statements have been prepared in accordance with the Bookkeeping Act and the stipulations and orders concerning the financial statements. The financial statements present, in

a manner referred to in the Bookkeeping Act, the true and fair view of the result and financial status of the Group and the parent company. The financial statements and the consolidated financial statements can be approved and the parent company Board members and President can be discharged from liability for the financial period we have audited. The Board proposal for the disposition of the profit for the year is in accordance with the Companies Act.

We have studied the income statement, balance sheet and the additional information related to the separate grid operation presented in the notes to the financial statements. As our report we state that it has been compiled in accordance with the Electricity Market Act, as well as with the stipulations and orders issued in virtue of the said Act.

Helsinki, April 8, 1999

SVH Pricewaterhouse Coopers Oy  
Authorised Public Accountants

Pekka Nikula  
Authorised Public Accountant





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### POWER PLANTS

- Hydro
- Nuclear
- Peat
- Biomass
- Natural Gas
- Coal
- Oil

Group's own power plants  
market in red









**PVO GROUP**