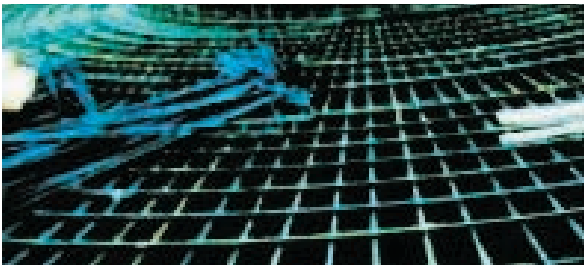


THE ENVIRONMENTAL YEAR 2001

KEY EVENTS 2001

- Pohjolan Voima set a new record for the electricity supply. The electricity supplied to the shareholders totalled 19 928 GWh.
- The Alholma biofuel-fired power plant (240 MW of electricity, 160 MW of heat) was completed
- The Kokkola biofuel-fired power plant (20 MW of electricity, 50 MW of heat) was completed
- Construction of the biofuel-fired power plants, on which a decision was taken in the previous year, continued:
 - Kuusankoski 76 MW of electricity, 180 MW of heat
 - Jämsänkoski 46 MW of electricity, 130 MW of heat
 - Ristiina 10 MW of electricity, 65 MW of heat
- A decision was taken to invest in the Savonlinna biofuel-fired power plant (17 MW of electricity, 53 MW of heat)
- A biofuel-fired power plant was purchased in the town of Ylivieska (6 MW of electricity, 26 MW of heat)
- The import capacity of electricity from Russia increased from 100 MW to 400 MW.
- Parliament ratified the decision in principle by the Council of State concerning the construction of a final disposal facility for spent nuclear fuel at Olkiluoto in Eurajoki.
- PVO-Innopower Oy began operations. The company focuses on the production of wind power and on other new energy sources.
- Winwind Oy supplied the first wind power plant, which it had also developed, to Oulun Energia.
- The industrial-scale offshore wind power studies in the town of Kokkola were completed. The environmental impact assessment procedure is being continued.
- Pohjolan Voima was awarded an honourable mention for the promotion of energy conservation.
- The environmental certificates of thermal power production were renewed. They are valid until 2004.
- Teollisuuden Voima was entered into the EMAS register as the first Finnish energy company.
- Development of the gasification and gas cleaning technology of refuse-derived fuel continued jointly with Vapo and VTT, for example, by building a 1 MW pilot plant.
- Organization of the promotion of the utilization of by-products from the Group's different power plants was centralized.
- The first phase of the Pirilö ash disposal site was constructed in Pietarsaari.

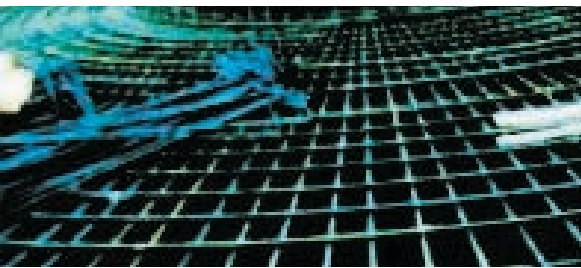


THE ENVIRONMENTAL YEAR 2001

OPERATING ENVIRONMENT

Consumption continues to increase, emissions must be reduced

Technical obstacles to the ratification of the Kyoto Protocol were removed, when the implementation principles were finally laid down in the Conference of the Parties to the Climate Convention held in Marrakech. The EU published a bulletin concerning the Climate Change Programme and, as part of it, promoted several directives linked with climate policy. Of these, the most significant one was the proposal for a directive concerning emissions trading. In Finland, Parliament discussed the Government's report on the national climate strategy, whose principal elements include energy conservation, promotion of the use of renewable energy sources, and the issue of base-load power. Despite the industrial recession, the consumption of electricity increased by 3% in Finland.

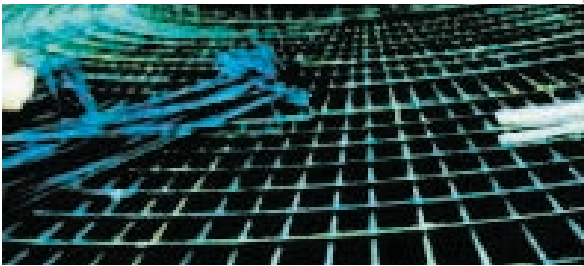


THE ENVIRONMENTAL YEAR 2001

PRODUCTION AND EMISSIONS

Production and emissions increased, the capacity was upgraded. Pohjolan Voima set a new record for electricity production, 15 985 GWh. On completion of the Alholma and Kokkola biofuel-fired power plants the proportion of condensing power capacity continued to be reduced to 53% of the entire thermal power capacity, while the proportion was some 75% at the beginning of last decade.

The production of hydropower returned to the level of normal precipitation. The use of fuels increased by a third on the previous year. As a result of the lower degree of utilization of the forest industry, the use of wood and wood-based steam at power plants was reduced. On the other hand, the completed power plants contributed to increasing the amount of wood used by Pohjolan Voima compared with the previous year. The use of coal and peat increased substantially, which also increased emissions. Carbon dioxide emissions grew by 32%, sulfur emissions by 50% and nitrogen oxide emissions by 32%. Particle emissions remained at the previous year's level. Depending on the emission type, the emissions were 17 to 80% below the levels allowed by the environmental permits. Sulfur dioxide emissions calculated per production unit were at the highest in 1997. Thanks to the upgrading of the production structure the specific emissions in 2001 were more than 10% lower than at that time, although the degree of utilization of the thermal power plants was high.

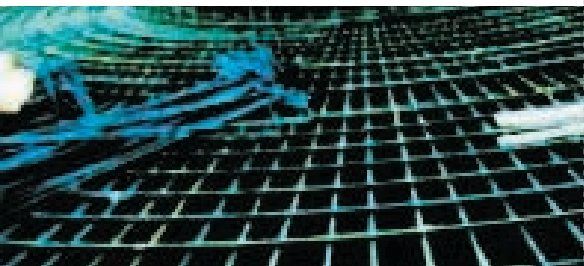


THE ENVIRONMENTAL YEAR 2001

BY-PRODUCTS AND WASTE

Utilization must be increased and provision made for final disposal

Organization of the promotion of the utilization of ash from the Group's thermal power plants was centralized. Final disposal areas will be needed in any case. The first phase of the dump was built in Pietarsaari, and a permit application was submitted for a dump to be built in Kristiinankaupunki. Pohjolan Voima's opinion about the interpretation of legislation concerning the protective structures of an ash disposal site differs from that of the approving authority. An appeal has therefore been submitted to the Vaasa Administrative Court against the permit decision on the Pietarsaari dump.

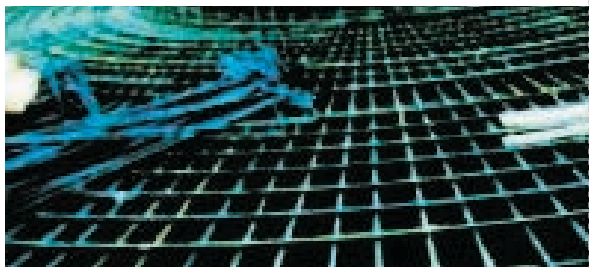


THE ENVIRONMENTAL YEAR 2001

REGULATORY COMPLIANCE

Environmental management systems functioned

Teollisuuden Voima was entered into the EMAS register as the first Finnish energy company. The environmental certificates of thermal power production were renewed, and they are valid until 2004. Regulatory compliance is systematically dealt with as part of the plants' environmental management systems. There were no serious deviations from regulatory compliance during the year under review.

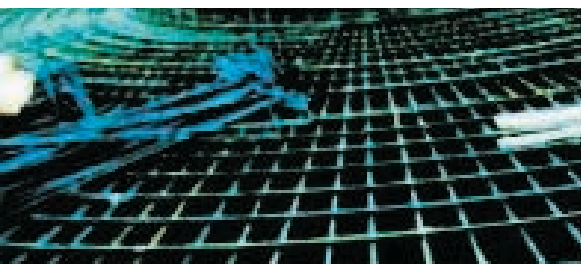


THE ENVIRONMENTAL YEAR 2001

FUTURE OUTLOOK

Investments and R&D

Pohjolan Voima's operations are strongly oriented towards the future. Construction of the Kuusankoski, Jämsänkoski and Ristiina biofuel-fired power plants continued, and a decision was taken to invest in the Savonlinna power plant. A biofuel-fired power plant was purchased in the town of Ylivieska. The Group is improving the acquisition and use of biofuels in accordance with an extensive biofuel programme. The Council of State took a favourable decision in principle concerning the construction of a new nuclear power plant unit, which Parliament subsequently ratified. PVO-Innopower Oy, which focuses on the production of wind power and on other new energy sources, began operations. Pohjolan Voima's associated company, Winwind Oy, supplied the first wind power plant, which it had also developed, to Oulun Energia. The industrial-scale offshore wind power studies in the town of Kokkola were completed, and the work will be continued by an environmental impact assessment procedure. Development of the gasification and gas cleaning technology of refuse-derived fuel continued jointly with Vapo and VTT by building a 1 MW pilot plant and by preparing the first investment as part of the Martinlaakso power plant of Vantaa Energy Ltd.



THE ENVIRONMENTAL YEAR 2001

THERMAL POWER

Use of natural resources 2001

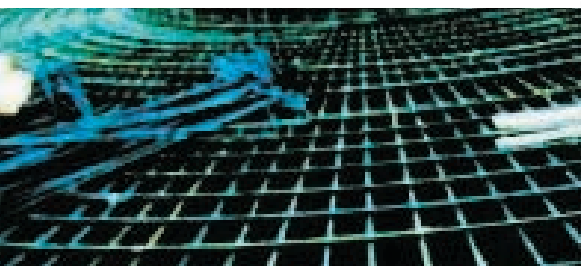
The use of coal and peat increased by roughly the amount representing the increase in thermal power production. The use of wood at power plants was reduced owing to the lower degree of utilization of the forest industry. As a result of the decreased demand for pulp, the available amounts of process steam generated in soda recovery boilers were smaller than in previous years. The deficit is made up by peat. On the other hand, the completed power plants, Kokkola and Alholma, contributed to increasing the amount of wood used from the previous year. The total use of fuels grew by 32%.

The use of fuels was as follows:

		Change from the previous year, %
Coal	1.5 million tonnes	+23
Wood fuels	0.9 million tonnes	+ 9
Peat	4.6 million m3	+ 71
Natural gas	98 million m3	+ 150
Oil	0.01 million tonnes	-

Compared with fuels, the use of other natural resources was small. The power plants consumed 760 million cubic metres of cooling-water. Some 12 000 tonnes of limestone was used for desulfurization.

PVO-Lämpövoima completed the energy analysis for the Seinäjoki power plant and launched the corresponding work at the Kristiina power plant. PVO-Lämpövoima signed the energy conservation agreement in 1997.



THE ENVIRONMENTAL YEAR 2001

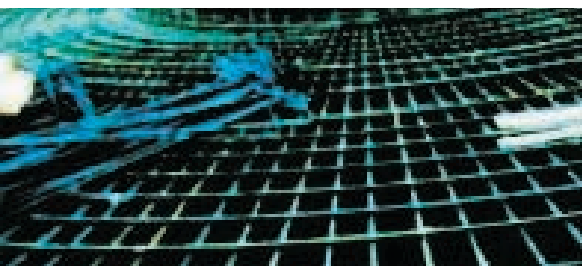
THERMAL POWER

Greenhouse gases in 2001

Pohjolan Voima's greenhouse gas emissions totalled 4.9 million tonnes, and they accounted for 6% of the total greenhouse gas emissions in Finland. The emissions grew by 32% over the previous year as a result of the increased use of coal and peat. However, emissions calculated per production unit were more than 10% lower than in 1997, at which time the degree of utilization of the thermal power plants was roughly as high as in the year under review.

PVO-Lämpövoima completed the energy analysis for the Seinäjoki power plant and launched the corresponding work at the Kristiina power plant. PVO-Lämpövoima signed the energy conservation agreement in 1997.

The new biofuel-fired power plants in Alholma and Kokkola were completed. They use mainly wood and peat as fuels. Furthermore, Pohjolan Voima purchased the biofuel-fired power plant with an electrical output of 6 MW located in the town of Ylivieska (Vieskan Voima Oy).



THE ENVIRONMENTAL YEAR 2001

THERMAL POWER

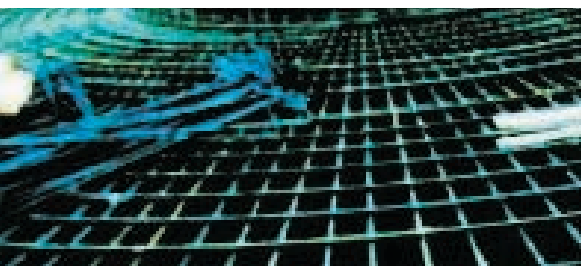
Acidifying emissions in 2001

As a result of the increased use of fuels Pohjolan Voima's sulfur dioxide emissions increased by some 50% on the previous year, amounting to 6 600 tonnes. However, the emissions were some 40% below the level allowed by the environmental permits. The specific emissions from electricity production were 340 mg/kWh, which represented merely a good quarter of the 1990 level. Pohjolan Voima's emissions account for about 8% of the total emissions in Finland.

The nitrogen oxide emissions increased by a third, totalling 9 000 tonnes. The emissions were 17% below the amounts allowed by the environmental permits. The specific emissions from electricity production also increased but they continued to be about 40% of the 1990 emission level. Pohjolan Voima's total emissions account for about 4% of the total emissions in Finland.

Acidification

Acidification is assessed on the basis of what is called the critical load. The critical load means the capacity specific to each ecosystem to continuously absorb acidifying impurities without being damaged. In Finland, the critical load was exceeded in about 6% of the country's area as recently as 1995. In most of the area where the critical load was exceeded, the target level can be reached by merely reducing the sulfur deposition.



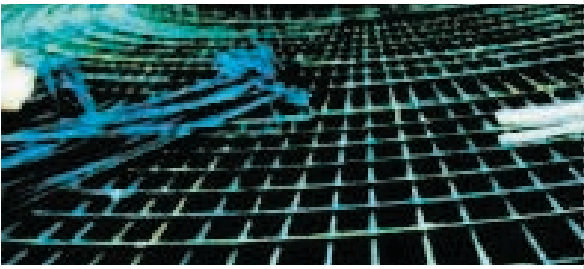
THE ENVIRONMENTAL YEAR 2001

THERMAL POWER

Emissions into watercourses in 2001

The power plants in the Pohjolan Voima Group consumed a total of 760 million cubic metres of cooling-water. A total of 17 000 TJ of heat was released with cooling-waters into the sea and 4 070 TJ of heat into inland watercourses. The increase in heat load totalled 13%. Nuclear power plants are not included in the above figures. The Group's own peat production amounted to 580 000 cubic metres. The burden caused by peat production on watercourses was reduced on the previous year. The average figures for the burden were:

- 0.15 kg/ha of phosphor
- 4.4 kg/ha of nitrogen
- 20.6 kg/ha of solids

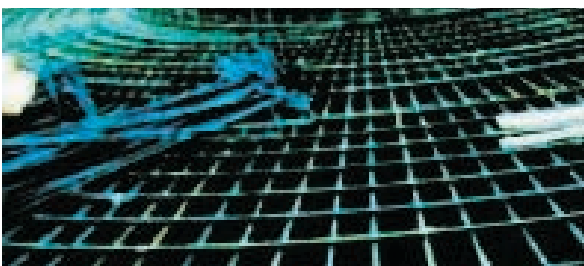


THE ENVIRONMENTAL YEAR 2001

THERMAL POWER

Particle emissions in 2001

Pohjolan Voima's particle emissions continued to be small, and despite the increased generation they remained at the previous year's level. The total emissions, 359 tonnes, were 19% of the amount allowed by the permits. The specific particle emission from electricity generation was 18 mg/kWh calculated per kilowatt-hour of electricity generated by thermal power.



THE ENVIRONMENTAL YEAR 2001

THERMAL POWER

By-products and waste in 2001

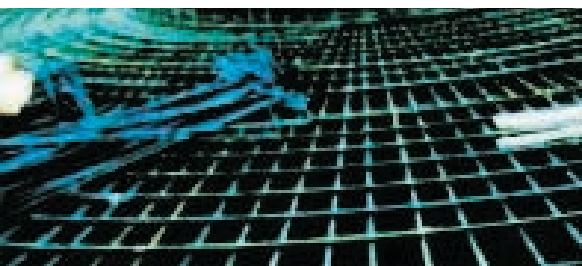
The power plants in the Pohjolan Voima Group produced a total of 327 000 tonnes of fly ash, bottom ash and desulfurization gypsum, an increase of 15% on the previous year. Of this amount, 246 500 tonnes, or 78%, were utilized. At the end of the year, there were 126 500 tonnes in an interim store waiting for utilization. Almost 39 000 tonnes of by-products were taken to dumps. 3 650 tonnes of desulfurization gypsum were stored in dumps owing to defective quality.

The ash was used for the construction of roads and a harbour yard, for dump structures, and in the manufacture of cement and concrete. The desulfurization gypsum was used in the manufacture of plasterboard. One of the important construction sites, a bypass for the town of Kristiinankaupunki, was completed and opened.

Some 155 tonnes of hazardous waste were sent for reprocessing. A total of 62 tonnes of scrap metal and other waste that could be used accumulated at the plants. 3 600 tonnes of the filter cake produced in the desulfurization process were treated by recycling it for the process, and consequently the substances contained in it resulted in fly ash. A total of 1 370 tonnes of ordinary waste were taken to dumps.

The first phase of the Pirilö dump was constructed for the use of the Alholma power plant located in the town of Pietarsaari. An appeal has been submitted to the Vaasa Administrative Court against the requirements set in the permit for protective structures of the dump. A permit was applied for for the Lälby dump to be built in Kristiinankaupunki.

Organization of the utilization of by-products from the Group's different power plants was centralized.



THE ENVIRONMENTAL YEAR 2001

ENVIRONMENTAL MANAGEMENT 2001

Use of watercourses and environmental management in 2001

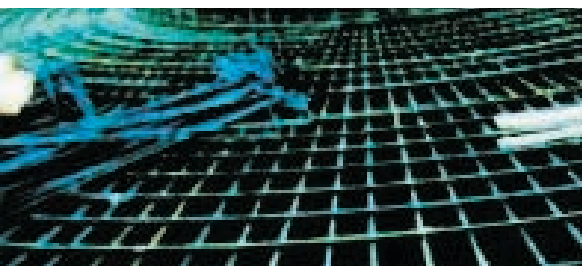
The Group was capable of regulating the watercourses and the flow in accordance with the targets set for the water level. The variation in the water level of the upper reservoir of the Isohaara power plant remained within the limit of 0.6 metres that was agreed on voluntarily, except for a short drop in the spring. The lakes at the upper course of the Iijoki River were regulated in accordance with what are called the ecological regulation instructions.

The measures complying with the programmes based on the Dam Safety Act were taken. The supervising authority carried out a periodic inspection at the dams of Raasakka, Maalismaa and Melo. Similar inspections were also carried out at several dams of the power plants located on the Kokemäenjoki River; PVO-Vesivoima Oy is in charge of the dam safety issues of these plants on basis of a service contract.

Two landscaping weirs, including the landscaping work, were completed in the drained riverbeds in the lower reaches of the Iijoki River. Up to now, 24 landscaping weirs have been completed in accordance with the programme launched in 1991. In addition, five landscaping weirs have been constructed in the regulated lakes located in the upper reaches of the Iijoki River in the 1990s. The last two landscaping weirs will be built in 2002.

Various measures relating to the clearing of shores, the building of boat-moving ramps, drainage arrangements, water resources management and landscaping were implemented in about 200 locations. Most of these measures concerned the protection of shores against erosion. Protective structures were built for a total of 37 kilometres of shores, and 15 000 cubic metres of material was used for them.

PVO-Vesivoima Oy was also involved in the design and implementation of the environmental management programme for the Iijoki River co-ordinated by the North Ostrobothnia Regional Environment Centre. The programme rests on financing from the EU. The Company's expertise was employed in carrying out the repair work of regulation damage at Lake Pintamojärvi by commission of Koillis-Pohjan Sähkö Oy in Taivalkoski.



THE ENVIRONMENTAL YEAR 2001

FISH STOCK MANAGEMENT 2001

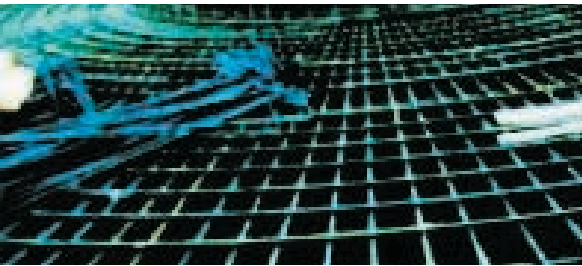
Voimalohi Oy was capable of implementing the stocking required by the authorities according to plan, except for the transfer of lamprey over dams on the Iijoki River, which remained 30% behind the target. Indeed, the stocking balances of almost all species showed a surplus. The farming of grayling succeeded extremely well. In 2001, it was thus possible to make up the deficits in the stocking balance shown in previous years.

The fish management authority approved the proposed stocking plans for 2001 - 2003. The revised monitoring programmes submitted to the relevant authority in 1999 require further revisions and are still awaiting official approval. Voimalohi Oy published a five-year report on the monitoring results concerning the inland water areas of the Iijoki River.

The Northern Finland Environmental Permit Authority granted Voimalohi Oy a permit to continue the fertilization of the natural food pond on Lake Maunujärvi in Kuusamo. The Maunujärvi pond produces some 1.3 million whitefish fry of the age of some summer annually.

The Ministry of Agriculture and Forestry set up two working-groups to deal with the fish stocking. One of the working-groups concentrates on drawing up instructions for the fulfilment of the fish stocking and payment obligations. The task of the other working-group is to determine the quality of the fish to be stocked with a view to increasing profitability of the fish stocking. Voimalohi Oy has a representative in both working-groups. The company was also involved in several joint studies aimed to improve the success in fish stocking.

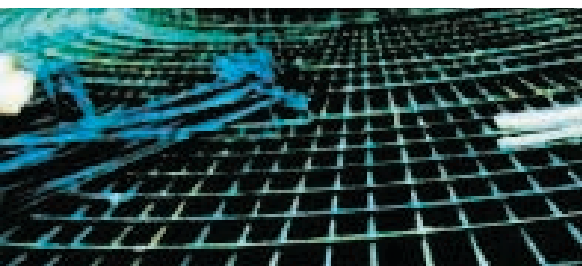
The size of the whitefish fry stocked in the sea area has aroused criticism. No size requirement has been set for one-summer-old fish to be stocked. The size of the fry reared in natural food ponds varies from year to year, depending on the farming conditions. Voimalohi Oy has set the target to achieve the greater stocking size. The issue of the size of stocked fish will probably be settled by an administrative regulation as a result of the work of the quality working-group set up by the Ministry of Agriculture and Forestry.



THE ENVIRONMENTAL YEAR 2001

The whitefish hatchery built at the mouth of the Iijoki River as a joint project of several parties began operations. In accordance with the agreement, PVO-Vesivoima Oy bought the first lot of newly-hatched whitefish fry from the cooperative that is in charge of the hatchery. The whitefish fry were stocked at the mouth of the Iijoki River, in addition to the fish stocking required by the authorities.

The development of the stocking of sea trout is being continued by gathering tagging results up to 2003. The project is part of the project launched in the early 1990s. The parties involved in the project are the Finnish Game and Fisheries Research Institute (RKTL), University of Helsinki, Employment and Economic Development Centres for Kainuu and Lapland, fishing areas, and the hydropower companies operating in the area.



THE ENVIRONMENTAL YEAR 2001

THE ENVIRONMENTAL MANAGEMENT SYSTEMS ARE FUNCTIONING

The review by the management of thermal power production is conducted annually in May. In the thermal power production review in 2002 it was stated that

- the targets set by Group management for 2001 had been achieved. The targets concerned renewable fuels and the use of desulfurization plants.

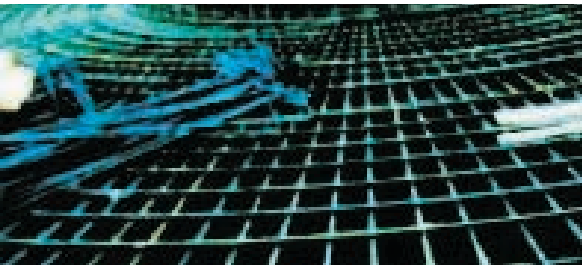
It was also stated that coal acquisitions had been made in accordance with the practice proposed by Group management.

- PVO-Lämpövoima Oy's energy conservation agreement signed in 1997 had been carried out. The energy analyses have been completed for the Tahkoluoto, Seinäjoki and Kristiina power plants. A decision was taken to perform the next analysis at the Vaskiluoto plant.

- most of the decisions taken in the previous review by Group management had been implemented. For instance, the requirements laid down in environmental legislation were analysed and the monitoring of environmental legislation was arranged. The development of ash utilization was reorganized. All the planned meetings with the authorities could not be held.

Most of the targets set by the power plant organizations were achieved. The most significant of these included the bypass made of ash for the town of Kristiinankaupunki, whose first section was opened, and creating the readiness for ash construction at the Mussalo power plant. At the Seinäjoki plant, the use of biofuels remained behind the target that had been set owing to the increased demand and the decline of the forest industry. At Tahkoluoto, 3 500 tonnes of gypsum had to be taken to a dump owing to defective quality, and 5 300 tonnes of ash had to be stored temporarily in the form of sludge in an ash basin. The deviations detected in the review of the environmental management systems were mainly connected with the instructions, documentation and the implementation of corrective measures.

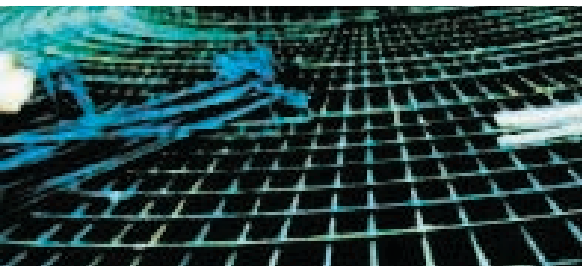
Minor oil leaks occurred at three plants. No oil escaped into the watercourse or the soil. The Vaskiluoto power plant had to be operated for 14 days without desulfurization owing to prolonged repair work. Thanks to the low-sulfur coal, however, the emission level was low even then.



THE ENVIRONMENTAL YEAR 2001

Groups of schoolchildren visited several plants, and an open-house event was arranged at Kristiina. The hydropower plants come into contact with the local people in issues dealing with the environmental management of hydropower production almost daily, and close contacts are also being maintained with the authorities.

The environmental training days numbered 94 in 2001.

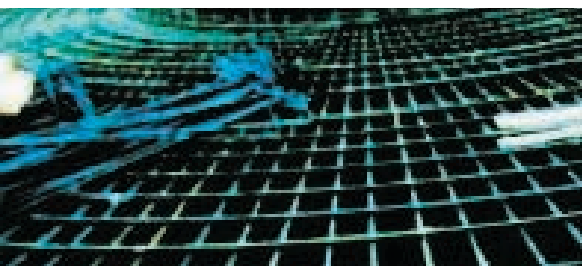


THE ENVIRONMENTAL YEAR 2001

REGULATORY COMPLIANCE OF THE OPERATIONS IN 2001

In 2001, there were no serious deviations from regulatory compliance of the production plants. The following events required that contact should be made with the supervisory authority:

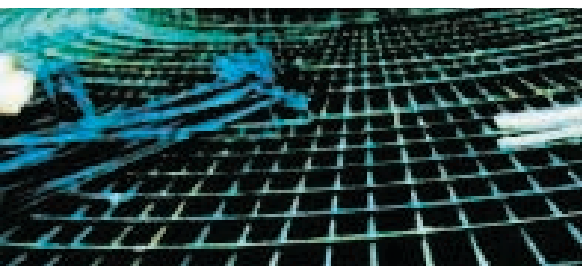
- In the Kokemäenjoki water system, the upper limit of Lake Pyhäjärvi was exceeded by 12 centimetres at the most owing to an autumn storm. The regulation measures could have no effect on the incident. Exceeding the limit caused no damage, although the damage caused by the storm was otherwise extensive.
- The West Finland Regional Environment Centre filed a complaint about the dust nuisance caused by the utilization of ash for construction of the Rengonharju airfield and demanded a report on the reduction of harmful effects.
- At Tahkoluoto, fuel oil containing 2.02% of sulfur was delivered by mistake to the low-sulfur fuel oil tank. The company drew up a report on the prevention of a recurrence of a similar incident. The tank is shared by Fortum and PVO-Lämpövoima Oy.



THE ENVIRONMENTAL YEAR 2001

LICENSING ISSUES IN 2001

- The Finnish Parliament ratified the Council of State's decision in principle on Posiva Oy's application concerning the final disposal of spent nuclear fuel at Olkiluoto in Eurajoki.
- The Council of State approved Teollisuuden Voima Oy's application for a decision in principle concerning the construction of a new nuclear power plant.
- The West Finland Regional Environment Centre granted Alholmens Kraft a permit to build a disposal area for power plant ash in Pietarsaari. The company had to appeal against the decision, since in the company's opinion the requirements set in the permit for protective structures exceeded the level required by law.
- A permit was applied for to build an ash disposal area in Kristiinankaupunki as well.
- The South Savo Regional Environment Centre granted an environmental permit to build the Ristiina power plant of Järvi-Suomen Voima Oy.
- An environmental permit has been applied for for the Savonlinna power plant.
- The application submitted by Powest Oy and Vapo Oy for the construction of a gasification plant of refuse-derived fuel in Vantaa is under consideration by the Western Finland Environmental Permit Authority.
- The application concerning revision of the environmental permit for the Tahkoluoto power plant is under consideration by the Western Finland Environmental Permit Authority.
- The application concerning the sea cable planned between Finland and Estonia is under consideration by the Western Finland Environmental Permit Authority.
- The application for a permit in accordance with the Electricity Market Act for a cross-border line was under consideration in the Ministry of Trade and Industry.
- The whitefish stocking obligation concerning Lake Kostonjärvi, located in the upper reaches of the Iijoki River, was changed to a payment obligation by decision of the Northern Finland Environmental Permit Authority.
- The environmental impact assessment procedure concerning the studies into offshore wind power in Kokkola is underway.
- The EIA procedure, in which Pohjolan Voima is the co-operation partner of Vantaa Energy Ltd, concerning the gasification of refuse-derived fuel will be completed in the early part of 2002.



THE ENVIRONMENTAL YEAR 2001

ENVIRONMENT AND ECONOMY 2001

The environmental costs of hydropower production were slightly lower than in the previous year, amounting to EUR 3 million. The costs were EUR 1.85 per megawatt-hour generated. Most of the costs resulted from the fish stock management obligations, and the rest from environmental management work, water resources management obligations, the monitoring of dam safety, and studies. PVO-Vesivoima Oy has long been carrying out various voluntary restoration measures jointly with Regional Environment Centres and municipalities. The co-operation partners have provided financing worth EUR 3.35 million in all for this work since 1992. In 2001, the contribution of the co-operation partner was EUR 50 000.

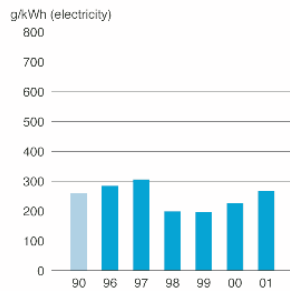
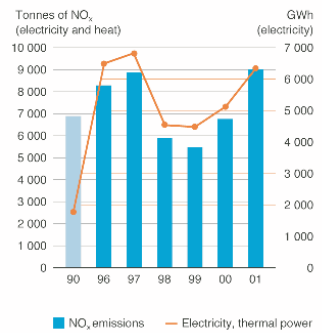
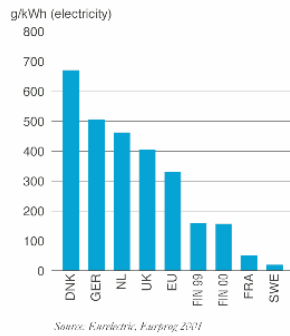
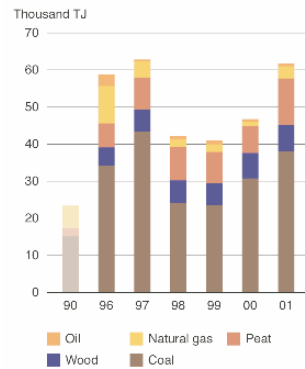
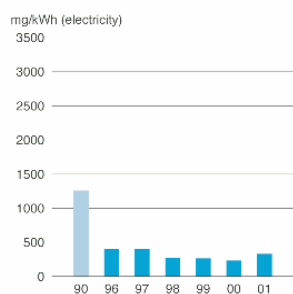
Extensive environmental cost data on the thermal power plants are not yet available. The environmental cost of each of the Kristiina and Tahkoluoto power plants was EUR 0.9 million, i.e. EUR 0.74 to 0.85 / MWh. Owing to the increased operation of the power plants, the cost calculated per energy unit was substantially reduced on the previous year.

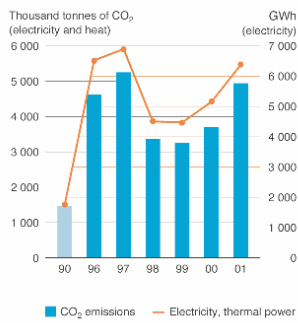
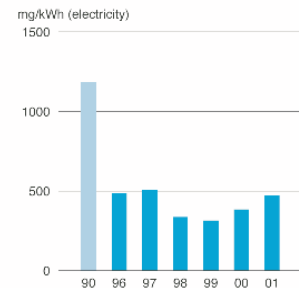
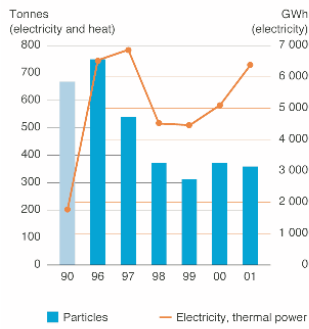
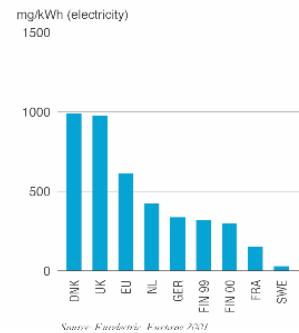
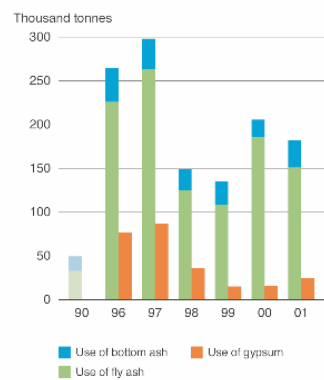
The largest environmental investment was the construction of Alholmens Kraft's ash disposal site in Pietarsaari. The cost of the first phase amounted to EUR 2.6 million. EUR 0.4 million was invested in the promotion of ash utilization at Mussalo in Kotka. Other environmental investments were not significant.

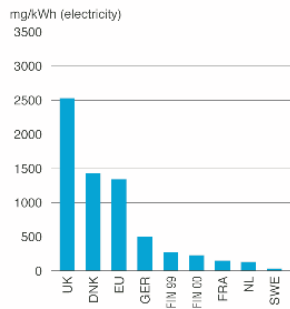
With regard to the nuclear power plants, the most important environmental investment was the construction of flocculation and oxidation basins at the Olkiluoto municipal waste dump. Teollisuuden Voima paid EUR 9.7 million to the State Nuclear Waste Management Fund.

Environmental costs

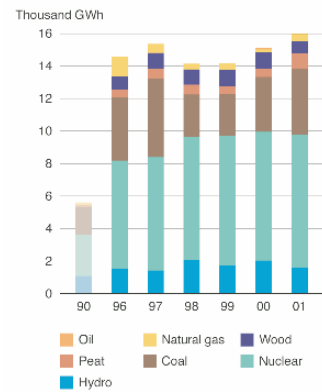
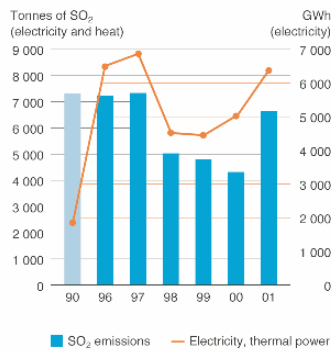
Environmental costs are caused by direct functions whose primary target is to prevent, reduce or eliminate pollution and other deterioration of the environment. In addition, the compensations paid for environmental damage, municipal sewage and waste management fees, and environment-based premiums are included in environmental costs. In accordance with the foregoing, costs incurred by a measure that benefits the environment are not considered to be environmental costs, if the principal purpose of the measure is something other than environmental protection.


POHJOLAN VOIMA'S SPECIFIC EMISSIONS OF CARBON DIOXIDE

POHJOLAN VOIMA'S NITROGEN OXIDE EMISSIONS

SPECIFIC EMISSIONS OF CARBON DIOXIDE IN 1999

FUEL CONSUMPTION

POHJOLAN VOIMA'S SPECIFIC EMISSIONS OF SULPHUR DIOXIDE



POHJOLAN VOIMA'S CARBON DIOXIDE EMISSIONS

POHJOLAN VOIMA'S SPECIFIC EMISSIONS OF NITROGEN OXIDES

POHJOLAN VOIMA'S PARTICLE EMISSIONS

SPECIFIC EMISSIONS OF NITROGEN OXIDES IN 1999

USE OF BY-PRODUCTS



SPECIFIC EMISSIONS OF SULPHUR DIOXIDE IN 1999


Source: Eurostat, Europe 2001

ELECTRICITY GENERATION 2001

POHJOLAN VOIMA'S SULPHUR DIOXIDE EMISSIONS

DISPOSAL OF BY-PRODUCTS
