TVO

A period of major projects

Corporate Social Responsibility Report 2010

Teollisuuden Voima Oyj – Well-being with nuclear electricity

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Reporting principles

THE OPERATIONS OF TVO ARE BASED ON ITS VISION, MISSION, VALUES AND ETHICAL PRINCIPLES, COMPANY-LEVEL POLICIES, HIGH-LEVEL SAFETY CULTURE, AND GOOD GOVERNANCE.

Structure and scope of the report

The concept of TVO's corporate social responsibility is to promote Finnish well-being by providing climate-friendly, reasonably priced electricity in a safe and reliable manner. We have supplied electricity from Olkiluoto for over 32 years. This report will shed light on how corporate social responsibility is included in our responsible operations every day.

The report will provide information about TVO as a company, as well as its operating environment, the principles of responsibility, company-level policies with respect to the Olkiluoto 1 and 2 plant units in operation as of 2010, the Olkiluoto 3 unit under construction, and the intended Olkiluoto 4 unit. The report covers matters related to finance, the environment, personnel and social operations, and also our safety culture, authority regulations, and systems guiding our operations.

We report electricity production at the Olkiluoto nuclear power plant and the events, objectives, and results in our company in 2010. Our report covers the operations of the parent company, Teollisuuden Voima Oyj. We also report the accident and training information of TVO's subcontractors. We also discuss the production of the Meri-Pori coal-fired power plant and the final disposal of spent nuclear fuel, managed by our joint venture company Posiva Oy. The report's comprehensiveness, scope, and measurement methods are the same as last year. In case of changes to previously reported information, they are indicated separately in conjunction with the tables in question.

The Report of the Board of Directors and Financial Statements 2010 supplement the report, particularly regarding financial responsibility, and the Corporate Governance Statement 2010 supplements it with respect to management systems and good governance. They will be published on our company website at www.tvo.fi, which also provides responsibility-related information supplementing the report.

Taking stakeholder groups into account

As a result of evaluation work performed by our corporate social responsibility team, we identified Finnish electricity users as the most important readers of the report. Interaction with stakeholder groups is natural for TVO. The Olkiluoto Visitor Centre is open every day, and there are frequent meetings with stakeholder groups. For more about our interaction, see p. 35 and pp. 62–64.

On a regular basis, we have mapped the views of our stakeholder groups by means of various surveys. In 2010, we participated in the energy sector media barometer of the Economic Information Office and obtained the views of the public through the annual energy attitude survey. For more information about the surveys, see page 64. Based on the results of the HR survey in 2009, the TVO-Talkoot effort was implemented in 2010, where TVO's employees developed their own work and the operations of TVO. See page 52 for more information.

The comparison features of the report

The report has been prepared according to the Global Reporting Initiative (GRI) G3 guidelines. The GRI indicator table is on pp. 75–77 of the report.

In addition to the annual report, TVO has covered its environmental responsibility in a separate report since 1996, and its responsible operations, covering financial, environmental, and social responsibility, since 2001. Our report for 2009 was released in March 2010, and our report for 2011 will be released in the spring of 2012.

The corporate social responsibility report provides the comparison information of 2009 in brackets. The key figures and graphs cover 2006–2010.

The information in the financial statements has been approved by an external auditor.

The information describing our environmental responsibility is based on reporting abiding by the EMAS Regulation 1221/2009. The requirements of an EMAS report and the correspondence of our report to them is presented on page 48.

The key figures of corporate social responsibility are based on data compiled and calculated in our company.

Verified corporate social responsibility report

The report has been published in printed format in Finnish and English, and it is also available at www.tvo.fi.
DNV Certification OY/AB, an independent and impartial, accredited verifier, has verified and confirmed in February 2011 that our corporate social responsibility report meets the requirements set out in the Global Reporting Initiative (GRI) G3 guidelines, and in the EMAS Regulation concerning environmental reporting. The verification statement by the GRI (Verification of conformity) is on page 78 and the verification statement of the EMAS report (Verification of conformity) is on page 49.

TVO AS A COMPANY

TVO – An experienced pioneer in the nuclear power sector

TEOLLISUUDEN VOIMA OYJ (TVO) CONTRIBUTES TO MAINTAINING SUSTAINABLE DEVELOPMENT AND FINNISH WELL-BEING BY PROVIDING FINNS WITH ELECTRICITY AT THE OLKILUOTO NUCLEAR POWER PLANT IN EURAJOKI IN A SAFE, RELIABLE, AND CLIMATE-FRIENDLY MANNER.

Our aim is to be an esteemed Finnish nuclear power company, a pioneer in the nuclear power sector. On the Olkiluoto island, TVO has the required competence, structures, functions, and waste management required for safe production and construction of nuclear electricity. Over the decades, TVO has become an internationally appreciated and followed actor in the nuclear sector, and TVO's experiences have gained interest throughout the world.

TVO is a limited liability company established in 1969 and providing electricity for its owners at cost price. We produce about one-sixth of the total electricity consumed in Finland. Electricity produced at the Olkiluoto power plant has been granted the key flag certificate as a recognition for Finnish work and know-how.

We have already produced a total of over 380 billion kilowatt hours of climate-friendly nuclear electricity for 32 years at Olkiluoto. Every year, the nuclear electricity produced at Olkiluoto helps prevent carbon dioxide emissions of over 10 million tonnes in Finland compared to a scenario where the same amount of power would be produced with coal. The amount corresponds to the annual carbon dioxide emissions of traffic in Finland.

A period of major projects

Olkiluoto is currently undergoing a period of major projects. We produce nuclear electricity at Olkiluoto with two plant units, Olkiluoto 1 and 2 (OL1 and OL2). Both have produced electricity reliably and securely for over 30 years now. In the year under review, we launched the most extensive annual outage in the history of the OL1 and OL2 units, and we will continue that in the annual outages in spring 2011. Modernization work improved the efficiency of the OL1 unit and its net electrical output is now 880 megawatts (MW). The corresponding modernization for the OL2 unit will be carried out in spring 2011.

More production of electricity capacity will be built at Olkiluoto. A third unit, Olkiluoto 3 (OL3), is under construction. At the Olkiluoto 3 site, we contribute to the establishment of international guidelines for the future of nuclear power construction.

On July 1, 2010, the Finnish Parliament confirmed the favourable decision-in-principle by the Government concerning the construction of the Olkiluoto 4 (OL4) unit. During the latter part of the year, we started to prepare the tender documents, carry out designs related to the unit construction, and launch soil surveys at the plant location.

When produced in a responsible way, nuclear electricity is an environmentally sound and safe electricity production method with respect to its life cycle. Nuclear power contributes to meeting Finland's greenhouse gas emission reduction goals together with renewable energy sources. Price stability and good forecasting features are further advantages of nuclear electricity.

Posiva Oy, owned by TVO and Fortum Power and Heat Oy, is constructing the underground rock characterization facility for spent nuclear fuel at Olkiluoto.

The number of permanent TVO personnel was 714 (717) at the end of December 2010.

Electricity at cost price

We provide our owners with power at cost price according to the Mankala principle. Our shareholders cover the costs of our operations and in return they receive power produced by us in relation to their ownership. They consume the electricity themselves or sell it on to third parties.

TVO's main owner is Pohjolan Voima whose owners and electricity receivers consist of a large number of Finnish industrial companies as well as 140 municipalities and cities through the respective energy companies owned by them. These industrial companies have 65 industrial plants in 40 locations in Finland.

TVO Group

TVO Group consists of the subsidiaries TVO Nuclear Services Ltd (TVONS), Olkiluodon Vesi Oy and Perusvoima Oy. Teollisuuden Voima Oyj is a joint venture of Pohjolan Voima Oy, the main owner of TVO, the parent company of the Group.

Established in 1995, Posiva Oy is a joint venture of Teollisuuden Voima Oyj and Fortum Power and Heat Oy. The ownership of Teollisuuden Voima Oyj is 60% and that of Fortum Power and Heat Oy is 40%.

TVONS markets and sells TVO's nuclear power know-how services throughout the world. Olkiluodon Vesi takes care of the raw water management of our plant units. Perusvoima Oy was inactive in 2010. TVONS, Olkiluodon Vesi Oy, and Perusvoima Oy are wholly-owned by TVO. Posiva Oy takes care of the final disposal of the spent nuclear fuel of its shareholders Olkiluoto and Loviisa nuclear power plants.

OUR VISION

OUR MISSION

OUR VALUES

TVO has production plants in Olkiluoto in Eurajoki and offices in Helsinki, Brussels, and Rauma. TVO's ownership or organization structure did not change significantly during 2010.

A one-megawatt (MW) wind power plant also produces electricity in Olkiluoto. Olkiluoto also has a gas turbine reserve power plant, implemented as a joint project of Fingrid Oyj and TVO. TVO's share of the electricity produced by the Meri-Pori coal-fired power plant is 45%.

Shareholders and series of shares

The company has three series of shares. The A series entitles shareholders to electricity produced by OL1 and OL2, the B series entitles shareholders to electricity produced by OL3, and the C series entitles shareholders to a share of the electricity produced by the Meri-Pori coal-fired power plant.

TVO'S SHAREHOLDERS AND THEIR HOLDINGS DECEMBER 31, 2010:

	A SERIES	B SERIES	C SERIES	TOTAL
EVP Energia Oy	6.5	6.6	6.5	6.5
Fortum Power and Heat Oy	26.6	25.0	26.6	25.9
Karhu Voima Oy	0.1	0.1	0.1	0.1
Kemira Oyj	1.9	-	1.9	1.0
Oy Mankala Ab	8.1	8.1	8.1	8.1
Pohjolan Voima Oy	56.8	60.2	56.8	58.4
	100.0	100.0	100.0	100.0

AN ACKNOWLEDGED FINNISH NUCLEAR POWER COMPANY, A PIONEER IN ITS FIELD.

PRODUCING ELECTRICITY IN A SAFE, ECONOMICAL, AND ENVIRONMENTALLY SOUND MANNER.

RESPONSIBILITY, CONTINUOUS IMPROVEMENT, PROACTIVITY, TRANSPARENCY.

TVO AND CORPORATE SOCIAL RESPONSIBILITY

As answered by Jarmo Tanhua, CEO

What does corporate social responsibility mean for TVO?

Producing electricity by means of nuclear power is a business where the company and the personnel must sense a great responsibility. This is the basic foundation of our operations, and one of our values. Responsibility is integrated into everything TVO does. When we engage in responsible operations, we also observe the perspective of sustainable development, which also includes the well-being of the personnel and the society around us. At the same time, we reach a well-balanced and intended result in all sectors of corporate social responsibility – finance, the environment, and social responsibility. In this respect, 2010 was a year of success: radioactive emissions into the environment still remained at a fraction of the permitted levels, the radiation doses of the personnel were very small, and the accident index remained low even though our target of zero incidents was not reached.

We promote Finnish well-being by providing climate-friendly, reasonably priced electricity in a safe and reliable manner.

Are the personnel familiar with corporate social responsibility?

The success of operations at TVO requires that the personnel understand the company's vision and commit to the joint objectives and operating methods. The vision, the ethical principles, values, and the high safety culture are the foundation of our operations, and these matters are already covered in the induction training for new employees. As corporate social responsibility was introduced as a new concept in the late 1990s, TVO also emphasized it as a separate matter. Later, in the new millennium, we redefined the approach and no longer addressed corporate social responsibility as a separate matter, but it is part of everything TVO does, and one of the Group's four policies.

How does it feel to be in the spotlight?

The key principle in the Nuclear Energy Act is that all use of nuclear power shall be for the overall good of society. The interests of society represent a positive issue for us, and we want to be open about our operations. These interests have been affected by the major ongoing projects: units modernization currently in progress, the construction of Olkiluoto 3 and Posiva's ONKALO, and the decision-in-principle process of Olkiluoto 4, completed last year. Our various stakeholder groups were particularly interested when Finnish society's supreme decision-making bodies, the Government and the Parliament, considered the matter and granted a favorable decision on the decision-in-principle application of our fourth unit. Our application was evaluated by a large number of statement issuers who comprehensively represented different areas of society.

What were the main events of 2010?

We have many major projects in progress at the same time. With respect to operational units, the most extensive annual outage in the operating history of the Olkiluoto 1 plant unit was a success. The focus of the Olkiluoto 3 project shifted to installation work. Regarding the large primary-circuit components of the nuclear island, the reactor pressure vessel, the pressurizer, three steam generators out of four, and all but one of the reactor coolant pipes were transferred to their respective installation locations. The construction has not met the original schedule and our objectives, but we can learn a lot from this for the next project. The favorable decision-in-principle for Olkiluoto 4 was a very positive thing for us, and we met the objective for the project's first stage.

What is the purpose of the corporate social responsibility report?

TVO is accustomed to reporting all its operations, which is why it was natural for us to be one of the first companies to extend our environment report to a corporate social responsibility report in 2001. Already at that time, we reported according to the GRI guidelines and this report has been prepared according to the G3 guidelines. Verifying the report according to the GRI guidelines, and confirming that the environment report is compliant with the EMAS Regulation has been important for us because we find that it makes reporting more reliable and also makes our corporate social responsibility more plausible. We annually meet with our various stakeholder groups and receive a lot of feedback about our operations and corporate social responsibility at those meetings. We further develop our operations and reporting on the basis of the feedback.

OPERATING ENVIRONMENT

Nuclear power has a key role in fighting against climate change

ONE-THIRD OF ELECTRICITY IN THE EU IS PRODUCED BY A TOTAL OF 150 NUCLEAR REACTORS IN 15 MEMBER COUNTRIES. THE INTEREST IN NUCLEAR POWER HAS INCREASED: MANY COUNTRIES ARE PLANNING LIFE TIME EXTENSIONS OF THE NUCLEAR POWER PLANTS CURRENTLY IN OPERATION, AND ALSO CONSTRUCTION OF NEW PLANTS. IN FINLAND, THE GOVERNMENT MADE SIGNIFICANT ENERGY DECISIONS CONCERNING ENERGY EFFICIENCY, RENEWABLE ENERGY, AND NUCLEAR POWER.

There are several reasons for the increased interest in nuclear power: energy efficiency targets increase electricity consumption in traffic and heating, for example, and reducing the use of fossil fuels is necessary in order to fight against climate change. Interest in nuclear power is increasing also as a result of its reliable electricity supply and competitiveness in comparison to other forms of energy.

The EU has made decisions on reducing emissions affecting the climate and on increasing the share of renewable energy sources and improving energy efficiency.

The European Commission Proposals for the 2011–2020 Energy Strategy underline that the share of low-carbon energy production should be increased. Nuclear power currently accounts for two-thirds of low-carbon electricity in the EU. According to the strategy, the role of nuclear power is to be evaluated in an open and balanced way. The strategy emphasizes the management of nuclear waste, and nuclear energy research, among other things.

The EU is preparing energy production objectives until 2050. Various energy scenarios predict that the share of nuclear power will remain unchanged, that is, about one-third. This means that there is a considerable need to invest in extending the life time of existing nuclear power plants and in constructing new nuclear power plants.

In autumn 2010, the European Commission proposed a Framework Directive concerning radioactive waste management. The Directive reinforces the position of nuclear power in the energy supply of the EU.

More nuclear power throughout the world

The interest in constructing new nuclear power capacity in Europe is now higher than it has been for decades. There will also be new nuclear power countries in Europe.

In France, almost 80% of electricity is produced by nuclear power, and new capacity is under construction. In the UK, the intention is to replace ageing nuclear power plants with new ones. The objective is to construct the new plants at the existing power plant sites, for which initial approval has already been obtained. Other European countries considering new nuclear power plants include Italy, the Netherlands, and Poland. Nuclear power plants built in Italy were closed in the 1980s, but letters of intent have now been signed for four new plants. In the Netherlands, the life time of the only nuclear power plant in the country was extended to 2033, and new capacity is being planned. Poland, a new nuclear power country, has taken a decision to build at least one nuclear power plant in the country, scheduled for introduction in the early 2020s.

In Sweden, nuclear power has accounted for almost 50% of electricity production in recent decades. Based on a referendum, a decision was taken in the 1980s to phase out nuclear power, but only two reactors were closed. The remaining ten power plant units have been modernized and their output has been increased. According to a new policy, construction licenses will be granted for new plant units that will replace existing ones.

Former governments in Germany decided to gradually phase out nuclear power. According to new policies, the life time of existing nuclear power plants can be extended up to 2040. However, according to an agreement between the government and power companies, nuclear power companies shall pay substantial sums in nuclear power tax and support the development of renewable sources of energy.

Regarding countries outside the EU, Russia and Ukraine rely extensively on nuclear power and intend to build new nuclear power plants. New nuclear power plant projects are also underway in Switzerland.

Globally, there are approximately 440 operational nuclear plant units in 30 countries. The plants cover about 14% of the global electricity demand. 65 new reactors are under construction. In the next few years, new nuclear power plant projects, in addition to Europe, are particularly expected to be launched in Asia (China, India, South Korea, Japan) and the United States. Global nuclear power capacity is expected to increase from the current level of less than 400 GW to 500–600 GW by 2030.

A year of major energy decisions in Finland

In the year under review, the Government issued decisions concerning various areas of energy policy. The decisions are based on the long-term climate and energy strategy approved by the Parliament in 2009.

The Government issued a decision-in-principle concerning energy efficiency measures in February 2010. The goal is to improve the efficiency of the end use of energy with 37 TWh by 2020. When calculated using the average emission coefficients, the amount of energy saved would correspond to a carbon dioxide reduction of over nine million tons in 2020. The intention is to launch most of the gradually progressing measures by the end of 2011.

● COUNTRIES BUILDING NUCLEAR POWER

Source: www.iaea.org

The obligations concerning renewable energy were announced in April 2010. The goal is to increase the use of renewable energy sources by 38 TWh by 2020, which would reduce carbon dioxide emissions by approximately seven million tons per year. The proposal particularly increases the use of wood chips and other wood-based energy, wind power, biofuels for vehicles, and the use of heat pumps.

In May 2010, the Government took two favorable decisions-in-principle concerning additional nuclear power construction. The decisions were granted for Teollisuuden Voima's application to build a new nuclear plant unit in Eurajoki and for Fennovoima's application to build a new nuclear power plant in Simo or Pyhäjoki.

A favorable decision-in-principle was also granted for Posiva Oy's application related to the construction of a final disposal plant for spent nuclear fuel through an extension at Olkiluoto. The purpose of the extension is to handle final disposal of spent nuclear fuel from TVO's OL4 plant unit. Parliament ratified the Government's decisions-in-principle on July 1, 2010.

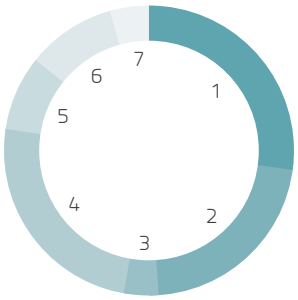
A decision was taken in late 2010 to make considerable changes to energy taxation. The tax levels on electricity and heating fuels were substantially increased. An excise duty, consisting of energy content and carbon dioxide components, is to be introduced in the energy taxation of fuels. According to an assessment by the Ministry of Finance, the changes will increase the state's tax income by about EUR 618 million.

The growth in industrial production and the cold first months of 2010 increased overall electricity demand in 2010 by almost 7% in comparison to the previous year. Regarding electricity supply, domestic production accounted for more than before. The growth was particularly extensive in separate production of electricity, which was about 50% higher in comparison to the previous year. The cold winter weather increased the demand for district heating, increasing the combined production of electricity and heat by almost 20%. The production of both nuclear and wind power decreased slightly. Net imports of electricity decreased by about 10%. The increase in own electricity production was mainly covered with fossil fuels. Therefore, electricity-bound carbon dioxide emissions increased by about 40% in comparison to the previous year.

TOTAL ELECTRICITY CONSUMPTION 2010

87.5 TWh IN TOTAL

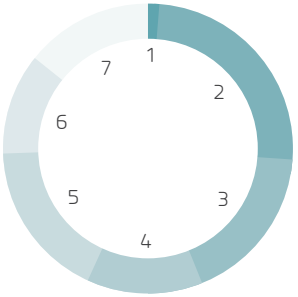
Other consumption total **50%**
Industry total **47%**



1 Housing and agriculture	**28%**
2 Services and construction	**22%**
3 Losses	**3%**
4 Forest industry	**25%**
5 Chemical industry	**7%**
6 Metal processing	**9%**
7 Other industry	**6%**

NET ELECTRICITY SUPPLY 2010

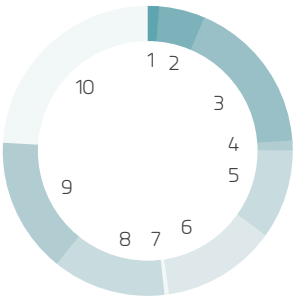
87.5 TWh IN TOTAL



1 Wind power	**0.3%**
2 Nuclear power	**25.0%**
3 Combined production, district heating	**19.9%**
4 Combined production, industry	**12.8%**
5 Separate production	**15.4%**
6 Net imports	**12.0%**
7 Hydropower	**14.6%**

ELECTRICITY SUPPLY BY ENERGY SOURCE 2010

87.5 TWh IN TOTAL



1 Waste	**0.8%**
2 Peat	**6.0%**
3 Coal	**16.3%**
4 Oil	**0.6%**
5 Biomass	**11.9%**
6 Natural gas	**12.5%**
7 Wind	**0.3%**
8 Net imports	**12.0%**
9 Hydropower	**14.6%**
10 Nuclear power	**25.0%**

Source: Finnish Energy Industires, Energy year 2010

FINANCIAL RESPONSIBILITY

A period of major projects at Olkiluoto

OUR OL1 AND OL2 PLANT UNITS PRODUCED ABOUT ONE-SIXTH OF THE ELECTRICITY PRODUCED IN FINLAND. OUR PLANT UNITS OPERATED RELIABLY THROUGHOUT THE YEAR, EXCLUDING ONE DISRUPTION AND THE PLANNED ANNUAL OUTAGES INVOLVING MAJOR MODERNIZATION WORK.

In 2010, the OL1 and OL2 units produced 14.1 TWh, that is, about one-sixth of the electricity consumed in Finland. The production output of the Olkiluoto power plant did not reach the record-high level of the previous year due to the extensive modernization carried out in conjunction with the annual outages in the spring. The modernization prolonged the annual outages and shortened the production time of the OL1 unit in particular.

The OL1 plant unit produced 7.0 TWh of electricity, and its capacity factor was 91.8%. The annual production of the OL2 unit was 7.1 TWh and its capacity factor was 95.2%. The combined capacity factor of the plant units was 93.5%, a high level by international comparison.

TVO's turnover was EUR 355.1 (295.9) million. The turnover and the electricity production costs were in accordance with targets. Our financial position is stable and our owners value TVO as a producer of electricity at a cost price.

Pro-active and responsible – action behind the results

Our objective is to maintain the Olkiluoto nuclear plant units as good as new and to ensure the plant units' safe, predictable, and uninterrupted production during future production periods.

We will achieve our objectives and good production results by operating according to our values in a responsible and proactive manner, by means of continuous improvement, implementing transparent communication and interaction with stakeholder groups.

We produce electricity in accordance with cost price principle according to the Mankala principle. The plant costs are charged from the shareholders annually in the prize of electricity which means the result for the financial year is effectively zero. Consequently, presenting targets and ratios based on profitability is not appropriate to understand the business operation or its results.

Small amounts of coal-fired and wind generated electricity

We have a 45% shareholding in Fortum Power and Heat Oy's Meri-Pori coal-fired power plant. Our share of the plant's electricity production was 1.6 (0.8) TWh. We are responsible for our share of the plant's costs and in return we recieve our share of the plant's capacity. Fortum Power and Heat Oy is responsible for the operation of the power plant. We procure the coal needed.

We also produce electricity with a wind power plant in Olkiluoto. Output from the wind power plant was 1,111 (1,481) MWh.

The gas turbine power plant in Olkiluoto, built as a joint project of Fingrid Oyj and TVO, produces electricity rapidly for the national grid when needed and also ensures the availability of external power for the Olkiluoto units in the case of a major disturbance to the operation of the grid. Our share of the plant's electricity production was 432.6 (507.4) MWh.

We increased and updated the EMTN Program

In June, we updated and increased the size of the Euro Medium Term Note Program (EMTN) to EUR 2.5 billion. During 2010, we issued seven SEK private placements under the program totaling SEK 2,620 million and one EUR 23 million private placement. At the end of the reporting period, the total amount issued under the program was approximately EUR 1,226 million. In addition, we issued during the fall USD 100 million and GBP 50 million US private placements.

Both the Japan Credit Rating Agency (JCR) and Fitch confirmed their credit ratings for TVO at their former levels. The JCR rating was confirmed at AA Flat in January, and the Fitch long-term credit rating at A- and short-term credit rating at F2 in June. The outlook was assessed as being stable.

The support of a comprehensive international bank group financing TVO and firm demand for the bonds proves confidence of investors and banks in TVO's financing ability.

TVO's financing situation has developed as planned. The liquidity and financing position were stable, and loans were withdrawn as planned. TVO's liabilities (non-current and current) totaled EUR 2,683.8 (2,586.6) million at year-end excluding the loan from the Finnish State Nuclear Waste Management Fund, relent to shareholders.

In spring 2010, TVO's Annual General Meeting decided on a share issue of EUR 79.3 million, and the B series share capital increase was paid accordingly in December. The share capital increase in 2009 was EUR 100 million.

We invest in the future of nuclear electricity

As in previous years, our investments mainly focused on the OL3 project. Our investments amounted to EUR 338.9 (802.7) million in total, of which the OL3 project accounted for EUR 252.5 (749.5) million. We are constructing an advanced European Pressurized water Reactor (EPR) in Olkiluoto with an electricity production capacity of about 1,600 MW.

Installations related to the modernization project scheduled for 2010 and 2011 was carried out in conjunction with the annual outage of the OL1 plant unit. The modernization improves the efficiency of the plant units. The net electrical output of OL1 was increased from 860 to 880 MW.

On July 1, 2010, the Finnish Parliament approved the favorable decision-in-principle made by the Finnish Government regarding the construction of a fourth nuclear power plant unit (OL4) in Olkiluoto. The OL4 project's planning, preparations, and the evaluation of the implementation methods continue.

We procured nuclear fuel by means of long-term delivery agreements totalling EUR 50.3 (45.9) million. Our consumption of nuclear fuel was worth EUR 41.2 (40.1) million. The carrying value of nuclear fuel and uranium stocks at the end of the year was EUR 171.9 (162.8) million.

561.5 (299.3) thousand tons of coal was used at the Meri-Pori coal-fired power plant for electricity production matching our ownership.

We are expanding the interim storage facility for spent fuel

1,253 (1,217) tons of spent fuel was accumulated at Olkiluoto by the end of 2010, and 36 (37) tons of this was accumulated in 2010. After removing it from the reactor, we first store spent fuel in the plant units' storage pools for a few years and then transfer the fuel to the interim storage facility for spent fuel (KPA) located in the plant area.

We launched the expansion work of the interim storage facility for spent fuel. The introduction of the new OL3 unit means that there will be an increased need for the storage of spent fuel. In fact, the storage capacity will double from the existing level through the completion of an expansion in 2013. One of the three new storage pools will be for the spent fuel of OL1 and OL2, and the rest will be for that of OL3. The expansion has already been prepared for at the first construction stage in the structures of the interim storage facility for spent fuel. The structures

According to the Nuclear Energy Act nuclear power producers shall take care of and be responsible for the final disposal of the nuclear fuel they use in Finland and for all the related expenses.

TVO'S FINANCIAL IMPACT ON SOCIETY: CASH FLOWS 2010

FUND SOURCES		TVO		FUND USE
		Personnel	46	Wages and salaries
		State and Municipality	37	Nuclear waste management fee
			11	Interest
			3	Social security contributions
			9	Property tax
Delivery of electricity	355	**Owners**	4	Interest
Equity	79			
Interest	11			
Loans and receivables	209	**Financiers**	133	Interest
Interest	8			
Other operating income	16	**Suppliers/subcontractors**	49	Nuclear waste management services
			102	Raw material suppliers
			92	Service providers
			200	Investments
Working capital	6	**Company**		
	684	Total EUR million	684	

and safety of the existing storage building part will also be improved in conjunction with the expansion work.

We are already preparing for final disposal

Posiva Oy, a joint venture of TVO and Fortum Power and Heat Oy, takes care of – on behalf of its owners – the final disposal of spent nuclear fuel from the Olkiluoto and Loviisa power plants.

The Group's balance sheet includes a provision related to the nuclear waste management obligations, calculated according to the IFRS standards. The provision is based on future actions in nuclear waste management and the estimated expenditure relating to it, taking into account actions already taken.

In the consolidated financial statements, the liabilities show a nuclear waste management liability of EUR 806.3 (633.5) million, and a corresponding amount of the company's share in the Finnish State Nuclear Waste Management Fund in the assets.

To cover the future expenses of nuclear waste management, we pay fees to the Finnish State Nuclear Waste Management Fund as set out in the Nuclear Energy Act. The Ministry of Employment and the Economy set TVO's nuclear waste management liability amount at the end of 2010 ar EUR 1,179.1 (1,160.7) million, and the Company's target reserve in the fund for 2011 at EUR 1,123.4 (1,069.8) million. The difference is covered by guarantees.

Nuclear liability refers to the liability for damage that an accident at a nuclear power plant may cause to external parties. In Finland, nuclear liability is regulated in related laws based on an international agreement system. TVO has statutory nuclear liability insurances.

Our research and development costs were EUR 21.6 (21.2) million, and nuclear waste management accounted for most of this.

TVO produces electricity at the Olkiluoto nuclear power plant in a responsible, climate-friendly, and reliable manner. Our nuclear electricity production does not cause any greenhouse emissions causing climate change.

Extensive modernization in progress in the Olkiluoto 1 and 2 plant units

IN THE SPRING, WE LAUNCHED THE MOST EXTENSIVE ANNUAL OUTAGE IN THE HISTORY OF OLKILUOTO, INVOLVING MODERNIZATION OF THE PLANT UNITS. THE WORK FOCUSED ON THE OL1 PLANT UNIT. WE WILL CONTINUE THE MODERNIZATION PROJECT IN SPRING 2011, PARTICULARLY FOR THE OL2 PLANT UNIT.

The OL2 plant unit had cause for celebration in the winter of 2010 as February 18, 2010, marked the 30th anniversary of the OL2 plant unit's synchronization with the national grid. The energetic 30-year-old has already provided Finns with almost 180 billion kWh of electricity without any greenhouse gas emissions. By the end of 2010, the plant units have produced a combined total of over 380 kWh of emission-free nuclear electricity. The production has saved the atmosphere from about 305 million tons of carbon dioxide in comparison to coal-fired electricity.

The largest annual outage ever

For the OL1 plant unit, we carried out the largest annual outage in the history of Olkiluoto. We implemented several modifications in an extensive maintenance outage of over 26 days. The most significant modifications included replacement of all the four low pressure turbines, the refurbishment of the generator cooling system, the main sea water pumps and the inner extraction ducts of the turbine condenser as well as replacement of the inner isolation valves in the steam lines of the reactor. In addition, we carried out several minor modifications and routine maintenance and inspection tasks included in the annual outage.

Improving the efficiency of the turbine plant increased the net electrical output of the OL1 plant unit without increasing the fuel efficiency of the reactor. The plant improvements increase the flow rate of the sea water used as cooling water, but when the water runs through the turbine condenser, the temperature of the water increases about three degrees less than before, i.e. by about 10 degrees.

OL2 had a refueling outage which took about 11 days. In conjunction with this short outage, we made a periodical leak test of the reactor containment and inspected two low pressure turbines.

We also carried out several preparatory modifications as the OL2 unit will undergo the extensive maintenance outage with modernization next year.

In addition to our personnel, up to 1,500 external laborers contributed to the annual outage work. About 1,200 of them were Finnish. The annual outage work was contributed to by nearly a hundred companies from the Satakunta region, other parts of Finland, and from abroad. The total costs of the annual out-ages, excluding the investments, were approximately EUR 16 million.

The occupational and radiation safety work in the annual outage was successful. Four accidents were reported in the annual outage, resulting in 34 days of absence in total. Even though we implemented the most extensive annual outage in the history of the OL1 plant, the combined radiation dose of the plant units 768 (990) manmSv was 85.3 (83.5) per cent of the previous year's total annual dose. The radiation dose of the OL2 refueling outage was the lowest annual outage dose of one plant unit in history at the Olkiluoto power plant, 129 (725) manmSv.

Olkiluoto 2 modernization next spring

Safe and uniterrupted operation of the plant units is our goal for 2011. We always put safety first in everything we do. This primarily means plant safety and the prevention of risks to personnel, but also a high utilization rate of the plant units. According to the principle of continuous

PRODUCTION 2010

[1] Maintenance outage May16–June 12 [2] Refueling outage May 2–14

improvement, we further develop our working methods to reduce the number of human errors and to minimize their impact.

Regarding the modernization work we have implemented in the OL1 plant unit, it is a major challenge to carry out the same work in the OL2 plant unit. The largest maintenance outage in the history of the OL2 unit will involve many simultaneous, significant modifications with a scope that exceeds those carried out in OL1 in 2010, and they require that the outage is planned and implemented with particular care. For example, the following will be replaced: the low pressure turbines and the main generator, the main sea water pumps, the inner extraction ducts of the turbine condenser, and the inner isolation valves of the main steam lines.

OL1 AND OL2 – BASIC DATA

PLANT TYPE	Boiling water reactor
PLANT SUPPLIER	AB Asea Atom (now called Westinghouse Electric Sweden AB)
OUTPUT	OL1 880 MW OL2 860 MW
THERMAL POWER OF REACTOR	2 500 MW
NUMBER OF FUEL ASSEMBLIES IN REACTOR	500 pcs
AMOUNT OF URANIUM IN REACTOR	86–90 tons
COMMISSIONING	OL1 in 1978 OL2 in 1980

Installation of large components in the Olkiluoto 3 plant unit

WE ARE CONSTRUCTING A THIRD-GENERATION POWER PLANT UNIT OL3 IN EURAJOKI. AS THE CONSTRUCTOR OF A NEW KIND OF A POWER PLANT UNIT, WE ARE LAYING INTERNATIONAL FOUNDATIONS ON THE FUTURE OF NUCLEAR POWER CONSTRUCTION. IN THE CONSTRUCTION OF THE PLANT UNIT, ORDERED AS A FIXED-PRICE TURNKEY DELIVERY IN 2003, THE FOCUS OF THE WORK SHIFTED MORE EXTENSIVELY FROM CONSTRUCTION TO INSTALLATION IN 2010.

We ordered the OL3 unit from a French-German plant supplier consortium consisting of AREVA NP GmbH, AREVA NP SAS, and Siemens AG. The commercial electricity production of the plant unit was originally supposed to commence at the end of April 2009. However, the completion has been delayed. The OL3 Supplier informed TVO that most of the works at the plant unit will be completed in 2012. According to the Supplier, the commissioning phase will take about eight months and the plant unit commence operation during the latter half of 2013. According to the turnkey delivery, the plant supplier is responsible for the schedule.

The arbitration proceedings – initiated in 2008 concerning the completion delay of the plant unit and the related costs as well as the costs of a technically resolved matter concerning the construction work separately – continued. The proceedings may take several years.

Main components of the nuclear island in their locations

The reactor pressure vessel was taken to its installation site in the reactor building in the summer. The pressurizer and the first primary circuit pipes were installed after that. The first out of four steam generators was taken to the reactor building in November. Excluding one reactor coolant pipe and one steam generator, all primary circuit main components and pipes had been taken to their installation sites by year-end.

In November, the plant unit's emergency diesels were delivered to the site, and the inner parts of the reactor pressure vessel were brought to storage at the site in December.

The main components of the turbine island, that is, the turbine generator set had already been installed in 2008, and the turbine island installation work in 2010 focused on the finishing touches of pipe and cable installation. As a result of this, the installation progress reached 95%. The pipe bridge installation between the nuclear island and the turbine island is one of the last significant installation tasks, which continue in 2011. In 2010, readiness for testing the first systems was reached.

Preliminary factory acceptance tests of the training simulator were carried out in Germany, and an engineering simulator was brought to the site. The purpose of the engineering simulator is to test various functions of the plant. The functions of the training simulator and the automation systems will be verified based on the experiences gained.

The last stretch of construction

In addition to installation, construction work also continued on the nuclear island. A significant step of progress took place in the fall as the prestress work for the inner containment building launched in July was completed. The reinforcement, formwork, and casting work for the outer dome section of the reactor building commenced after this at the site and will continue in 2011.

As a whole, the majority of the construction was completed during 2010 and work was mainly carried out indoors.

We launched the construction work of the screenings waste building and the initial foundation work of the OL3 office building for which TVO is responsible.

Occupational health and safety and the safety culture still remain good

The average number of personnel at the OL3 site was over 4,000. Based on valid access permits, there were 53 different nationalities working at the site at year-end. By the end of 2010, over 21,000 people have received site induction training.

The level of occupational health and safety at the OL3 site was good throughout the year. The ratio between one million work hours and the number of accidents resulting in absence of more than one day decreased, being about nine at year-end. According to an index indicating site safety, occupational health and safety matters were in good order at the OL3 site. Measures for meeting the zero incident target continued.

The occupational safety culture was further invested in, and its level was investigated using different methods. An extensive safety culture survey was arranged at the site twice during 2010.

The Olkiluoto 3 site is of interest

As in previous years, both the media and other interest groups were interested in the OL3 site. During 2010, the site was visited by about 200 media representatives, of which about 11% were foreigners.

The authorities conducted several inspections at the OL3 site. For example, 11 occupational health and safety inspections were performed during 2010. In addition, the inspectors of occupational health and safety districts conducted over 20 inspections concerning the employment terms of foreign employees, and supervised the compliance with the Act on the Contractor's Obligations and Liability when Work is Contracted Out. The Finnish Radiation and Nuclear Safety Authority's inspectors conducted several inspections related to the plant construction and installation as well as the operations of TVO's organization.

As a result of the occupational health and safety inspections, the supervision of foreign labor and the requirements of the aforementioned legislation were in the public eye. The occupational health and safety authority of the Southwest Finland Regional State Administrative Agency requested a report from TVO concerning the access of occupational health and safety inspectors to the OL3 site on September 29, 2010. We have supplied the reports, and the matter has been discussed in various meetings with the authorities.

The supervision of foreign labor and the related regular reporting to the authorities have been in use during the project for many years. Everyone working at the site has a valid access permit to ensure that the site only has personnel who meet all relevant requirements and who have received site induction training and Occupational Safety Card training required for working at a nuclear power plant site, and that they meet other requirements, such as passing the drug test.

Preparing for commissioning

In 2011, we will be preparing to submit the OL3 operating license material as well as preparing for the upcoming commissioning of the plant unit. The planning of the plant unit and the authority's processing of the documents will continue. The installation work will continue until year-end. Most of the room facilities will be finalized for handing them over to installation work. Also the last reactor coolant pipe manufactured in France will be delivered to Olkiluoto in early 2011. After the pipe has been installed, the fourth and the last steam generator can be taken into the reactor building.

We will be able to commence the testing of various systems in 2011.

Training the nearly 40 shift supervisors and operators will continue. The factory tests of the training simulator that will be utilized in the training will be completed during 2011 and the simulator will be delivered to the site. During operation, OL3 will employ an approximate total of 150–200 people.

OLKILUOTO 3

PLANT TYPE	European Pressurized water Reactor
PLANT SUPPLIER	AREVA NP, AREVA NP SAS and Siemens AG
APPROX. OUTPUT	c. 1 600 MW
EFFICIENCY	37%
COMMISSIONING	2013
THE OPERATING LIFE TIME	at least 60 years

A decision-in-principle for Olkiluoto 4 – the project preparations continue

IN APRIL 2008, WE SUBMITTED AN APPLICATION FOR A DECISION-IN-PRINCIPLE TO THE GOVERNMENT CONCERNING THE CONSTRUCTION OF A FOURTH PLANT UNIT AT OLKILUOTO. AT THE BEGINNING OF JULY 2010, THE PARLIAMENT RATIFIED THE FAVORABLE DECISION-IN-PRINCIPLE MADE BY THE GOVERNMENT IN MAY. WE CAN NOW PREPARE THE OL4 PROJECT AND TAKE IT FORWARD TO THE NEXT STEPS.

On July 1, 2010, the Finnish Parliament ratified (120 for, 72 against) the decision-in-principle proposed by Government concerning a fourth plant unit in Olkiluoto.

The same session also approved the decision-in-principle for expanding Posiva's repository for the spent nuclear fuel of OL4 – 159 for, 35 against.

The decision-in-principle enables the preparations for the OL4 project to take the next steps, including competitive tendering of the plant suppliers and making the selection as well as submitting a construction license application. According to the decision-in-principle, the construction licence application is to be submitted to the Government within five years from the approval of the decision-in-principle.

We continued the feasibility studies with various plant suppliers. Our goal is to assess how well the alternative plant units can meet both Finnish authority requirements and our requirements. We also assessed the potential implementation alternatives, and after the decision-in-principle, we prepared the OL4 project's planning and competition stage, the decision-making process, and the implementation project.

We have also launched preparations concerning the plant location, such as soil surveys and rock sample drilling. We will carefully survey the soil features for an optimal placement of the intended power plant unit. The survey results will be used for more detailed planning of the plant unit and its location.

In 2011, we will finalize the tender request documents and continue the project preparations. The preparations include various reports and evaluations which are related to the implementation alternatives and which will be needed in the next stages.

Planning work carried out together with the plant suppliers is an important stage. In the planning, preparations, and further organization of the OL4 project, we will extensively utilize the know-how and experiences gained from the OL3 plant unit.

OL4 BASIC DATA

OUTPUT	about 1 450–1 750 MW
THERMAL POWER	4 600 MW maximum
OVERALL EFFICIENCY	approx. 37–40%
ANNUAL ELECTRICITY PRODUCTION	about 12–14 TWh
TYPE	Boiling water reactor or pressurized water reactor
POTENTIAL PLANT SUPPLIERS	Toshiba-Westinghouse
	GE Hitachi
	Korea Hydro & Nuclear Power
	Mitsubishi Heavy Industries
	Areva
THE OPERATING LIFETIME	60 years minimum

Effective growth in R&D activities by networking

THE AIM OF OUR RESEARCH AND DEVELOPMENT OPERATIONS IS TO SUPPORT THE SAFE AND EFFICIENT OPERATION OF THE EXISTING OL1 AND OL2 PLANT UNITS, THE CONSTRUCTION STAGE OF THE OL3 UNIT, AND THE PLANT SELECTION FOR THE OL4 UNIT. WE PARTICULARLY ALLOCATE OUR R&D FUNDING TO THE DEVELOPMENT A WELL-FUNCTIONING AND SAFE WASTE MANAGEMENT. WE UPDATED OUR R&D APPROACH TO MEET THE CHALLENGES OF MAJOR PROJECTS.

Our R&D operations consist of three strong internal networks: the safety team, the nuclear energy team, and the team in charge of environmental and nuclear waste research.

The goal of our research concerning the environment and nuclear waste is to reduce the environmental load of the Olkiluoto nuclear power plant and to ensure the safe final disposal of power plant waste and spent nuclear fuel.

We are responsible for Posiva's research and development work for our part. The aim of Posiva is to develop the well-functioning and safe final disposal concept for spent nuclear fuel and to prepare for applying for a construction license for a final disposal and encapsulation plant in 2012.

The waste management research area also covers decommissioning in conjunction with plant unit shutdown, as well as processing and final disposal of waste caused by power plant operation.

THE GOALS OF OUR R&D OPERATIONS:

- Good utilization features of R&D operations and the development of experts
- An efficient, well-functioning external R&D network for ensuring comprehensive, up-to-date special expertise.

The processing and final disposal of power plant waste requiredisposal of power plant waste requires a long-term monitoring study of the final disposal facilities along with active monitoring of technology development.

We have carried out long-term work in safety research. We are participating in national safety research and are the most significant financier of nuclear safety research in Finland. Our share covered 75.4 (63.4) of the State Nuclear Waste Management Fund's funding share included in the SAFIR2010 research program and totaled over EUR 3.0 (3.3) million per year. We also contributed a significant share to the planning of the new safety research program, SAFIR2014. As a result, the program now also includes the research objectives of the new plants.

With safety research, we ensure the long-term, safe, and uninterrupted operation of our existing plant units. A further aim is to verify the safety of the technology solutions of the new plant units and to obtain the know-how required by their future operating licencepermits. We continuously develop the competence of our personnel, monitor, and participate in the development of nuclear power technology together with the nuclear research community. We develop information and new methods with future needs in mind. Ensuring the information and know-how required by the new plants is topical for the successful construction and commissioning of the OL3 and OL4 plant units. We are the only European nuclear energy sector company with two new plant projects.

RESEARCH CONCERNING THE ENVIRONMENT AND NUCLEAR WASTE	FINAL DISPOSAL RESEARCH AND MONITORING PROGRAMS PLANT ENVIRONMENT RESEARCH THE KYT2014 RESEARCH PROGRAM	PREVENTING ENVIRONMENTAL LOAD WELL-FUNCTIONING NUCLEAR WASTE MANAGEMENT SAFE SHUTDOWN OF PLANT UNITS NEW WASTE MANAGEMENT SOLUTIONS
SAFETY RESEARCH	THE SAFIR2010 AND SAFIR2014 RESEARCH PROGRAMS TECHNOLOGY PROJECTS FUNDED BY TEKES OWN DEVELOPMENT PROJECTS	SAFE OPERATION AND MODERNIZATION OF PLANT UNITS THE INFORMATION AND KNOW-HOW REQUIRED BY THE OPERATION LICENSES OF NEW PLANT UNITS
NUCLEAR POWER TECHNOLOGY R&D	PLANT DEVELOPMENT FUEL RESEARCH NEW PLANT TECHNOLOGY R&D INFRASTRUCTURE DEVELOPMENT	COMPETENCE IN NEW FUEL SOLUTIONS AND REACTOR AND READINESS TECHNOLOGY PARTICIPATION IN THE DEVELOPMENT OF NATIONAL AND INTERNATIONAL RESEARCH RESOURCES

Our research and development work related to nuclear energy technology has a particular focus on fuel research, which we conduct in international projects and in co-operation with fuel suppliers. In a growing company in the nuclear power sector, it is absolutely necessary to monitor the development of new plants and new technology and to participate in research because our objective is that the life cycle of the plant units to be built is 60–80 years.

Co-operation with various research institutes

The total costs of our research and development operations were EUR 39.1 (39.7) million. The figure includes nuclear waste management research and development costs, of which Posiva's share was EUR 32.3 (33.7) million.

In addition to our own R&D operations, we participate in many other domestic and international research projects in the nuclear field. Fortum Power and Heat Oy, Lappeenranta University of Technology, Aalto University, and VTT Technical Research Centre of Finland are our main partners in research and development operations.

In addition, we actively promote research into the new reactor generation; TVO chairs the GEN4FIN network. We participate in specifying the direction of international research in the sector to develop sustainable nuclear power technology and the required research infrastructure.

In charge of projects in the field

We carried out long-term research and development particularly in the national SAFIR2010 and KYT2010 programs funded by the State Nuclear Waste Management Fund. We also have specialists in the working groups and management teams of various research projects in both programs, as well as in the upcoming SAFIR2014 and KYT2014 programs.

Safety research, which we find very important, involves theoretical and experimental research, including the development of research methods, models, and equipment. We are in charge of two major joint projects which deal with nuclear technology development and are funded by Tekes. The objective of a project implemented at the Lappeenranta University of Technology is to obtain experimental data and to create simulation readiness for the operation of the pressurized water reactors' steam generators during operation and transients. During 2010, the research project launched an international benchmark program to verify the results obtained and the models developed. The program involves six independent research teams.

We co-ordinate a Cabri research project related to fuel research, also funded by Tekes. The research deals with a pan-European experimental program which aims to find out the effects of increasing the burnup of nuclear fuel.

Our own R&D operations primarily deal with the technical development of our power plant units. The aim of the operations is to promote operation license extensions and the commissioning of the new plant unit. The research themes include the cladding containment building and its structural durability, component manufacturing and ageing during operation, the structural integrity of the reactor circuit and monitoring and modeling the reactor operations.

Regarding international safety research co-operation, we contribute to the work of the Nordic Owner's Group (NOG) and that of the Nordic Probabilistic Safety Analysis Group (NPSAG). We are also involved in various research projects of the OECD; one goal of the projects is to acquire and compile probabilistic safety assessment data. In addition, we follow and utilize the fission research program of Euratom and participate in the management of the Sustainable Nuclear Energy Technology Platform (SNE TP) of the EU and are in the platform's working groups.

TVO'S R&D FOCUS AREAS

SAFETY
- Life cycle management
- Reactor physics
- Transient and accident analyses

ECONOMY
- Fuel consumption
- Increase of output

SUSTAINABLE DEVELOPMENT
- Waste management
- New concepts (GeniV)
- Fuel development
- Resources

Final disposal studies in the final disposal conditions

SPENT NUCLEAR FUEL FINAL DISPOSAL STUDIES HAVE BEEN CONDUCTED IN THE OLKILUOTO BEDROCK AT THE INTENDED FINAL DISPOSAL DEPTH. THE ONKALO RESEARCH TUNNEL EXCAVATED IN THE OLKILUOTO BEDROCK REACHED THE FINAL DISPOSAL DEPTH OF 420 METERS IN THE SUMMER.

The construction of ONKALO commenced at Olkiluoto in 2004. The goal is to acquire information for the construction license application for the final disposal facility for spent nuclear fuel, to be submitted in 2012. In addition to bedrock surveying, ONKALO enables the development of the construction and final disposal technology in the final disposal conditions. ONKALO will be part of the final disposal facility in the future.

ONKALO reached the final disposal depth

The excavation of ONKALO progressed to the final disposal depth of 420 meters in the summer. At year-end, ONKALO was 4,560 meters long and 434 meters deep. Technical facilities will be excavated at a depth of 437 meters in ONKALO, along with testing and demonstration facilities at the final disposal depth. Ventilation and elevator shafts have been drilled to a depth of 290 meters, and they will be extended from there to the technical facilities. Excavations will be completed by the end of 2011.

The purpose of excavating the test tunnels at the final disposal depth is to indicate the readiness for constructing the final disposal tunnels and drilling the final disposal holes, and to determine their location as required by the applicable safety requirements.

Nuclear power companies in charge of final disposal

Nuclear power companies are responsible for spent nuclear fuel. We already initiated the final disposal studies for spent fuel in the 1980s. Our joint venture, Posiva Oy, is currently in charge of the studies and the implementation.

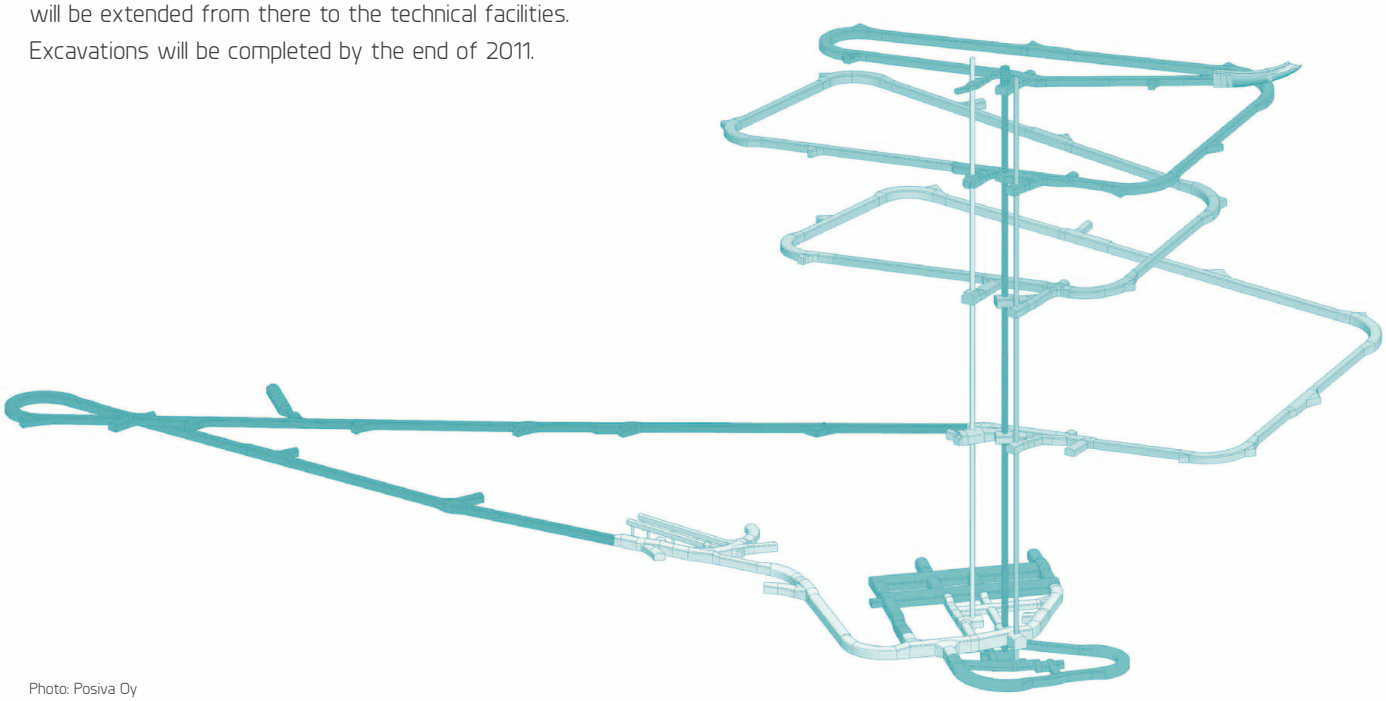


Photo: Posiva Oy

The research work has progressed according to the schedule set by the Government. Posiva submitted the pre-license material concerning the construction license to the Ministry of Employment and the Economy (MEE) in fall 2009. The purpose of the material is to indicate Posiva's readiness for submitting a construction license application for the final disposal facility in 2012. The goal is to launch final disposal in 2020.

The Ministry of Employment and the Economy sent the pre-license material to an extensive round of statements by the authorities. In its statement, the Finnish Radiation and Nuclear Safety Authority (STUK) found that the material related to the preparations of Posiva's construction license application mainly met the requirements and that Posiva had progressed as planned in the implementation of the underground research facility.

Release barriers will ensure long-term safety

The final disposal of nuclear waste will be implemented so that it will not cause any emissions into the environment, even in the long-term. Several release barriers independent of each other will ensure the safety of final disposal.

The nuclear fuel in final disposal will be sealed in final disposal canisters. The copper overpack of the canisters is resistant to corrosion and the inner part, made of cast iron, ensures mechanical strength. The canisters will be placed in vertical holes drilled in the floor of the final disposal tunnel, and bentonite clay will be used as a buffer material between the canisters and the rock. Bentonite will protect the canisters against possible rock movement and groundwater effects, along with preventing radionuclides from traveling from a possibly broken canister to the environment. The tunnels will be filled with clay blocks as the canisters are disposed of.

International co-operation

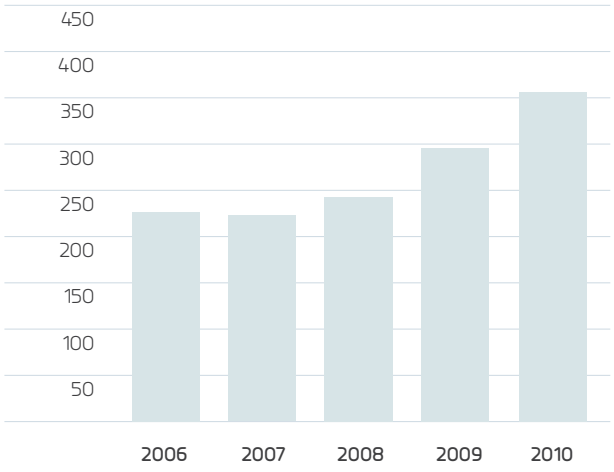
Posiva co-operates with the Swedish Svensk Kärnbränslehantering AB. The plans of the companies are based on similar final disposal solutions. The companies are pioneers in nuclear waste management research and implementation.

Posiva is also included in several EU research projects related to final disposal taking place in crystalline bedrock. Posiva also has bilateral partnership contracts with corresponding implementation and research organizations in many countries.

For more information about final disposal, go to: www.posiva.fi

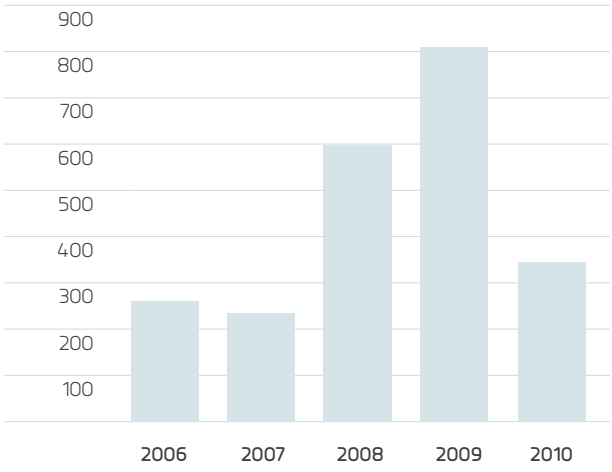
TURNOVER

EUR MILLION



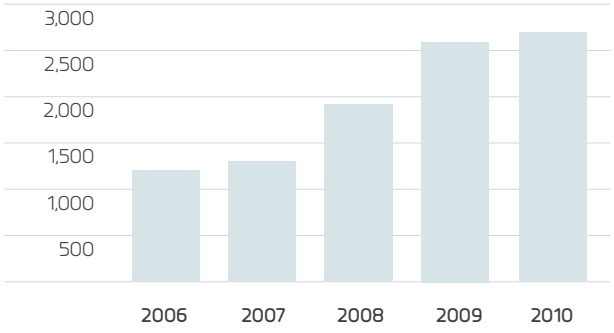
INVESTMENTS

EUR MILLION



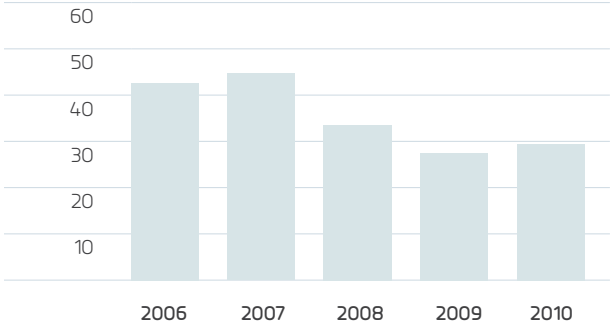
NON-CURRENT AND CURRENT INTEREST-BEARING LIABILITIES

EUR MILLION (EXCLUDING LOAN FROM VYR)*



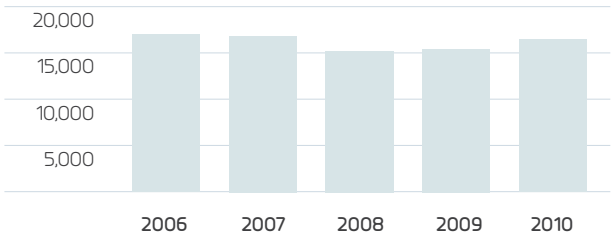
EQUITY RATIO

PER CENT**



ELECTRICITY DELIVERED TO SHAREHOLDERS

GIGAWATT HOURS



*VYR = The Finnish State Nuclear Waste Management Fund

**Equity ratio (%)= 100 x $\frac{\text{equity + appropriations + loans from equity holders of the company}}{\text{balance sheet total – loan from The Finnish State Nuclear Waste Management Fund}}$

KEY FIGURES OF FINANCIAL RESPONSIBILITY

EUR MILLION	2010	2009	2008	2007	2006
Parent company's financial statement has been prepared in accordance with the Finnish Accounting Standards (FAS)					
Turnover	355	296	245	225	227
Fuel costs	80	65	56	66	65
Nuclear waste management costs	65	66	56	49	29
Personnel costs	56	55	55	51	47
Other income and expenses related to electricity production	79	66	54	50	59
Capital expenditure (depreciation and financial income and expenses)	68	68	61	57	56
Profit/loss before appropriations	7	-24	-37	-48	-29
Investments	339	803	600	228	275
Equity	793	713	613	604	408
Appropriations	157	150	175	221	269
Non-current and current interest-bearing liabilities (excluding loan from VYR)*	2,684	2,587	1,960	1,362	1,242
Loans from equity holders of the company (included in the former)**	179	179	179	179	179
Loan from VYR	802	751	696	648	620
Balance sheet total	4,611	4,377	3,617	2,951	2,639
Equity ratio (%)***	29.7	28.8	33.1	43.6	42.5
Average number of personnel	837	830	806	780	748

* VYR = The Finnish State Nuclear Waste Management Fund

** Subordinated loans

*** Equity ratio (%) = 100 x $\frac{\text{equity + appropriations + loans from equity holders of the company}}{\text{balance sheet total –loan from The Finnish State Nuclear Waste Management Fund}}$

	2010	2009	2008	2007	2006
TVO's share in the Finnish State Nuclear Waste Management Fund (VYR) (EUR million)	1,123.4	1,069.8	1,001.2	927.7	864.1
ELECTRICITY DELIVERY TO EQUITY HOLDERS OF THE COMPANY (GWh)					
Olkiluoto 1	6,936	7,263	7,039	7,317	6,956
Olkiluoto 2	7,127	7,122	7,288	7,032	7,278
Total Olkiluoto*	14,063	14,385	14,327	14,349	14,234
Meri-Pori	1,622	845	817	1,374	1,509
Total	15,685	15,230	15,144	15,723	15,743
CAPACITY FACTORS (%)					
Olkiluoto 1	91.8	97.0	93.7	97.5	93.8
Olkiluoto 2	95.2	95.1	96.9	93.7	96.9
Total capacity factor	93.5	96.0	95.3	95.6	95.4
TVO share of the electricity used in Finland (%)	17.9	18.8	17.4	17.4	17.5

* Includes 1.1 MWh (1.5 in 2009) of wind power and 0.4 GWh (0.5) of gas turbine power.

ENVIRONMENTAL RESPONSIBILITY

Continuous work for the benefit of the environment

OUR CORPORATE SOCIAL RESPONSIBILITY IS BASED ON THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT. WE IDENTIFY THE ENVIRONMENTAL ASPECTS OF OUR OPERATIONS AND MINIMIZE THE HARMFUL IMPACTS OF OUR OPERATIONS AT ALL STAGES OF THE ELECTRICITY PRODUCTION CHAIN AND ENSURE THAT NUCLEAR FUEL IS USED IN A SAFE MANNER FROM RAW MATERIAL ACQUISITION TO FINAL DISPOSAL. WE WANT TO BE A LEADER IN ENVIRONMENTAL MANAGEMENT.

As in previous years, our operations at the Olkiluoto nuclear power plant followed our environmental policy, environmental permits, and environmental management system, excluding slightly exceeding the concentration limit value for the waste water treatment plant.

We take care of the environmental management and environmental impact of our power plant units and the infrastructure which supports our operations. We require also other companies operating in the power plant area and our partners to be aware of the environment as set out in our policies and operating principles.

Environmental research lays the foundation for operations

We have conducted environmental research on the Olkiluoto island since the 1970s, years before electricity production was launched. The baseline studies in the early years created the basis for environmental monitoring programs dealing with radiation control and the impact on waterways.

We carried out extensive environmental impact assessment procedures (EIA) for the new OL3 and OL4 plant unit projects. We have studied the final disposal of spent nuclear fuel since the 1980s, and it has also been evaluated through environmental impact assessment procedures. We have become familiar with the Olkiluoto island and its surroundings.

Annual targets for environmental and energy aspects

The goal of our certified environmental management system, compliant with the ISO 14001 standard and the EMAS Regulation, is to continuously improve operations and to increase the level of environmental protection. We specify environmental and energy aspects for our operations; the company's management confirms long-term objectives for the aspects and specifies annual improvement and maintenance targets to meet the objectives. In 2010, a total of 18 of the aspects were identified as significant.

We launched a procedure to re-evaluate the environmental and energy aspects, resulting in the identification of seven significant aspects regarding our current operations.

We set six improvement targets for 2010 and met five of them. In 2011, the implementation of five targets will continue as previously. We met eight of the ten maintenance targets and will also continue implementing them in 2011, excluding one target. The target for ensuring process cleanliness in the controlled area was added to the maintenance targets for 2011. For the targets and their results, see the tables on pp. 36–37.

As an improvement measure, we also established a team to monitor our environmental management and the meeting of the targets. The team acts as an expert, advisor, and information forwarder in environmental matters.

Cooling water is the most significant environmental aspect

We assess the significance of environmental and energy aspects on the basis of statutory requirements and licenses as well as by observing the magnitude, likelihood, and severity of the impact. The stakeholder groups and our own influencing opportunities also affect the assessment.

We use an approximate total of 75 m³/s of sea water for cooling in the OL1 and OL2 plant units at the Olkiluoto power plant. In 2010, the amount of sea water used for cooling was 1,929 (1,826) million m^3 and its thermal load on the sea was 26.9 (27.7) TWh. In fact, the thermal load of cooling water on the environment is the most significant environmental aspect of our operations.

The temperature of the cooling water increases by an average of 11 degrees after which it mixes with sea water. The cooling water is not directly connected to the process water of the power plant.

Throughout our operations, we have monitored the impact of cooling water and conducted related surveys. The cooling water stratifies in an extensive sea area in the surface layer from where part of the heat transfers into the air. Depending on the weather conditions, the increase in temperature is identified at an approximate distance of 3–5 kilometers from the cooling water discharge location. The cooling water also results in changes to the ice situation as the cooling water discharge area remains unfrozen throughout the winter. The size of the unfrozen and weak ice area varies from 3–20 square kilometers, depending on the winter weather. We issue warnings about the unfrozen area in newspapers and on ice warning boards.

The warm cooling water extends the growth period in the area and increases its overall production. Other biological effects caused by the cooling water are minor.

TVO's energy efficiency improvement goal until the end of 2016 is 340 GWh.

We have investigated the impact of our operations on the Rauma archipelago Natura area in the Olkiluoto area, the most recent in conjunction with the Natura assessment procedure concerning the OL4 project. Based on the assessment, the warm cooling water will not result in a significant harmful impact on the objects of protection in the Rauma archipelago Natura area as a combined impact of the four plant units.

We monitor sea water temperature as required by our environmental permit. According to the environmental permit regulation, the sea water temperature shall not as an intended value exceed 30 °C when calculated as a weekly average, 500 meters from the cooling water discharge channel.

The modernization project improves energy efficiency

We utilize lost heat from the Olkiluoto power plant units for district heating of the buildings in the area. We continued the replacement and expansion of the district heating network during 2010, constructing a pipeline in Posiva's ventilation and lifting equipment building and the Olkiluoto Visitor Center. We are still investigating the opportunities for increasing the use of process heat from the power plant process for increasing the district heating capacity of Olkiluoto.

We carried out an energy review for our property. Based on the review, we prepared an energy efficiency improvement plan for 2011–2016.

In the 2010 and 2011 annual outages, we are renewing the low pressure turbines and condenser sea water pumps of the OL1 and OL2 plant units as part of the continuous long-term development of the plant units. As a result, the efficiency of the units will improve by about 1%, which will increase the output of the units with the existing amount of fuel. The measure will improve the plant's energy efficiency and reduce the amount of heat conducted to the sea area.

Capturing carbon dioxide at the Meri-Pori power plant

In the early part of the year, with Fortum Power and Heat Oy, we continued the pre-planning for equipping the Meri-Pori power plant with a carbon capture and storage (CCS) facility. It seemed that the national support, enabling the implementation of the project, remained a fraction of the needed amount, and also the opportunities to be included in the EU's demonstration program worsened significantly. The financial risks of the projects turned out to be so extensive that we decided to withdraw from the project. However, we will follow the development of CCS technology and will participate in other co-operation projects with actors in the field.

We respond to concerns

We received numerous questions and inquiries through online feedback, during visits, by email, and telephone. We entered three (five) contacts in the quality assurance data system as an external concern. Our aim is to respond to all inquiries which include contact details.

Our initiative operations also support stakeholder group involvement in TVO's environmental management. Some of the initiatives directly or indirectly reduce the environmental impact of our operations or increase energy efficiency. Initiatives may be submitted by anyone working at Olkiluoto. A total of 289 initiatives were submitted, of which 132 were awarded by the end of January 2011.

One (zero) significant environmental deviation took place in 2010. In conjunction with a fuel tank leak at the OL3 site, an estimated 500 liters of oil leaked into the soil and the contaminated soil was removed. Measures to repair the damage were immediately taken and the environmental impact was minor. We identified six (seven) smaller environmental deviations. In addition, the consortium reported 30 (31) environmental events from the OL3 site.

We take the smallest of environmental events into account and also monitor near misses to prevent deviations. We report any significant deviations or events to the environmental authorities.

The Olkiluoto power plant has signed the business sector's energy efficiency agreement. The energy efficiency system has been included as part of our environmental system, and we take energy efficiency measures as part of our normal operations, such as part of the modification process.

REALIZATION OF THE TARGETS SET FOR THE ENVIRONMENTAL OBJECTIVES 2010

▶ Target met as planned ▶ Target met partially ▷ Target not met

IMPROVEMENT TARGETS (IT)

2010

Implementing measures related to ensuring process cleanliness in the controlled area

To reduce the amount of loose items ending up in the process and to prevent the fuel damage risk caused by them by the end of 2010 through measures accepted by the plant meeting.

OUTCOME ▶

A fuel leak was identified at both plant units in 2010. However, the measures set out in the management program were implemented, and a new permanent loose item team was established in 2010, and its operations will commence at the start of 2011. Therefore, it can be said that the target has been met.

Reducing the environmental impact of personal work procedures

To minimize the environmental impact caused by everyday tasks by making the personnel more aware of the costs and environmental aspects of their work. This improvement target is valid until the end of 2011.

OUTCOME ▶

We implemented measures as planned and met the target. Measures for increasing the environmental and cost awareness of the personnel have been taken through publications, training, and information sessions.

Waste sorting

To develop waste sorting at the place of origin so that over 85% of the total amount of waste will be recycled, when calculated from a rolling three-year average. The target is valid until the end of 2011 and also applies to the OL3 construction site

OUTCOME ▶

Waste sorting in 2010 has been implemented according to the target. As a rolling three-year average, the ratio of recycled waste per the total amount of waste was 87%.

The development of sorting in the accommodation villages, the contractor area, and the ONKALO site

To implement municipal waste sorting in the accommodation villages, the contractor area and the ONKALO site according to TVO guidelines and to improve sorting quality in 2009–2011.

OUTCOME ▶

The collecting location-specific targets set for waste sorting in the accommodation villages, the contractor area, and the ONKALO site were met for individual locations, but the average rating of the inspection rounds of all areas did not quite meet the target. This means that the target was not fully met. Environmental information days, with a focus on waste sorting, were arranged in both accommodation villages during 2010.

The development of the energy efficiency system in environmental management

To implement the energy review left unfinished in 2009 and to use it as a basis for planning and initiating energy efficiency improvement measures. The target is valid in 2010–2011.

OUTCOME ▶

The energy review was carried out and reported, and an energy efficiency improvement was prepared, which means that the objective for 2010 was met.

A development project for launching a cooling water research program

To compile the existing research data and to use it as a basis for planning possible development measures for cooling water utilization. The target has been set for 2010–2011.

OUTCOME ▶

In 2010, the work has progressed as planned, and a summary report on the compiled research data has been prepared.

The improvement targets will continue unchanged in 2011, excluding the target of ensuring process cleanliness in the controlled area, which is transferred to the maintenance targets.

REALIZATION OF THE TARGETS SET FOR THE ENVIRONMENTAL OBJECTIVES 2010

▶ Target met as planned ▶ Target met partially ▷ Target not met

MAINTENANCE TARGETS (MT)

2010

Sanitary waste water load

To ensure that the sanitary waste water treatment plant operates according to the permit regulations.

OUTCOME ▷

In 2010, the treatment efficiency was 96% for BOD_{7ATU} and 99% for total phosphorus, which means that the target was met in this respect.
However, the BOD_{7ATU} limit value (15 mg/l) set out in the permit condition for waste water conducted to the waterways was exceeded, being 16 mg/l at the annual level. Therefore, the target was not met.

Using powdered filtering mass

The target is to maintain the target set in 2005 for the usage amount of powdered filter mass.

OUTCOME ▶

The actual usage amount of powdered filter mass was 24% below the limit specified in the target, which means that the target has been met well.

Reducing the amount of process water

The target is to meet and maintain the consumption target set for 2005.

OUTCOME ▷

The consumption of demineralized water exceeded the target by 12%, which means that the target was not met.
The target can be met by replacing the old air humidifiers at the plant.

Suppliers' environmental responsibility

To acquire information from coal fuel suppliers about the status of their environmental management.
The requirements are consistently entered in all coal supply agreements.

OUTCOME ▶

A requirement for environmental management was entered in all coal supply agreements signed, which means that the target was met.

Thermal load on the sea

Regarding the temperature of the cooling water, the target is to remain within the limits required by the environmental permit, to continue the investigation of the utilization opportunities of the warm cooling water and to maintain the average efficiency of the plant units at the 1996 level (32.8%) at the least.

OUTCOME ▶

The average efficiency of OL1 and OL2 plant units during the monitoring period was 34.5%.
The permit regulations set for cooling water have been met, and the cooling water utilization opportunities have been investigated as planned.

Radioactive emissions into the air, normal operation

The target is to maintain the plant's combined noble gas emissions up to the level
of the average emissions in 1993–1997, which is 0.04% of the authority limit as a Kr-87 equivalent.

OUTCOME ▶

In 2010, the noble gas emissions into the air were 0.003% of the authority limits (target: less than 0.04%), which means that the target has been met very well indeed.

Radioactive emissions into the sea, normal operation

The target is to maintain the amount of radioactive water emissions (fission and activation products) at 0.5% of the authority limits at maximum.

OUTCOME ▶

In 2010, the emissions of fission and activation products into the sea were 0.08% of the authority limits
(target: less than 0.5%), which means that the target has been met well.

Radioactive emissions into the environment, accident

The target is to prevent the nuclear safety risk from increasing from the existing level. Risks are actively identified and measured for their likelihood and consequences by means of up-to-date Probabilistic Risk Assessment (PRA). The identified risks are mitigated by the Safety As High As Reasonably Achievable (SAHARA) principle.

OUTCOME ▶

The risk of core damage and a radioactive emission into the environment is very small, and its variation remained within the normal variation range in 2010.

Waste processing

To continue wood waste crushing at Olkiluoto and thus reduce the environmental load caused by transporting wood waste.

OUTCOME ▶

All created wood waste was crushed at Olkiluoto and delivered to energy utilization, which means that the target was met.

Utilization of surplus concrete

To continue the utilization of surplus concrete created at the OL3 site or the concrete batching plants for excavation work at Olkiluoto.

OUTCOME ▶

Approximately 12,800 tons of surplus concrete was utilized in the Olkiluoto harbor and the KPA area construction work in 2010.

The maintenance targets will continue unchanged in 2011, excluding the removal of the target of selecting the coal fuel supplier, and the addition of the target of ensuring process cleanliness in the controlled area.

SIGNIFICANT ENVIRONMENTAL AND ENERGY ASPECTS 2010

The cooling water thermal load on the sea
Radioactive emissions into the air in normal operation
Radioactive emissions into water in normal operation
A significant radioactive environmental emission from the reactor in an accident
The environmental responsibility of the selected service, material, and accessories suppliers
The operations of the service suppliers
The environmental responsibility of the selected uranium fuel suppliers
The environmental responsibility of the selected coal fuel suppliers
The impact of the purchased coal quality on the combustion process
Chemical, fuel, and oil tank leaks
Sanitary waste water load
Condition monitoring of measurement equipment
The amount of refuse exempted from control
Waste created in the operations
Spent nuclear fuel created in the operations
Landfill site load
Equipment replacement and process improvement
Storing substances hazardous or harmful to health and the environment at the OL3 site

SIGNIFICANT ENVIRONMENTAL AND ENERGY ASPECTS AND ENVIRONMENTAL OBJECTIVES 2011

ASPECT	OBJECTIVE	MANAGEMENT METHOD
The thermal load on the sea caused by the cooling water	Environmental load management	A development project for launching a cooling water research program (IT) Thermal load on the sea (MT)
A significant radioactive emission into the environment in an accident	Isolating the radioactivity originating from the power plant from the organic environment	A radioactive emission into the environment, accident (MT) Operating instruction and follow-up
Radioactive emissions into the air in an exceptional situation	Isolating the radioactivity originating from the power plant from the organic environment	Radioactive emissions into the air; normal operation (MT) Ensuring process cleanliness in the controlled area (MT) Operating instruction and follow-up
Spent nuclear fuel created in the operations	Isolating radioactivity originating from the power plant from the organic environment / Improving material and energy efficiency, and sustainable land use	Operating instruction and follow-up
Land use	Improving material and energy efficiency and sustainable land use	Operating instruction and follow-up
Selecting the product and service suppliers	Suppliers' environmental responsibility	Operating instruction and follow-up
Storage and handling of hazardous or harmful substances	Environmental load management	Operating instruction and follow-up

IT = Improvement target

MT = Maintenance target

ENVIRONMENTAL BALANCE SHEET OF THE OLKILUOTO POWER PLANT 2010

Emissions into the air		Allowed annual emissions
Noble gases	0.581 TBq (Kr-87 ekv.) (0)	(17,700 TBq)
Iodine	0.000094 TBq (I-131 ekv.) (0.0000001)	(0.114 TBq)
Aerosols	0.000012 TBq (0.000059)	
Carbon-14	0.71 TBq (0.78)	
Tritium	0.27 TBq (0.32)	

URANIUM FUEL	39.1 t	(39.8)
Intermediate agents		
Oils	271 m³	(267)
NaClO (15%)	68 m³	(37)
Other chemicals	138 t	(133)
Ion exchange resin	16 t	(14)
Water treatment chemicals	119 t	(125)
Raw water (tap and process water)	378,470 m³	(500,669)
Cooling water	1,929 million m³	(1,826)

ELECTRICITY	14.1 TWh		(14.5)
Municipal waste	**OL1 & OL2**	**OL3***	**Total**
Recyclable waste	805 t	8,539 t	9,343 t
	(1,191)	(10,896)	(12,087)
Landfill waste	270 t	928 t	1,198 t
	(531)	(1,601)	(2,132)
Hazardous waste	56 t	79 t	135 t
	(60)	(71)	(131)
Radioactive waste			
Low level waste		167 m³	(117)
Intermediate level waste		13 m³	(50)
Spent fuel		36.9 t	(37.1)

* construction stage

Emissions into water			Allowed annual emissions
Cooling water	1,929 million m³	(1,826)	
Thermal load on the sea	26.9 TWh	(27.7)	
Fission and activation products	0.0002 TBq	(0.0002)	(0.296 TBq)
Tritium	1.50 TBq	(1.85)	(18.3 TBq)
Phosphorus	25 kg	(15)	
Nitrogen	8,800 kg	(8,400)	
BOD_{7ATU}	2,500 kg	(1,500)	

Small emissions and responsible waste management

WE WANT TO PREVENT THE PRODUCTION OF WASTE AND TO PROMOTE ITS UTILIZATION. WE ISOLATE RADIOACTIVE WASTE FROM THE ORGANIC ENVIRONMENT UNTIL ITS RADIOACTIVITY HAS DECREASED TO A HARMLESS LEVEL. AT ALL TIMES, OUR OBJECTIVE IN THE EMISSIONS CONTROL OF RADIOACTIVE SUBSTANCES IS TO CLEARLY GO BELOW THE LIMITS SPECIFIED BY THE AUTHORITIES AND OUR OWN OBJECTIVES WHICH ARE TIGHTER THAN THE AUTHORITY LIMITS.

Our operations result in ordinary municipal waste, hazardous waste, and radioactive waste, as well as a small amount of ordinary and radioactive emissions into the air and water. They are discussed in more detail in the key figures of environmental responsibility on pp. 46–47.

As in previous years, the radioactive emissions from the Olkiluoto power plant into the air and water were very small and we went below both the authority limits and the tight emission limits set out by us. Noble gas emissions into air were 0.003 (0)% and iodine emissions were 0.08 (0.00009)% of the limit specified by the authorities.

The emissions of radioactive fission and activation products into the water were 0.08 (0.07)% and the tritium emissions were 8.2 (10.1)% of the limit specified by the authorities.

A minimal amount of landfill waste

We are committed to reducing the amount of waste and require everyone working at Olkiluoto to do the same. We improve the sorting and processing efficiency of created waste and forward sorted waste to recycling. We sort conventional waste into nine groups. We only take waste which is unsuitable for utilization to a landfill site. We collect hazardous waste in a designated storage from where it is delivered to an appropriate processing plant for further processing.

The share of waste utilized for recycling or energy in our total amount of waste was 88 (84)%, the share of landfill waste was 11 (15)% and the share of hazardous waste was 1 (1)%. The total amount of waste including construction waste was 10,700 (14,400) tons.

Nuclear plant waste is sorted according to radioactivity

We sort waste created at the power plant into waste cleared after monitoring, low and intermediate level waste, high level radioactive waste, and decommissioning waste, according to its radioactivity level.

Waste exempted from control contains such a small amount of radioactive substances that the waste can be returned to utilization or disposed of at our landfill site. The waste is created in operating and maintaining the power plant. The amount of maintenance waste cleared after monitoring was 55 (16) tons. In addition, we exempted approximately 195 (34) tons of metal from control to recycling and delivered 16 (16) tons of hazardous waste to processing.

The protective gear used in operating and maintaining the power plant, the equipment removed from the process, and the insulating materials are low level waste. We put them in tight packages and place them in a final disposal repository at an approximate depth of 100 meters in the plant area. The amount of low level radioactive waste was 167 (117) m^3.

The ion exchange resin used for cleaning the power plant's process water is intermediate level waste which we blend with bitumen and place in the final disposal repository. The amount of intermediate level waste was 13 (50) m^3. Decommissioning waste is waste created in conjunction with disassembly after power plant decommissioning, which is also disposed of at Olkiluoto. The final disposal of high level radioactive waste is discussed on pp. 28–29.

Recycling decreases freshwater consumption

Water is an important raw material for us, in addition to uranium. We use sea water for cooling. We obtained 378,470 (500,669) m^3 of freshwater from River Eurajoki to the power plant. We use it as tap water and process water. The process water boiling in the reactor may not contain any minerals, impurities or particles which could damage the inner parts of the reactor.

Olkiluoto has all the necessary plants for water treatment: a water treatment plant, a demineralization plant, a laboratory, and a waste water treatment plant. We treat the tap and process water at our water treatment plant. We also use the ion exchange and reverse osmosis methods for purifying the water used in the power plant process. We continuously recycle and purify the process water. During annual outages, we store the fuel pool water in storage pools from where we redeploy it. Water recycling annually reduces our need for clean process water and the amount of process waste water leaving the power plant by about 30,000 m^3.

We process sanitary waste water at the Olkiluoto waste water treatment plant and then conduct the treated water to the sea. The amount of treated sanitary water was 154,503 (157,383) m^3 in 2010. The phosphorus load on the sea was 25 (15) kg, the nitrogen load was 8,800 (8,400) kg and the biological oxygen demand (BOD_{7ATU}) was 2,500 (1,500) kg. In 2010, the concentration of the biological oxygen demand of the sanitary waste water treated by the waste water treatment plant exceeded the permit condition (15 mg/l), being 16 mg/l. This was caused by the load during the annual outages during which over 6,000 people were working in the Olkiluoto power plant area. Regarding treatment efficiency and the phosphorus concentration requirements, the treatment plant met the permit conditions. The emissions from our sanitary waste water treatment plant were a fraction of the nutrient load of the River Eurajoki running to the north of Olkiluoto, totaling 11,000 kg of phosphorus and 418,000 kg of nitrogen.

Electricity production supervised by the authorities

OUR OPERATIONS ARE SUBJECT TO A LICENSE AND SUPERVISION BY THE AUTHORITIES. THE FINNISH RADIATION AND NUCLEAR SAFETY AUTHORITY (STUK) SUPERVISES NUCLEAR AND RADIATION SAFETY.

The Southern Finland Regional State Administrative Agency is the environmental permit authority and the Southwest Finland Centre for Economic Development, Transport and the Environment is our supervising authority. Other authorities involved in the management of our environmental issues include the environment department of Eurajoki, our location municipality, and the Ministry of Employment and the Economy, acting as our liaison authority in the EIA Procedure.

Radiation monitoring samples taken in the surroundings of Olkiluoto are submitted to STUK for analysis. We provide several regional and national authorities with an annual report on the amount of waste and emissions caused by our operations. We annually report our environmental investments and environmental protection operation costs to Statistics Finland. After verification, we report the annual carbon dioxide emissions of backup diesels and backup heating boilers to the Energy Market Authority.

No special situations with an environmental impact

No nuclear or radiation safety-related special situations or operating disruptions causing an environmental impact took place at the Olkiluoto power plant in 2010. We issued separate case-specific reports on possible special situations and operating disruptions. We prepared two (six) special reports on our operations for STUK.

The severity degree of events taking place at the nuclear power plant are classified according to the international INES classification. The INES scale has seven severity classes, of which 4–7 are classified as an accident, 1–3 as an incident or an anomaly decreasing the level of safety, and class 0 as a deviation with no significance to safety. The most severe events at Finnish nuclear plants have been of INES class 2. During the operating history of the Olkiluoto power plant, there have been three INES 2 incidents.

Two INES 1 anomalies occurred at the Olkiluoto nuclear power plant in 2010. The first anomaly dealt with the exhaust system's valve jam identified in testing. We checked the functionality of the electrical control valves of all exhaust valves and decided to take the corrective measure of replacing the defective control valve type with another type. The second INES 1 anomaly concerned the use of an incorrect fuel batch in transfer planning. This resulted from an error in a transfer document. As a corrective measure, we will develop the procedures in order to prevent a similar event in the future.

Three INES 0 deviations were also identified in 2010 with no significance to nuclear or radiation safety.

We process all operating incidents taking place at the Olkiluoto nuclear power plant and also internationally monitor incidents at other nuclear power plants. We develop our operations based on the observations we make.

Our operations are regulated by licenses and permits

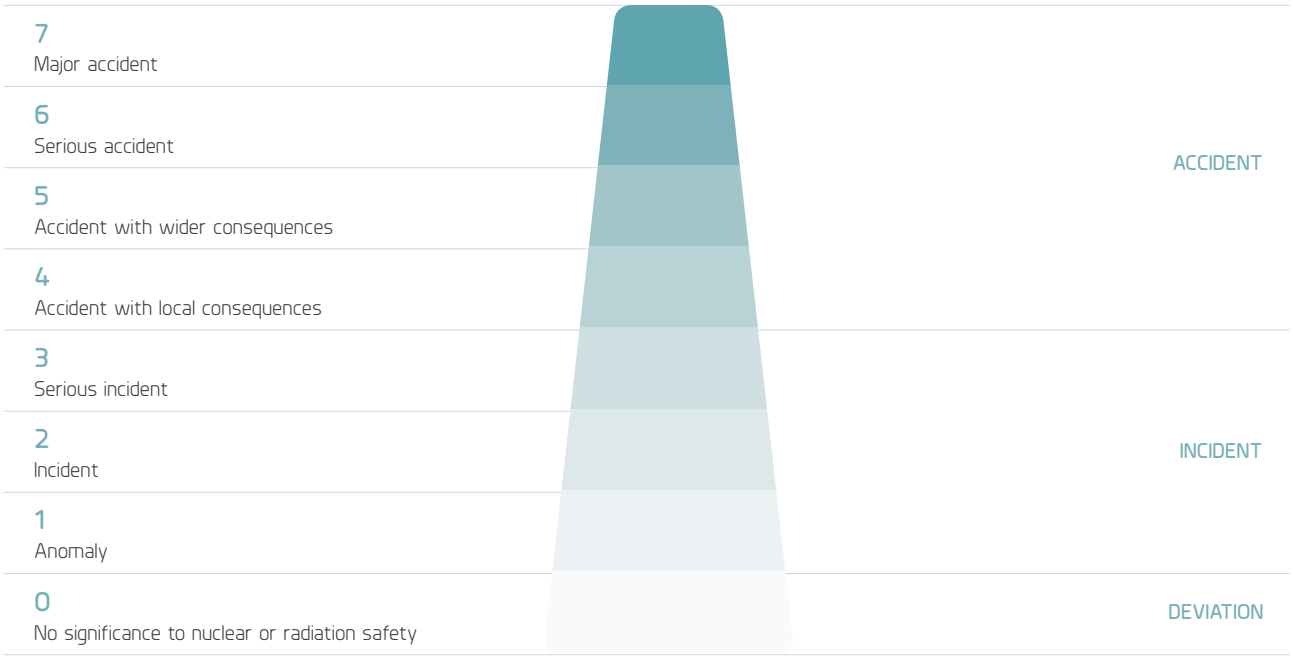
In addition to the legislation of the nuclear energy and radiation, our operations are regulated by the requirements set out in the environmental legislation. Operating the Olkiluoto power plant is subject to a permit according to the Environmental Protection Act, and cooling water intake is subject to a permit according to the Water Act. The permit regulations control the cooling water amount and thermal emissions, and present the intended limit value for the maximum temperature of the sea area. The permit conditions also apply to waste water treatment efficiency, waste processing, operating in case of disruptions, and exceptional situations, as well as monitoring and reporting. The landfill site at the Olkiluoto nuclear power plant also has an environmental permit.

Permits according to the Chemicals Act have been granted for the handling and storaging of hazardous chemicals.

In 2010, operations at the Olkiluoto nuclear power plant followed our environmental policy, environmental permits and environmental management system exluding slightly exceeding the concentration limit value for the waste water treatment plant.

In June 2009, the environmental license office granted us a permit for constructing an embankment between the Olkiluoto and Kuusisenmaa islands. The processing of the license case continues in the Supreme Administrative Court.

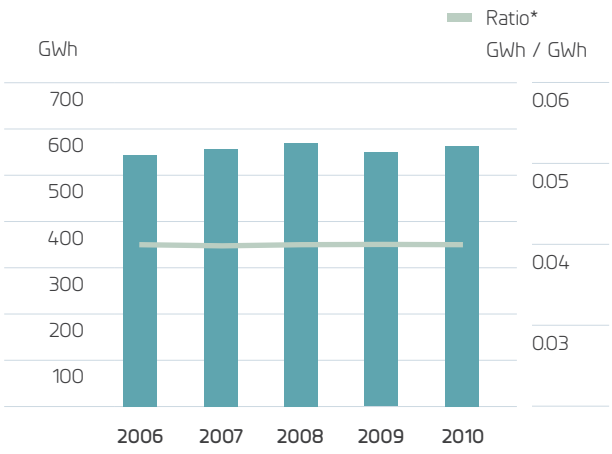
INES CLASSIFICATION



CORE INDICATORS FOR THE ENVIRONMENT

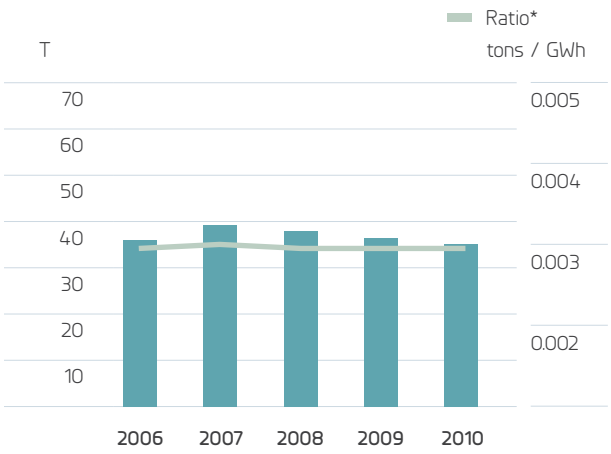
ENERGY EFFICIENCY

TVO'S ELECTRICITY CONSUMPTION



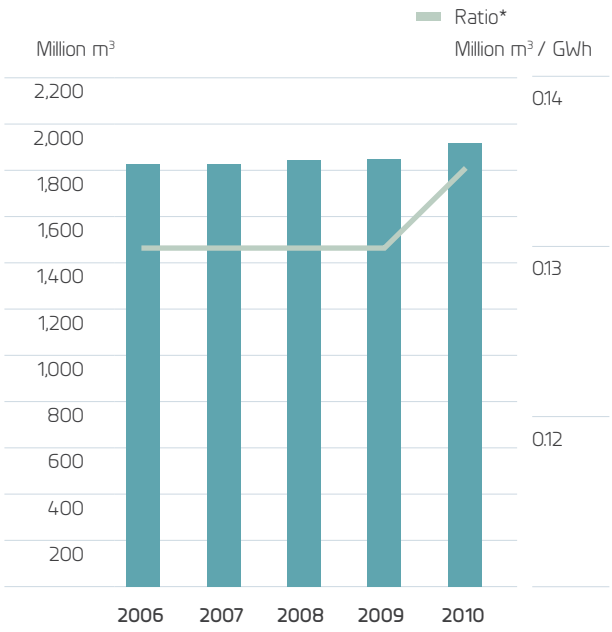
MATERIAL EFFICIENCY

SPENT NUCLEAR FUEL



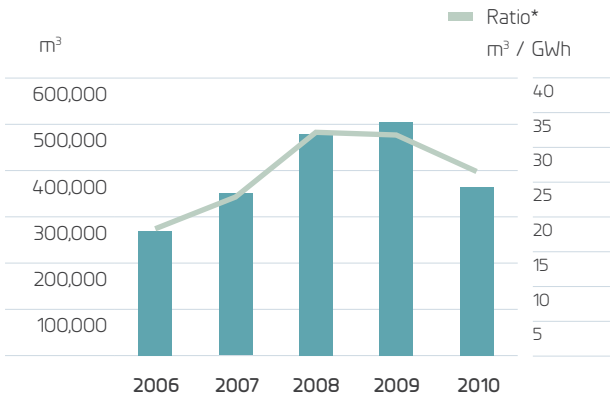
WATER CONSUMPTION

COOLING WATER



WATER CONSUMPTION

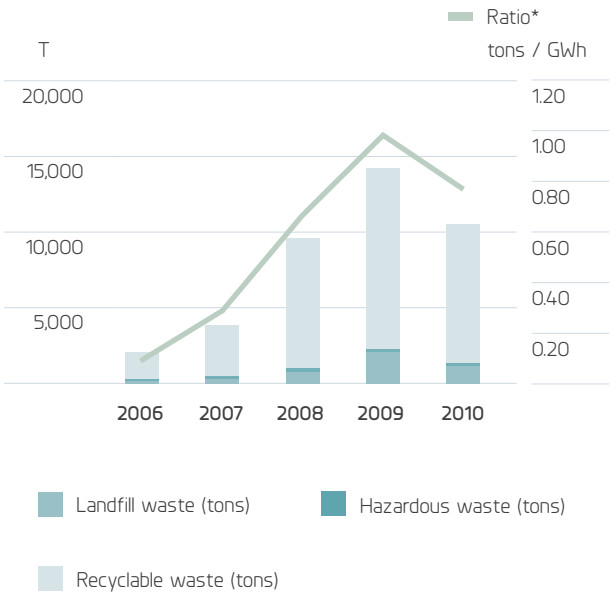
RAW WATER



* The ratio in the graph is given for electricity produced (gigawatt hour).

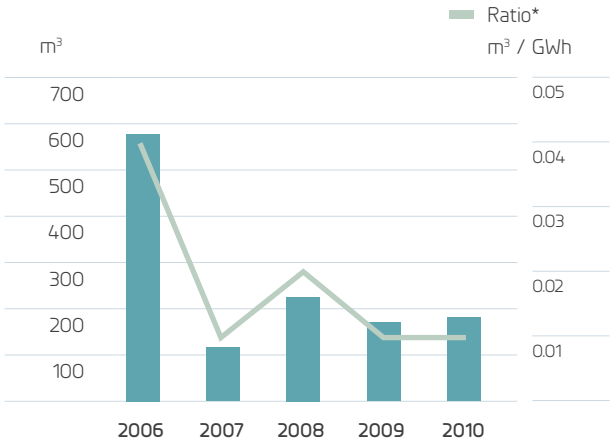
WASTE

MUNICIPAL WASTE



WASTE

LOW AND INTERMEDIATE LEVEL WASTE



EMISSIONS

THERMAL LOAD ON THE SEA

BIODIVERSITY

The indicator for land use is insignificant due to the nature of the operations and the area.

* The ratio in the graph is given for electricity produced (gigawatt hour).

KEY FIGURES ON ENVIRONMENTAL RESPONSIBILITY

	2010	2009	2008	2007	2006
OL1					
Net production (GWh)	6,977	7,296	7,066	7,335	6,973
The plant unit's own operating electricity (GWh)	258	266	258	268	256
Capacity factor (%)	91.8	97.0	93.7	97.5	93.8
Cooling water (million m³)	1,023	923	895	924	886
Thermal load on the sea (GWh)	13,183	14,006	13,516	13,985	13,453
Efficiency (net) (%)	34.6	34.2	34.3	34.4	34.1
OL2					
Net production (GWh)	7,167	7,156	7,314	7,051	7,294
The plant unit's own operating electricity (GWh)	258	256	262	251	250
Capacity factor (%)	95.2	95.1	96.9	93.7	96.9
Cooling water (million m³)	906	903	927	892	924
Thermal load on the sea (GWh)	13,716	13,694	13,965	13,475	13,982
Efficiency (net) (%)	34.3	34.3	34.4	34.4	34.3
Wind power plant					
Net production (GWh)	1.1	1.5	1.6	1.8	1.7
Capacity factor (%)	13	17	18	20	20
Electricity production capacity (MW)	1	1	1	1	1
Nuclear fuel					
Spent nuclear fuel in OL1 and OL2 storage pools and interim storage pools (KPA)					
Number of assemblies	7,434	7,210	6,982	6,748	6,508
Assemblies in tons	1,253.4	1,216.9	1,179.8	1,141.9	1,102.6
Radioactive waste					
Low level (m³)	167	117	113	76	549
Intermediate level (m³)	13	50	115	36	37
Operating waste cleared after monitoring (tons)	55	16	16	22	30
Radioactive emissions					
Emissions into the air					
Noble gases [1] TBq (Kr-87 equivalent)	0.58	0	0	0.113	0.649
% of the allowed level	0.0033	0	0	0.0006	0.0037
Iodine [1] TBq (I-131 equivalent)	0.000094	0.0000001	0.000002	0.000015	0.00016
% of the allowed level	0.082	0.00009	0.001	0.013	0.14
Aerosols TBq	0.000012	0.000059	0.00002	0.00003	0.00004
Tritium TBq	0.27	0.32	0.43	0.38	0.30
Carbon-14 TBq	0.71	0.78	0.88	1.08	0.77
1) Permit regulation for radioactive emissions into the air: noble gases 17,700 TBq Kr-87 equivalent, iodine 0.114 TBq I-131 equivalent					
Emissions into the water					
Fission and activation products [1] TBq	0.0002	0.0002	0.0003	0.0006	0.0006
% of the allowed level	0.08	0.07	0.12	0.19	0.21
Tritium [1] TBq	1.5	1.85	2.39	2.41	2.46
% of the allowed level	8.2	10.1	13.1	13.2	13.5
1) Permit regulation for radioactive emissions into water: Tritium 18.3 TBq . Other beta-active nuclides 0.296 TBq.					

	2010	2009	2008	2007	2006
Raw water treatment					
Amount of water (m^3) [1]	378,470	500,669	485,158	344,509	280,798
Water treatment chemicals (tons) [2]	65.0	69.2	66.1	64.0	54.6
1) Surface water pumped from the River Eurajoki to the Korvensuo storage pool.					
2) Chemicals used for treating the raw water (H_2SO_4, NaClO (10%), NaOH, chemical precipitation agents)					
Sanitary water treatment					
Amount of water (m^3)	154,503	157,383	150,069	101,104	70,795
Concentration (mg/l) [1]					
BOD_{7ATU}	16	9.3	7.1	12.0	4.5
Phosphorus	0.16	0.095	0.27	0.15	0.41
Purification efficiency [1] **average (%)**					
BOD_{7ATU}	96	97	98	96	98
Phosphorus	99	99	97	99	97
Sea area load (kg)					
Phosphorus	25	15	40	15	29
Nitrogen	8,800	8,400	6,200	4,400	2,600
BOD_{7ATU}	2,500	1,500	1,100	1,200	320
Water treatment chemicals (tons) (t) [2]	54.5	56.1	42.6	36.1	20.0
1) Permit regulation for sanitary waste water: The maximum BOD_{7ATU} value of waste water conducted to the sea is 15 mg O_2/l and the maximum phosphorus concentration is 0.7 mg P/l. The minimum purification efficiency with respect to the BOD_{7ATU} value and phosphorus is 90%. All values are calculated as annual averages.					
2) Chemicals used for sanitary waste water treatment.					
Ordinary municipal and hazardous waste					
OL1 & OL2 (OL3)					
Landfill waste (tons)	270 (928)	531 (1 601)	396 (387)	130 (122)	133 (57)
Crushed brick and concrete (tons)	22 (1 913)	182 (376)	519 (40)		
Paper and cardboard (tons)	121 (67)	107 (74)	70 (78)	60 (60)	54 (29)
Wood and sawdust (tons)	146 (3 115)	206 (5 310)	399 (4 412)	368 (1 521)	272 (447)
Metal (tons)	176 (2 959)	220 (3 645)	228 (2 046)	155 (819)	141 (108)
Cable refuse (tons)	20 (8.0)	40 (7.5)	29 (2.5)	26 (1.2)	36 (0.7)
Energy waste (tons)	206 (451)	326 (1 459)	336 (567)	189 (291)	181 (117)
Biowaste (tons)	95 (26)	99 (24)	69 (44)	62 (37)	58 (24)
Glass (tons)	19 (0)	14 (0)	13 (0)	2 (1)	0.4 (0.1)
Hazardous waste (tons)	56 (79)	60 (71)	102 (39)	89 (5)	78 (13)
Intermediate agents					
Oils (m^3) [1]	270.8	267.4	254.3	303.6	273.3
NaClO (15%) (m^3) [2]	67.6	37.0	40.4	30.8	-
Other chemicals (tons) [3]	137.6	133.0	136.1	132.7	121.9
Ion-exchange resin (tons)	16.2	14.3	21.4	16.5	17.9
1) Backup diesels and heating boilers (consumed amount) and the amount of gasoline and diesel consumed by TVO's vehicles in its own tank.					
2) Used for preventing Cordylophora in the sea water channels.					
3) Solvents, bitumen and nitrogen.					
Coal fuel					
Meri-Pori's coal use for producing TVO's electricity share (tons)	561,450	299,323	286,839	458,408	524,532
Verified carbon dioxide emissions of the Olkiluoto power plant					
Backup heating boilers (8 MW + 12 MW = 20 MW) (tons)	32	2	5	1	1
Backup diesels (8 x 1.5 MW = 12 MW) (tons)	424	483	433	470	432
Total (tons)	456	485	438	471	433

EMAS TABLE

REQUIREMENT	PAGE IN THE REPORT
A clear, unambiguous description of the organization/operational unit registered in the EMAS system and a summary of its activities, products and services and its relationship to any parent organisations as appropriate.	7–9
The organization's environmental policy and a brief description of the environmental management system of the organization.	33–39, 69–73
A description of all the significant direct and indirect environmental impacts of the organization, and an explanation of the nature of the impacts.	34–35, 38
A description of the environmental objectives and targets in relation to the significant environmental aspects and impacts.	36–38
A summary of the data available on the performance of the organization's environmental protection against its environmental objectives and targets with respect to significant environmental impacts. The reporting must use key indicators and other suitable indicators specifying the level of environmental protection.	32–47
Other factors regarding environmental performance including performance against legal provisions with respect to their significant environmental impacts.	33, 40–43
A reference to the applicable statutory requirements related to the environment.	43
The name and accreditation or license number of the environmental verifier and the date of validation.	49

Our power plant at Olkiluoto has been EMAS registered (Eco-management and Audit Scheme) with code FI-000039 (NACE code D35.1.1). The registration is valid until June 30, 2012.

Verification of conformity

DNV Certification OY/AB has reviewed Teollisuuden Voima Oyj's Olkiluoto units' internal procedures, collected data and documentation as an accredited verifier (FIN-V-0002). Based on this review it was established that the corporate social responsibility policy's environmental principles, internal audits and environmental programmes, the environmental management system and the environmental statement are fulfilling the requirements stated in (EY) nr. 1221/2009.

Scope and methodology of verification

The verification of EMAS statement has been carried out at TVO's Olkiluoto unit on February 15 to 18, 2011. The coverage and credibility of the report and reported data has been verified based on written and practical check evidences. The key personnel have been interviewed during verification and the reported information has been compared with the original source data. The Environmental verification has included, when applicable, audit results from ISO 14001 certification.

The Corporate Social Responsibility Report 2010, A period of major projects, is presenting an overall and correct picture about Teollisuuden Voima Oyj's operations and environmental impacts. The Environmental statement, included into the Corporate Social Responsibility Report, is fulfilling the requirements of EMAS regulation nr 1221/2009.

The Corporate Social Responsibility Report 2010 is also well reflecting the strong commitment of Teollisuuden Voima Oyj to the management and improvement of high Safety, Quality, and Environmental Protection culture in its operations.

In Espoo 23.2.2011
DNV Certification OY/AB
EMAS- Accredited Verifier
FIN-V-0002

Seija Meriluoto
Lead Verifier, Lead Auditor

DET NORSKE VERITAS 1864 HELSINKI

SOCIAL RESPONSIBILITY

Nuclear sector pioneers carrying out major projects

OUR KEY SUCCESS FACTORS ARE A COMPETENT, MOTIVATED PERSONNEL AND THE CONFIDENCE OF STAKEHOLDER GROUPS. WE WANT TO BE A GOOD CORPORATE CITIZEN CARRYING OUT AN ACTIVE DIALOG WITH OUR SIGNIFICANT STAKEHOLDER GROUPS.

Our most important stakeholder groups are our personnel, the owners, the authorities, neighbors and neighboring municipalities, decision-makers, investors, subcontractors and goods suppliers, and the media. Our everyday operations and interaction are guided by TVO's values. We carry out our tasks in a responsible, motivated, and competent manner and are committed to following the agreed operating methods.

We want to be a responsible employer. The number of TVO employees at the end of 2010 was 798 (797), an average of 837 (830) during the year. The number of permanent personnel at year-end was 714 (717).

Our long-term business partners are Securitas Oy, in charge of security; Sodexo Oy, in charge of the personnel cantine; and RTK-Palvelu Oy, responsible for cleaning and sanitation services. These companies employ over 300 people at Olkiluoto. We employed an approximate total of 700 subcontractors and consultants at year-end.

The average number of personnel at the OL3 site was over 4,000 and the annual outages in the spring were contributed to by about 1,500 people in addition to our personnel.

Employment relationships at TVO are long-lasting, and personnel turnover is infrequent. The longest employment relationships are over 35 years, and the average duration of employment relationships at year-end was 15 (15) years. The OL3 project has provided us with an opportunity to transfer our strong know-how from experienced nuclear sector pioneers to future leaders in the field. In the period 2005–2010, we have hired 321 new and talented people on a permanent basis.

Women accounted for 22 (21)% of our permanent personnel at the end of 2010. A total of 15 (18) women were in executive and supervisory positions in different units. Our Board of Directors included one (zero) woman and our Management Team included one (one) woman. The average age of our personnel was 44.7 (44.6) years.

Working for us has attracted a lot of interest

We hired 29 (31) new employees on a permanent basis. Eight (10) of them were women. The average age of new TVO employees was 34 (34) years. During the year, 32 (23) employees left the company from a permanent employment relationship – 18 (13) of these retired.

TVO is an attractive workplace as we received 1,403 (512) applications for our open posts. In addition, we received a large number of open applications and over 900 summer trainee applications. 168 (186) young people worked for us as summer trainees last year. 47 (54) of them were university students and one-third were students of a university of applied sciences. The rest of the trainees were from technical colleges, high schools, elementary schools, and other educational institutions. 86 (96) summer employees studied in a technical field. The duration of trainee periods varied from 1–4 months.

We spent EUR 55.9 (55.4) million on HR expenses, of which wages accounted for EUR 46.4 (45,7) million, pension costs 6.9 (7.7) million and other mandatory HR overhead costs EUR 2.6 (2.0) million.

We observe the applicable collective labor agreements for the energy sector. The energy sector's agreed salary systems for technical and industrial officials and employees are based on the job requirement categories and support the implementation of an equal salary policy. As a rule, the various employment benefits apply to the entire personnel, excluding very short employment relationships.

Flexible hours make daily life easier for TVO employees

Balancing work and personal life supports the well-being of our personnel, and we have looked for appropriate ways to do this. We provide our personnel with a flexible hours system where the business day range is from Monday through Saturday, the daily hour range is from 6 a.m. to 8 p.m., and there is also the opportunity to take full-day leave in addition to the daily flexible hours.

Our flexible hours system is suitable for various personal situations, such as childcare arrangements or hobbies, arranging the care of aged parents or next of kin, or studies. Our employees appreciate the flexible hours system.

Our employees have used alternation leave, part-time pension arrangements, and sabbaticals to promote well-being at work. 28 (19) employees were on part-time pension, and two (two) were on alternation leave. Since the early 1990s, we have also used a sabbatical system enabling longer periods of leave. 14 (4) people were on sabbatical (3–6 months) during the year. Approximately 190 (170) employees have accumulated sabbatical, about 8,150 (7,900) days in total.

Our company promotes diverse HR club activities and these clubs provide an opportunity for recreation through exercise and cultural and other activities, for example. Our personnel also have access to holiday locations where they can spend their free time.

We continuously develop work duties and our operations

We actively develop the shift work of the control room personnel with respect to well-being at work and the capacity to work. As approved by STUK, we established the control room rest policy in the control rooms of OL1 and OL2 in April. We tested the control room rest policy for six months in 2009, and established it on the basis of the good results. According to the control room rest policy, an employee working a night shift may take a nap of up to 30 minutes when their work tasks so allow.

We encouraged all TVO employees to develop their own work and TVO's operations in the TVO-Talkoot campaign. The campaign was based on the results of the 2009 HR survey. Regarding personal work development, we received development proposals from over 600 TVO employees in the spring 2010. Almost 75% of these proposals were approved for implementation during the year. As a result of the TVO-Talkoot campaign, we are further developing the induction process for new TVO employees, promoting the job rotation of personnel by establishing an internal job rotation database for supervisors, and preparing the introduction of remote work.

Diverse occupational healthcare services

We take care of the working capacity of our personnel, well-being at work, and continuous know-how development to ensure that the personnel have the energy to work. We offer opportunities for job rotation and new, challenging positions. As part of working capacity promotion, we arranged various well-being at work events during the year.

Occupational healthcare operations are guided by the occupational healthcare action plan. Occupational healthcare costs were about EUR 0.6 (0.6) million. Occupational healthcare services at Olkiluoto are provided by Lääkärikeskus Minerva at an occupational healthcare station, which is open on working days. The station has an occupational health physician, nurse, and physiotherapist. Services for the Helsinki office are provided at the Forum medical station of Lääkärikeskus Mehiläinen.

In addition to statutory services, our employees are provided with general physician-level medical care services, consultations of specialist physicians, and occupational physiotherapy services in case the occupational physician finds this necessary. The occupational physiotherapist instructs employees in questions concerning work ergonomics, for example. The coverage of occupational healthcare has been expanded with accident and medical expense insurance policies.

The entire personnel in the merit pay system

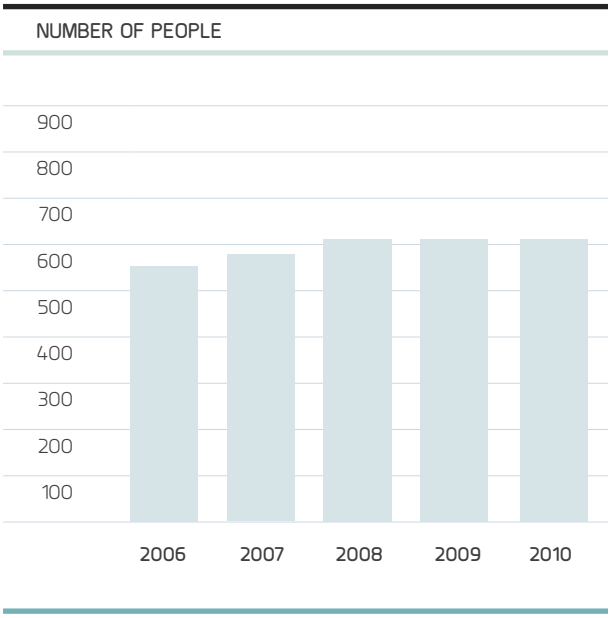
Since 2005, our employees have had the opportunity to invest their performance related compensation in the HR fund. The system covers our entire personnel. Performance related compensation is determined according to the operating quality, efficiency measurement, and evaluation of the company and the operating units. Over 50% of the personnel has invested merit pay in the fund during its period of activity.

We provide free-of-charge transport from Rauma and Eurajoki to those working at Olkiluoto. There are 11 bus connections from Rauma and six from Eurajoki to Olkiluoto on weekdays. Approximately 60% of our employees resides in Rauma and about 20% in Eurajoki.

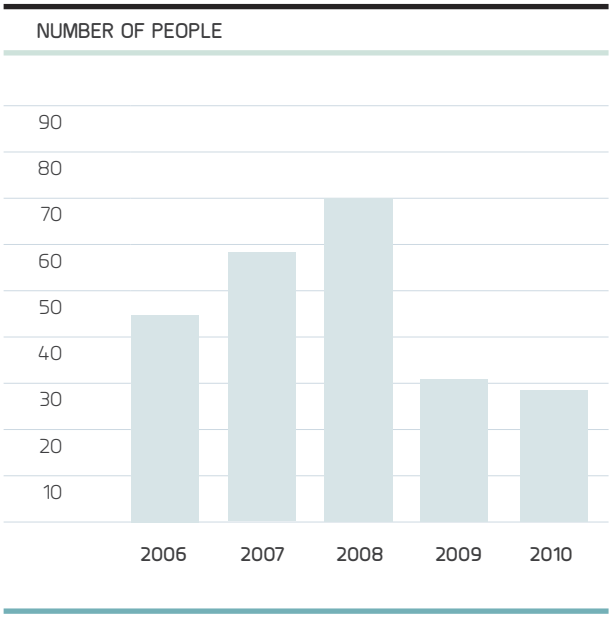
During the year, we held three (three) statutory labor negotiation meetings with the HR groups. The meetings addressed the TVO-Talkoot campaign's development ideas, transport connections, industrial safety, the development of an operating model for early intervention, and the performance related compensation system, among other things. In addition, the cantine committee addressed the development of HR cantine operations. The holiday committee issued holiday shifts to the personnel and addressed matters related to holiday locations, and the initiative committee processed and rewarded initiatives by the personnel.

The employees have administrative representation in the management team of the company.

PERMANENT EMPLOYEES



NEW PERMANENT TVO EMPLOYEES



Investment in competence and development

WE CONSIDER TRAINING AS AN INVESTMENT IN THE FUTURE. WE NEED NEW PROFESSIONALS IN NUCLEAR POWER TO DESIGN, CONSTRUCT, MAINTAIN, AND OPERATE OUR EXISTING AND FUTURE PLANT UNITS. WE PROVIDE OUR PERSONNEL WITH THE OPPORTUNITY TO MAINTAIN THEIR COMPETENCE, CONTINUOUS LEARNING AND DEVELOPMENT, AND WE CONTINUOUSLY TRANSFER KNOW-HOW AND PLANT EXPERTISE TO NEW PROFESSIONALS.

Personnel turnover at Olkiluoto has been infrequent but we are looking at an increased number of retirements in the next few years. Almost 40% of our employees has worked for the company for over 20 years. We want to transfer our personnel's unique know-how in the development of nuclear power plant infrastructure, successful operation and maintenance of the plant units, modernization projects, and the design and construction of the new plant unit to new professionals.

The new personnel hired for the OL3 project will get practice for the upcoming operating tasks during the construction and commissioning stage. We have recruited almost 300 new employees in the last five years.

A training and development plan for all TVO employees

Professional, competent and motivated personnel ensure the safe operation of a nuclear power plant. We reach a high level of competence for example through training programs, job rotation, and orientation programmes. Together with supervisors, our training professionals prepare an orientation, training, and development plan for each TVO employee according to the employee's duties.

For employees in the same positions, we have specified the minimum competence requirements and the related training programs. The training program that we prepare annually is based on the training needs reported by the organizational units and it observes the personnel development objectives set out by the management, and other current training needs.

We enter information related to competence management, training, induction, and work guidance in the information system. Training focused on basic training for new employees, the development of technical competence, and supervisory skills, as well as the competence needs related to the implementation of various projects. In 2010, we provided a total of 7,482 (8,835) days of training for our personnel, an average of 8.9 (10.6) days per TVO employee.

Modernization increased the amount of training

We supplement the basic training and/or work experience requirements of different work duties with our own training, mainly focusing on the special features of the nuclear power sector, and with vocational continuing and supplementary education.

We require those working in the Olkiluoto area to undergo induction training or site induction training, depending on the work location. In these training modules, we provide the basics of radiation, environment, fire, and industrial safety, as well as the special features of work safety in a nuclear power plant area. We provide training in Finnish and English. The extensive modernization launched at the OL1 plant unit also demonstrated an increased need for induction training: we intensified the arrangements of induction training for those involved in the annual outage during April–June. 27 (34) training sessions took place in Finnish and English related to the annual outages. The sessions were attended by 565 (600) people. In total, induction training was completed by 1,590 (1,382) and site induction training by 4,432 (3,997) people.

All new TVO employees undergo orientation training of about 10 days where we inform them about our operations at Olkiluoto, the working environment, and the procedures related to everyday work. The basic training at the initial stage includes Occupational Safety Card training, a fire safety course, Introduction to a nuclear power plant, as well as training related to high-quality, profitable operations and to the nuclear power plant's operations subject to a license. We verify that the competence of our personnel is up-to-date by arranging recap training. When applicable, the representatives of the subcontractors also attend the training provided by us.

We evaluate all training programs

In annual personnel competence evaluations, we observe the training needs caused by major projects. During 2010, we assessed all of our training programs by course and surveyed the development and revision needs related to them. The purpose of assessment is to further develop the impact assessment of the training, for example. Combining induction training and site induction training was one of the changes prepared on the basis of the assessment. We prepared the combination in 2010 and introduced it as of 2011.

We arrange continuing and supplementary training on our own and with partners. Approximately 350 of TVO's expert trainers constitute a significant basis for our internal training. They provide TVO employees and subcontractor representatives with training and guidance concerning their respective areas of expertise.

NUMBER OF TRAINING DAYS OF TVO EMPLOYEES IN 2006–2010

	2006	2007	2008	2009[1]	2010
Total	11,065	10,166	8,847	8,835	7,482
Internal	10,290	9,446	8,271	8,058	6,967
External	775	720	576	777	514
Officials, total	10,339	9,299	7,874	7,540	6,470
Workers, total	686	867	973	883	655
Fixed-term and others	720	480	445	412	357

THE TRAINING DAYS OF TVO EMPLOYEES BY TRAINING THEME

Theme	Days 2009	Days 2010
General technology	52	85
Nuclear power plant technology	1,143	1,064
Plant technology	1,879	1,195
Operating technology	1,810	2,009
Maintenance	433	421
Protection and preparedness	1,338	946
Administration and finance	204	172
ADP and IT	130	140
Co-operation and communication	215	306
Other training	854	628
Total	8,058	6,966

We co-operate with leading specialists in various fields, thus ensuring continuing and supplementary training opportunities for our personnel in support of internal training.

We arranged a national nuclear safety course for the eight time with the Lappeenranta University of Technology, the Ministry of Employment and the Economy, the Radiation and Nuclear Safety Authority, and other actors in the nuclear sector. The course is intended for those working in the nuclear sector, it consists of six study modules, and an approximate total of 20 classroom training days, and it addresses themes related to the operations and safety of a nuclear power plant. The course was attended by 65 people, of which 15 were TVO employees.

In the early part of the year, we arranged the first TVO Edelläkävijä (TVO pioneer) supervisory training and launched the training of a second group in the latter part of the year. The goal of the 11-day course is to support supervisors in their challenging supervisory tasks during major projects and to give them the resources to implement various projects.

1) The number of TVO's internal training days for 2009 has previously been reported as 12.5 days/person. An error was identified in the "Introduction to a Nuclear Power Plant 2" course entries for 2009 in the TAITO system, which means that the previously reported figure is incorrect.

The error in the TAITO system was corrected in January 2011, and the new number of TVO's internal training days for 2009 is reported as 10.6 days/person.

Simulator training verifies operator competence

We require nuclear power plant operators to have a high level of basic professional expertise. In addition to basic expertise, we provide training in nuclear power and plant technology. The training takes several years and is carried out as modules related to theory training and simulator and practical training.

In addition to theoretical training, the operators undergo operating training with the plant simulator, and a more experienced employee guides them in practical measures. We verify operator competence through regular oral examinations and work skill demonstrations with the simulator. TVO's competence requirements are based on the applicable authority requirements and meet very well the preconditions of the STUK license.

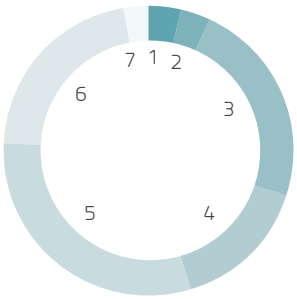
We maintain operator competence through annual theory and simulator training. The simulator is the most significant tool for developing and verifying the competence of the operating personnel. We have used a simulator suitable for the OL1 and OL2 plant units since 1990 and we will also receive a training simulator next year to be used for the OL3 plant unit operator training.

We arranged a total of 766.8 (724.6) days of simulator training for the shift personnel of OL1 and OL2. Four new OL1 and OL2 operators completed their training during the year. In addition to theoretical and practical training, they also took a nine-week basic course related to the simulator. We recruited new OL1 and OL2 operators who started their basic training at the start of 2011.

The theoretical training of OL3 plant unit operators continues as planned. The factory testing of the OL3 training simulator commenced in Germany and the simulator will be supplied for operator training at Olkiluoto in the spring 2011. The OL3 engineering simulator was supplied to the site in the fall 2010; it is used for testing the various system functions of the plant.

LEVEL OF EDUCATION

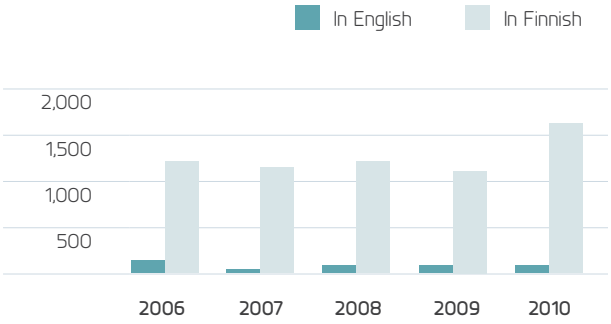
NUMBER OF PEOPLE



1 Lower basic level	26
2 Higher basic level	24
3 Intermediate level	165
4 Lowest high level	110
5 Bachelor's degree	217
6 Master's degree	154
7 Researcher training level	18

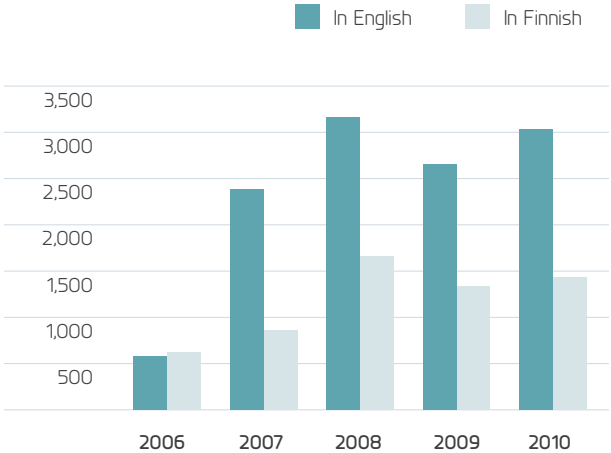
INDUCTION TRAINING PARTICIPANTS

NUMBER OF PEOPLE



SITE INDUCTION TRAINING PARTICIPANTS

NUMBER OF PEOPLE



TVO work history case

ANNA RÄSÄNEN

9/2000

Work interview at TVO

Graduated as a process engineer from the Satakunta University of Applied Sciences

10/2000

Suitability test in Turku, notification of selection

11/2000

Started working for TVO (OL2), employment contract signing and health inspection
Operator trainee/operator guidance program

1/2001

Training (basic training, system training, simulator)

SPRING 2002

Written examination by the shift manager, operator trainee, six-month guidance program

1/2003

Job exchange training for turbine,
turbine license zone operator/turbine operator

1/2004

Job exchange training for reactor, reactor operator license

FALL 2005

Supervisor course

1/2006

Job exchange training/shift manager, shift manager license
Management skills course

3/2006

Shift manager, shift 5 of Olkiluoto 2

Process Engineer Anna Räsänen applied for and obtained a position at TVO right after graduating from the Satakunta University of Applied Sciences and has completed training at TVO to become a nuclear power plant shift manager. Räsänen's 10-year career has included an average of 17 training days per year, and she has completed a total of 147 courses at TVO. The training has taken place while working.

Interactive occupational health and safety co-operation at Olkiluoto

MAJOR PROJECTS IN OPERATING PLANT UNITS AND AT NEW CONSTRUCTION LOCATIONS SET CHALLENGES FOR OUR OCCUPATIONAL HEALTH AND SAFETY WORK. WE UPDATED THE SHARED OPERATING METHODS AND GUIDELINES AND DEVELOPED THE CLOSE CO-OPERATION BETWEEN THE PARTIES.

Our work was facilitated by TVO employees committing to the shared target of zero accidents. We have not yet fully achieved the target, but we are confident in our objective and we are working actively in order to meet it in future years. We have already participated in the Zero Accident Forum of Finnish workplaces since 2008. We contribute to the work safety level assessment of the forum on an annual basis. The assessment issues a rating which indicates the development of occupational safety at the workplace. The Forum's level ratings are issued in May, and the rating for 2010 will be found out at that time. In previous years, we have reached level 1 (2008) and level 3 (2009), where level 1 indicates the best level, and level 3 indicates that operations should be developed. Although the number of accidents in 2009 was smaller than in 2008, the level classification decreased from 1 to 3 due to the increased severity of the accidents. One accident in 2009 resulted in a higher number of absence days on average than an accident in 2008.

Our occupational health and safety work focuses on the safety plans of modifications and projects, the development of the plans and safety/hazard monitoring. In occupational health and safety work, we underlined the significance of interaction between TVO and the contractors. In extensive modifications, a safety co-ordinator was appointed from the occupational health and safety organization to supervise the preparations and implementation of safety plans and risk assessment according to our requirements. During the annual outages, we arranged daily meetings with the contractors' employees in charge of occupational health and safety, and occupational health and safety was also on the standard agenda of our morning meetings.

The experiences of our renewals were positive. Four accidents resulting in absence occurred to contractors in the annual outages. The number of our own personnel's accidents resulting in absence was two (two) during the year, the accident frequency being 1.5 (1.5) accidents per million work hours. The accident severity level was 8.0 days per accident. Three commuting accidents for TVO personnel resulting in absence took place during the year.

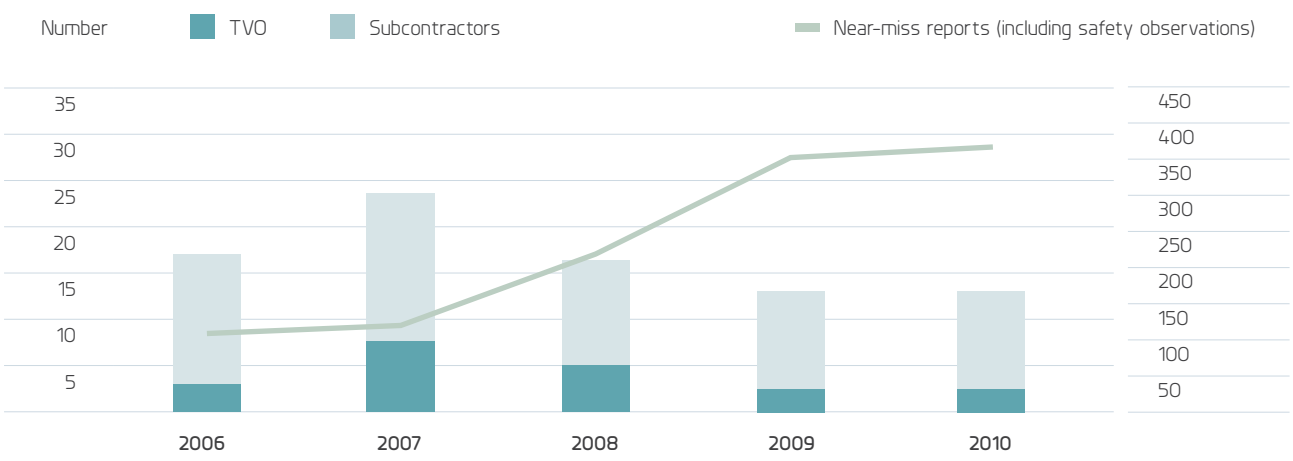
Systematic occupational health and safety work

In 2008, we certified our OHSAS 18001:2007 compliant occupational health and safety system guiding our occupational health and safety operations. Regular and continuous hazard identification and risk assessment is the basic precondition for our systematic occupational health and safety work with the aim of zero accidents. We assess the risks in various organization units and our objective is to update the risks of each work stage every two years.

Our hazard reporting is either based on a near-miss reporting procedure or safety observation cards filled out during the annual outages. We received 388 (359) near miss reports and safety observations in 2010.

OCCUPATIONAL HEALTH AND SAFETY

ACCIDENTS



Our occupational health and safety operations are co-ordinated by the occupational health and safety organization. It consists of the occupational health and safety manager, three occupational health and safety engineers as well as one occupational safety expert. To ensure co-operation, as set out in the Occupational Safety Act, we have elected occupational health and safety personnel. The occupational health and safety personnel consists of the occupational health and safety representative, seven occupational health and safety delegates, the occupational health and safety representative of the officials, and the respective deputies of all of them. We co-operate closely with the occupational health and safety personnel during annual outages in particular, when regular safety rounds are performed at the plant units every second day. We meet with the occupational health and safety personnel 3–4 times a year.

The co-operation meeting and our occupational health and safety team constitute a body corresponding to an occupational health and safety committee. The team includes personnel from the occupational health and safety organization, representatives of various maintenance teams, the occupational health and safety representatives as well as representatives of radiation protection and the operating experience team. The occupational health and safety team convenes at least twice a year.

We annually award the occupational health and safety deed of the year to an individual or a team for their distinguished operations to promote occupational health and safety. The 2009 awards were given to Jukka Wallenius (excellent safety and coordination of turbine work), Aimo Autio (a positive attitude towards occupational health and safety) and the personnel of the repair shop/tool storage (excellent tidiness and order of the working environment).

Radiation doses remained low even during the most extensive annual outage in TVO's history

DESPITE THE EXTENSIVE AND LONG ANNUAL OUTAGES, WE SUCCESSFULLY MET OUR OBJECTIVE OF KEEPING THE RADIATION EXPOSURE OF EMPLOYEES LOW. ONCE AGAIN, THE DOSES OF EMPLOYEES WITH TASKS SUBJECT TO RADIATION WERE CLEARLY BELOW THE LIMITS SET BY THE AUTHORITIES.

As in previous years, the radiation doses of employees were clearly below the dose limits specified by the authorities. In 2010, the combined radiation dose of employees at the Olkiluoto nuclear power plant was 900 (1,186) manmSv. The total radiation dose of OL1 was 712 (395) manmSv and that of OL2 was 187 (791) manmSv. The total dose for the year, 900 manmSv, is the smallest annual dose excluding the early period of the plant units. The highest personal radiation dose, 1.30 mSv, measured in the annual outage of OL2 was also a record low.

The combined annual dose of our personnel was 192 (257) manmSv. The combined radiation dose of external personnel was 707 (929) manmSv. The largest personal annual dose at the Olkiluoto nuclear power plant was 9.10 (9.90) mSv, amounting to less than one-fifth of the annual dose limit set out in the Radiation Act. The number of personnel in dose monitoring was 2,914 (2,552) and registered doses accumulated for 1,254 (1,192) people.

According to the national dose register of STUK, no employee at the Finnish nuclear power plants has received a radiation dose in excess of the annual dose limit in 2006–2010. The limits are 50 mSv per year and 100 mSv per five years.

The calculated value of the radiation dose caused by the power plant to residents in the vicinity was 0.28 (0.26) microsieverts. The average radiation dose of a Finn from different sources is about 3,700 microsieverts.

Internal contamination measurement conducted by STUK on the residents of the power plant's neighborhood did not find any radioactive nuclides originating from the plant, and none of the measured employees at the plant had an internal exposure in excess of the registration limit of 0.1 mSv.

Successful annual outages

Refueling and maintenance outages take turns in the annual outages of our plant units. In the OL1 maintenance outage, we launched a major modernization project and will continue it for OL2 in 2011.

Even though we carried out the most extensive annual outage in the history of OL1, the combined annual outage dose of the plant units was smaller than that of previous year. The total dose accumulated during the annual outages, 768 (990) manmSv, was 85.3 (83.5)% of the total annual dose. Taking both annual outages into account, the highest personal dose was 9.10 (9.45) mSv. The applicable legislation specifies the highest allowed annual dose for a radiation employee as 50 mSv.

Before the annual outages, we introduced a new kind of two-stage personal monitoring system at the entrance points of all plant units and the spent fuel storage. When leaving the controlled area of the power plant, the person passes through two personal monitoring measurement points. In this way, we ensure that no radioactive contamination exits the power plant.

Low radiation doses despite the long maintenance outage a record low radiation dose in the OL2 refueling outage

The total dose of the OL1 maintenance outage remained low despite the long maintenance outage and the extensive modernization. The radiation dose of the OL1 maintenance outage was 639 (265) manmSv, about 42% lower than expected. The highest work-specific doses were caused by pipe inspections, the replacement of the inner insulation valves of the main steam lines, and the valve and pump maintenance work.

The steam dryer, replaced in 2006, keeps the moisture of the steam low. At the same time, the dose rates have decreased at the turbine plant during the annual outage. At OL1, the general dose rate level at the turbine plant during the outage has decreased to about one-third of the 2006 radiation level.

Record low radiation doses of OL2 refuelling outage

The total dose of the OL2 refueling outage was 129 (725) manmSv, the lowest annual outage dose of a plant unit in the operating history of the power plant, excluding the first annual outages of the units. The dose was about 35% lower than expected. The highest doses in the outage were caused by the general maintenance on the nuclear island and the turbine plant as well as work carried out in the reactor hall.

The steam dryer we replaced in OL2 has been in the reactor for three operating cycles. The general radiation level at the turbine plant during the outage has decreased to almost one-third of the 2007 situation when the radiation level was at its highest.

The extensive maintenance outage at OL2 in the spring 2011 will once again involve considerable radiation protection challenges. In the radiation protection work, we can utilize the experiences gained from the OL1 maintenance outage, and we still aim to improve radiation protection operations and encourage employees in the controlled area to follow best radiation protection practices.

We use dose meters to continuously monitor the radiation doses of those working in the controlled area of the power plant. The radiation protection unit at the plant takes care of its internal and external radiation monitoring. We monitor external radiation according to our versatile measurement and sampling program.

Responsible interaction

OUR GOAL IS TO INCREASE GENERAL AWARENESS OF THE NECESSITY, FEATURES, AND ENVIRONMENTAL IMPACTS OF NUCLEAR POWER. WE WANT TO INCREASE MUTUAL TRUST BY PROMOTING OPEN, RESPONSIBLE INTERACTION – GUIDED BY HIGH STANDARDS OF ETHICAL PRINCIPLES – WITH ALL OUR STAKEHOLDER GROUPS IN THE NEIGHBORING AREA, FINNISH SOCIETY, AND VARIOUS INTERNATIONAL COOPERATION NETWORKS.

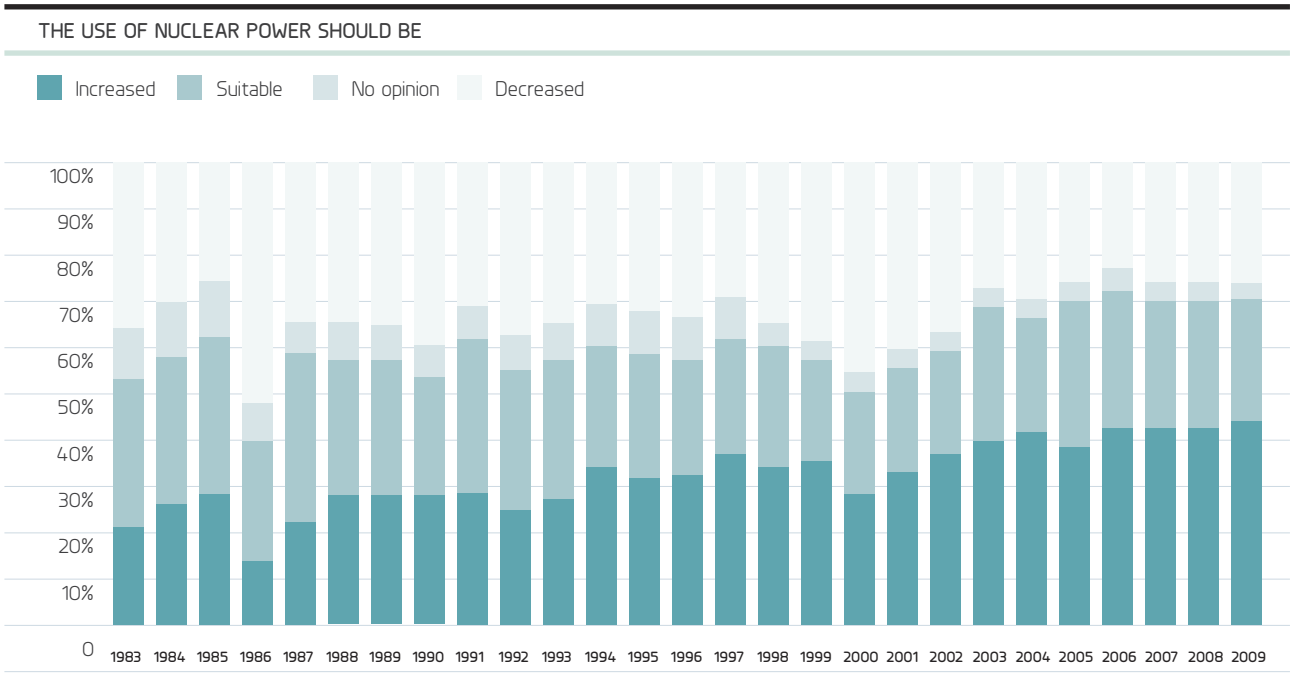
TVO is an active member of the international and national nuclear power community and different sector associations and other organizations and consortia. Our office in Brussels stays in touch with stakeholder groups in the EU. Of these, the various institutes of the European Community are the most important: the Commission, Parliament, and the Council, as well as sector associations and other partners in the field.

We work actively in the Union of the Electricity Industry (EURELECTRIC) and FORATOM, the trade association for the nuclear energy industry in Europe. TVO signed the Business Charter for Sustainable Development of the International Chamber of Commerce in the 1990s. We follow the trends and best practices of communications, corporate social responsibility and public relations by being a member of the Communications Executive Council of the Corporate Executive Board.

Quick, open communications

We provided active communication about our operations and events throughout the year. During the year, we issued 15 (20) press releases, published 34 (21) topical news items on our website, arranged five (seven) press conferences and two (one) stakeholder group seminars. We published four (four) issues of the Ytimekäs stakeholder magazine and four (four) issues of TVO Uutiset news bulletin, and four (four) issues of the What's On magazine for those working at the OL3 site. We published a digital newsletter five (six) times.

APPROACH TO NUCLEAR POWER IN ELECTRICITY PRODUCTION 1983–2009



Source: Survey of energy attitudes, March 2010, Finnish Energy Industries, ET

We provided information about our OL4 project through brochures and a designated website. Our experts were heard by various committees of Parliament as they processed our application for a decision-in-principle.

The company intranet, OlkiNet, is the main tool for our internal communication. Intranet content is provided by about 30 TVO employees in various units in our organization. We have launched an intranet update project as part of the development of TVO's internal communication. We will introduce a new OlkiNet in the spring 2011. We arranged three (three) Tietolaari briefings of the CEO for the personnel and discussed the company's topical issues there. We notified the personnel of the management's decisions by releasing a bulletin in OlkiNet after each meeting of the management group. In December 2010, we informed the personnel of our updated internal communications strategy and action plan aiming to further improve the speed, openness and interactivity of internal communications.

Active dialog

We presented the operations of Olkiluoto to the media, decision-makers, partners, and the public at several visits, meetings and events. We participated in various seminars, lectures, events, and trade fairs. We provided information about nuclear power at the NRJ radio channel's Ekoteko event in Narinkkatori, Helsinki, and the Down by the Laituri event in Turku. We also introduced TVO and our operations at recruitment events for young people in Rauma, Turku, Tampere, Helsinki, Oulu, and Lappeenranta, among others.

The Olkiluoto Visitor Centre is open daily 10 a.m.–8 p.m. and anyone may stop by without an advance reservation. A science and technology exhibition at the Visitor Center provides information about nuclear electricity production and covers the life cycle of uranium fuel all the way from mining to final disposal. We arrange guided tours for groups who have registered in advance. Guided tours were attended by 12,659 (12,724) people, and the exhibition was visited by 6,725 (6,079) people, a combined total of 19,384 (18,803) visitors to Olkiluoto. In 2010, a particular objective of ours was to increase the number of visitors from outside the Satakunta region. This was a great success as the number of visitors increased by about one-fourth from the previous year. The number of visitors from outside the Satakunta region was 5,625 (4,228).

We arranged three, now traditional, science and technology camps for elementary school children with a focus on experimenting. The camps lasted for a week and each camp was attended by 22 (22) children. The campers familiarized themselves with natural science and technology on children's terms.

In 2006–2008, we participated in the "Olkiluoto ennen" project of the Raunela fishery farm and in the "Historiapäivä" project following it in 2008–2010. During the project, the building stock of the Raunela farm, owned by TVO, was restored to its original condition, that is, the Raunela fishery farm was renovated in the style of the 1950s, before TVO launched its electricity production. The work was carried out by cherishing old construction traditions and materials. The Satakunta Museum acted as an expert in the project. The "Olkiluoto ennen" project was followed by the "Historiapäivä" project where elementary school students were provided with information packages related to three cultural heritage sites in Eurajoki: the Raunela fishery farm, the traditional Välimaa croft and the Vuojoki estate. Children and teenagers also visited the sites to receive more information about traditions. The Vuojokiseura association contributed to the project, and it was funded by the association, the municipality of Eurajoki, the Rural Development Association Ravakka and TVO.

Carefully selected sponsorships

Promoting culture, sports, research, and non-profit activities is part of TVO's corporate social responsibility. When selecting partners and sponsorships, we take into account their reputation, values, and suitability for our strategic objectives and principles. Being Finnish, reliable, interactive, and a forerunner are key selection criteria.

Our main sponsorships in 2010:

- The Finnish national men's ice hockey team and young ice hockey players
- The Rauman Lukko ice hockey team
- The national volleyball league
- The operations of the Vuojoki estate and cultural events in Eurajoki
- The Festivo summer festival of classical music in Rauma
- The Ekoteko campaign of the NRJ radio station and Finn Church Aid
- The CO2-raportti news magazine specializing in climate change and energy
- The Hyvä Joulumieli fund-raiser
- In our neighborhood, we particularly sponsor activities related to sports, culture, and associations.

We want to be a good and active neighbor

We stay in touch with the municipality of Eurajoki and other neighboring municipalities in a cooperation group of Eurajoki and TVO, and a cooperation group of municipalities. The cooperation team of Eurajoki and TVO convened three (three) times to discuss topical matters. The cooperation committee of municipalities also convened three (three) times. Interesting discussion topics were electricity production at the OL1 and OL2 plant units, the development of the plant units, the progress of the OL3 site, and the OL4 project. We also presented STUK's quarterly and annual reports to the cooperation committee of municipalities.

We once again arranged a coffee and chat event at the market places of Eurajoki in June and Rauma in July. Those who were willing had an opportunity to discuss questions related to the company and nuclear power with our experts at the event. The Eurajoki event was attended by about 300 (300) people and the one in Rauma by about 500 (400) people. We also participated in public events in Helsinki and Turku.

Energy attitudes were surveyed through cooperation

The results of a survey concerning the energy attitudes of Finns were reported during 2010. The survey results are based on the responses of 1,378 people in 2009. The surveys have investigated and monitored the attitudes towards energy policy questions for 27 years now, from 1983–2009. Over two-fifths (44%) were in favor of increasing the use of nuclear power, and over a quarter (26 %) were in favor of decreasing it. The survey was conducted by Yhdyskuntatutkimus Oy on behalf of TVO and Fortum. Finnish Energy Industries was in charge of communicating the survey results.

Responsible operations are guided by the corporate social responsibility team

The Corporate Social Responsibility Team assists the company management in the development and implementation of our corporate social responsibility.

The team promotes the identification and development of corporate social responsibility and reports the related measures to the CEO and the rest of the management. The team communicates corporate social responsibility to internal personnel and various stakeholder groups outside the company.

Anna Lehtiranta, the SVP, Corporate Relations, chaired the team in the early part of the year and Anneli Nikula, Senior Adviser, assumed the duty in the latter part of the year. The team members are: Quality Engineer Samuli Lehtonen and Environment Specialist Riitta Dersten from the Quality and Environment Office; Manager, Accounting Päivi Lahti from the Finance Department; Manager, Brussels office Kaija Kainurinne; Head of Corporate Social Responsibility Maija Löytömäki (until October 2010); Public Relations Manager Jouni Punnonen and Communicatios Officer Sini Gahmberg from the Corporate Relations Department. In the latter part of the year, Tuula Purra, Head of the Nuclear Fuel Office, was replaced by Head of the Uranium, Nuclear Fuel Office Maria Laakso, and Head of Personnel Services Leena Wartiainen was replaced by HR manager Soili Vaimala.

The team convened six (three) times. We monitored the environmental responsibility objectives of reducing the environmental impact of personal work procedures, developing the energy efficiency system in environmental management, and a development project in order to launch a cooling water research program. We also discussed the increasingly important role of corporate social responsibility in the EU, the principles of social support, sponsorship and hospitality, the UN Global Compact, and the new EMAS Regulation and registration. The corporate social responsibility team proposed that TVO's EMAS registration be continued until the end of 2012 and updated the corporate social responsibility policy included in the company-level policies during the spring. The policy was approved by TVO's management on May 17, 2010.

Upon an initiative by the corporate social responsibility team, we have participated in the climate initiative of 2010 of Finnish Energy Industries through the extensive modernization of the OL1 and OL2 plant units carried out in 2010 and 2011.

ORGANIZATIONS IN WHICH TVO IS INVOLVED:

Eurelectric, FORATOM, European Atomic Forum, Nordiska Sällskapet för Strålskydd, World Association of Nuclear Operators, World Nuclear Association, Finnish Energy Industries Finnish Business & Society ry (FiBS), The Finnish branch of the International Chamber of Commerce, Lounais-Suomen Vesiensuojeluyhdistys ry, Finnish Nuclear Society, Suomalaisen Työn Liitto, Suomen Laatuyhdistys

KEY FIGURES ON SOCIAL RESPONSIBILITY

	2010	2009	2008	2007	2006
Personnel structure					
Permanent personnel, December 31	714	717	709	676	662
Male	560	567	567	541	530
Female	154	150	142	135	132
Fixed-term personnel, December 31	84	80	68	74	68
Average age of personnel [1]	44.7	44.6	44.4	44.8	44.9
Home municipality of personnel (%) [1]					
Eurajoki	19	20	19	20	19
Rauma	57	57	57	56	59
Pori	10	9	9	8	8
Other	14	14	15	16	14
New TVO employees [1]	29	31	70	57	44
Average age of new TVO employees [1]	34	34	33	34	32
Inbound turnover (%) [1]	4.1	4.3	9.9	8.4	6.6
Outbound turnover (%) [1]	4.5	3.2	5.2	6.4	2.7
Number of retirees [1]	18	13	12	13	8
Average age of retirees [1]	63	64	63	62	62
Summer employees	168	186	166	172	199
Competence					
Average years of service [1]	15	15	15	15	16
Training days/person	8.9	10.6 [5]	12.7	15.2	16.9
Training days total	7,482	8,835	8,869	10,166	11,065
Training days					
Senior officials	3,952	4,176 [5]	4,233	4,528	5,214
Technical officials	2,242	3,103 [5]	2,985	3,997	4,218
Industrial officials	276	261 [5]	233	297	227
Employees	655	883 [5]	973	867	686
Fixed-term and others	357	412 [5]	445	480	720
Site induction training (in Finnish)	275	261	315	166	140
Number of participants (Finnish-speaking)	1,412	1,337	1,653	855	618
Sessions in English	117	149	159	123	102
Number of participants	3,020	2,660	3,187	2,394	577
Occupational Safety Card Training	28	54	19	12	12
Number of those who completed the training	329	775	189	85	176
Well-being at work					
Absence due to sickness (%) N/A	3.4	3.5	3.9	not calculated	3.4
Absence due to sickness (hours/person) N/A	65	60	79	not calculated	72
Those with zero sick days per year [1]	214	185	200	215	216
TVO employee accidents					
- absence of more than one day (LTA1) [3]	2	2	5	8	2
- days of absence due to accidents	16	23	13	76	27
- accident frequency (number of accidents/million work hours)	1.5	1.5	3.8	6.2	1.7
- zero-level accidents, no absence	5	4	4	5	5
- commuting accidents [3]	3	1	5	2	23 [2]
Number of near miss reports	388	359 [4]	111	128	116
TVO subcontractor accidents					
- absence of more than one day (LTA1) [3]	11	11	11	17	15
- accident frequency (number of accidents/million work hours)	9.5	12.4	12.0	15.8	15.2
All work accidents of OL3					
- absence of more than one day (LTA1) [3]	75	105	92	53	20
- accident frequency (number of accidents/million work hours)	8.8	12.7	13.8	14.8	18.9
Highest radiation dose of personnel (mSv)	9.1	9.9	8.1	9.35	12.20
Collective radiation dose (manmSv)	900	1,186	936	1,180	2,201
Annual outage dose (manmSv)	768	990	776	1,031	2,018

1) The data is only reported for permanent personnel.
2) The bus went off the road while commuting.
3) The reporting procedure has changed.
4) The figure also includes safety observations.
5) In January 2011, an error was identified in the training figures for 2009 and the figures were corrected.

TVO'S PRINCIPLES AND POLICIES

Uncompromising commitment to the safety culture

WE PRODUCE ELECTRICITY AT OLKILUOTO IN A RESPONSIBLE, RELIABLE, AND ENVIRONMENTALLY SOUND MANNER. OUR OPERATIONS ARE BASED ON OUR VISION, ETHICAL PRINCIPLES, VALUES, AND OUR HIGH SAFETY CULTURE. OUR SAFETY CULTURE CONSISTS OF OPERATING METHODS, OPERATING INSTRUCTIONS, AND ATTITUDES.

We continuously promote our safety culture. We communicate about our safety culture and provide training related to it for our personnel and our partners.

OUR ETHICAL PRINCIPLES

Responsibility

- We ensure safe production.
- We cultivate and promote a high safety culture.
- We observe applicable regulations and instructions.
- We require high, uncompromising quality.
- We honor and cherish the environment.
- We operate in a fair, honest, just, and equal manner.
- We honor individuals and accept differences. We do not discriminate against anyone based on age, gender, ethnic background, religion, view of life, or other personal characteristics.
- We do not approve of the use of child labor and do not allow our partners to use it.
- We respect others' right of privacy.
- We take good care of company property, including information, and only use it for business purposes.

Proactiveness

- We engage in well-planned, consistent operations.
- We aim to prevent disruptions and deviations in advance.
- We promote good, safe, and equal working conditions.
- We promote know-how, a good work atmosphere, and well-being at work.
- We encourage employees to take care of their physical and mental well-being and maintain a balance between work and personal life.

Transparency

- We operate in an open way while retaining confidentiality.
- We do not share or hand over any confidential information to those who are not entitled to receive it.
- We carry out open, objective, and interactive co-operation with our stakeholder groups.
- We do not accept or offer any hospitalities or benefits to ourselves or others which are not included in usual business operations and employment relationships.

Continuous improvement

- We are open to new development opportunities promoting safety, economy, competence, working methods, and working conditions.
- We actively seek improvement themes.
- We assess and repair any identified defects right away and make sure that they do not occur again.

Practical work is guided by the activity based management system

The company policies set out the guidelines for the operations of our personnel and partners. Our policies build on our values and our mission. Our company has four policies: nuclear safety and quality policy, corporate social responsibility policy, production policy, and corporate safety policy.

The procedures according to the mission, the values, and the policies are described in our activity based management system, which guides the work of all TVO employees and partners at Olkiluoto. The system provides the procedures for ensuring safe, competitive, high-quality, and environmentally sound electricity production.

Our activity based management system covers TVO's Olkiluoto nuclear power plant's production operations, the maintenance and development of production capacity, the construction of additional production capacity as well as the functions required for their steering and resourcing. Our activity based management system is based on international standards related to quality assurance, the environment and occupational health and safety, including the following STUK guidelines: Management systems for nuclear facilities (YVL 1.4), Quality assurance during operation of nuclear power plants (YVL 1.9), and Quality management of nuclear fuel (YVL 6.7). The general part of the activity based management system also acts as the licensee's quality management system approved by STUK.

Our quality management system complies with the ISO 9001:2008 standard and has been certified since 2001. Our environmental system complies with the ISO 14001:2004 standard and the EU Regulation concerning the voluntary participation by organizations in a Community eco-management and audit system (EMAS). Certification according to ISO 14001 has been valid since 1999 and our EMAS registration has been valid since 2001. The energy efficiency system was included in the environmental system in 2008. The occupational health and safety system (OHSAS 18001:2007) was certified in 2008. Our environmental system covers the functions at the operating and construction stage. Separate ISO 9001:2008 and OHSAS 18001:2007 certificates are valid for the OL3 project.

We started to redefine the function processes according to the development plan of the activity based management system during the year under review. The work will continue in 2011.

We require our partners to follow the same principles

The purpose of supplier assessment is to ensure that our partners follow the quality and operating method criteria specified by us and that they observe our safety culture and ethical principles. Our aim is to review suppliers as carefully as possible to ensure their operating methods and their capacity to supply the contractual products or services. High-quality operations help us secure nuclear safety, plant unit availability, and environmental friendliness. The ethical principles ensure supplier acceptability over the long term.

When making acquisitions, we carefully ensure that the products and services necessary for the company's operations are available. We only procure from suppliers who have been approved in the assessments and our aim is to sign long-term contracts with reliable contracting parties. We carried out approximately 200 supplier assessments during the year under review. We monitor the delivery quality of our contracting partners and address any deviations by taking immediate corrective measures.

Our nuclear fuel procurement is based on a decentralized supply chain. We sign separate contracts for uranium and its conversion, enrichment, and fuel manufacture. In addition, there are several suppliers for each procurement stage. We only procure uranium and related processing services from the suppliers we have approved.

We review the nuclear fuel supply chain and the operations management systems of the manufacturing suppliers on a regular basis. As part of supplier approval, we carried out an annual interim review for all of our uranium suppliers in 2010. During the year under review, we also carried out system-level auditing for one fuel manufacturer.

ISO 9001 ISO 14001
OHSAS 18001
DNV
CERTIFIED
ORGANISATION

Company-level policies

Safety culture

TVO and its entire personnel are committed to a high standard of safety culture.

Safety culture is comprised of organisational practices and individuals' attitudes. Thanks to the safety culture, all factors that affect the nuclear power plant's safety will receive attention in proportion with their significance and are given priority in decision making.

Company-level policies

TVO and its personnel follow the policies determined by the company.

Applicable laws, decrees, and official regulations as well as international agreements are strictly followed. TVO sets objectives for its operations, which are stricter than those set out in the applicable laws.

TVO requires its partners and their personnel working at Olkiluoto to be committed to the high safety culture and high-quality operating methods. This means that the companies and personnel in a direct or indirect contractual relationship engage in responsible operations according to TVO's environmental, nuclear safety and quality policy, and information security principles.

Nuclear safety and quality policy

The nuclear safety and quality policy includes nuclear safety, radiation protection, nuclear material supervision and quality.

Nuclear safety

TVO is committed to maintaining operating conditions where efficient procedures can be implemented by taking safety, quality, and costs into account. This ensures the capacity to also produce competitive electricity in a safe and reliable manner over the long term.

TVO's operations shall not cause any damage to people, the environment or property.

Radiation protection

In all their radiation protection activities, TVO and its personnel are committed to following the ALARA (as low as reasonably achievable) principle. According to the principle, individual and collective radiation doses are kept as low as possible by practical measures.

Restricting the amount of doses and keeping the amount of radioactive emissions as low as possible are already accounted for when designing the structures and functions. All employees shall observe matters affecting radiation protection in their work.

In addition to authority guidelines, the development of radiation protection operations also takes international recommendations into account.

Nuclear material supervision

TVO takes good care of nuclear material and ensures that it does not get into the hands of unauthorized persons.

Quality

TVO ensures that high-quality working methods are used in the company. They lay the foundation for safe and economical operations. The personnel of TVO is aware of the safety significance of their work.

Matters are discussed in an open manner. Know-how and operations are developed according to the principle of continuous development. The sharing of development themes, identified deficiencies, deviations, and errors is encouraged.

We consider our internal and external customers equally important. We perform all work tasks appropriately, according to schedule, and with high quality.

TVO develops co-operation with its suppliers so that the safety, availability, and environmental friendliness of the plant units remain at a high international level.

Corporate social responsibility policy

The corporate social responsibility policy includes the environment, procurement, personnel, occupational health and safety, and communication.

Environment

TVO complies with the principles of sustainable development. TVO takes responsibility for the environment by identifying the environmental aspects of its operations and minimizing the harmful impacts they cause. TVO specifies objectives and targets for its operations according to the principle of continuous development. TVO monitors the impact of its operations on the state of the environment and launches immediate corrective measures when necessary. TVO takes care of the environmental competence and expertise of its personnel and others working at the Olkiluoto power plant. TVO aims to be a forerunner in the management of environmental matters.

The objective of TVO is to prevent and reduce the already low emissions of radioactive substances. Potential exceptional events in the plant process are predicted and preventing potential environmental damage is prepared for.

TVO believes its overall responsibility for all stages of the fuel cycle is important. The company monitors and supervises the environmental management of fuel suppliers. TVO requires responsibility from suppliers in ensuring and developing the living conditions in the surroundings of uranium production and processing plants while taking local people into account. Fuel is taken care of all the way from uranium mines to final disposal according to the "from bedrock to bedrock" principle.

TVO observes energy efficiency requirements and improves the energy efficiency of its operations. TVO monitors its own energy consumption and aims to improve its efficiency by taking energy into account in equipment procurement and the development of operating methods. Plant unit modernization improves the energy efficiency of the power plant process.

TVO minimizes the amount of waste by improving the use of energy, supplies, and raw materials, and by developing the utilization of waste. The goal is to increase the relative share of waste delivered to utilization and to decrease the amount of radioactive waste. TVO also aims to decrease fuel consumption by optimizing the use and features of the fuel.

The development of the Olkiluoto area and expanding the operations observe the sustainable use of the environment. The design and construction of new nuclear power plant units aim to minimize harm and disruption to the environment.

Procurement

High-quality procurement operations ensure safe, competitive, and reliable production and long-term operation of the plant units.

The products procured must meet TVO's safety, quality, and environmental requirements. The availability of products and services necessary for the company's operations is ensured through long-term contracts based on mutual trust and partnership.

Supplier selection pays particular attention to the supplier operations' continuity, delivery reliability, quality, and environmental management and competitiveness while appreciating domestic and local suppliers. Suppliers are assessed, delivery quality is monitored, and immediate corrective measures are taken when necessary.

TVO operates responsibly and ethically in relation to the supply chain and business partners. TVO requires its partners to follow a high safety culture and responsible operating methods in their activities.

Personnel

The objective of TVO is to ensure that personnel are motivated and competent, they carry out their tasks in a responsible manner and are committed to observing the agreed operating methods.

TVO ensures that the company has sufficient, competent HR resources to meet the objectives specified for the company.

TVO provides its personnel with opportunities to develop in their work and occupation. TVO provides competitive rewards and encourages employees to work profitably, to meet objectives and to carry out good operations on a daily basis.

TVO creates the preconditions for its personnel to take care of their working capacity.

The principles of the HR policy are implemented through good co-operation with the personnel. The objective of TVO is to have an equal, healthy working environment which does not approve of any discrimination and which promotes the implementation of equality.

Occupational health and safety

The objective of the company's occupational health and safety operations is to promote occupational health and safety according to "zero accidents" thinking.

TVO maintains a good work atmosphere and good working conditions.

TVO and its employees do not approve of any workplace harassment or bullying.

The occupational health and safety objective of everyone working in the plant area is to ensure their personal safety and that of others. Occupational health and safety is observed in all functions.

Communications

TVO increases mutual trust by promoting open, responsible interaction with all its stakeholder groups in the neighborhood, Finnish society, and the international co-operation network of its sector.

TVO promotes general nuclear power awareness and general acceptance by participating in social debate and by openly communicating the operations and events of the company and the Olkiluoto nuclear power plant.

The Olkiluoto Visitor Center serves those interested in the company's operations, and an exhibition is open to visitors.

Through internal communication, TVO supports an interactive corporate culture and ensures that the personnel understands the company's objectives and policies and is aware of the company's financial and production status.

TVO's interaction with stakeholder groups is guided by a high ethical principles, thus strengthening trust in the operations of TVO and the stakeholder group and does not jeopardize their reputation or objectivity.

Promoting culture, sports, research, and non-profit activities is part of TVO's corporate responsibility. When selecting partners and sponsorships, their reputation, values, and suitability for TVO's strategic objectives and principles are taken into account. Being Finnish, reliable, interactive, and a forerunner are key selection criteria.

Production policy

The production policy includes the operation and maintenance of the plant and increasing its production capacity.

Operation and maintenance

Disruption-free, predictable and competitive electricity production is the objective of TVO's operation and maintenance activities. Nuclear and operating safety always comes first.

Plant safety and reliability is developed in a well-planned way. Modifications or renovations carried out at the plant are implemented according to plans approved in advance so that the plant can be used for as long as possible.

Well-planned, correctly sized testing and inspection measures ensure the safe and reliable operation of the plant.

Plant maintenance operations are implemented in a well-planned manner, predicting potential disruption situations, and preparing for the measures the situations require.

Increasing production capacity

TVO monitors nuclear power technology development and participates in international co-operation with power plant suppliers and nuclear power companies.

The output of the existing plant units at Olkiluoto is increased by utilizing the most recent available technology whenever possible.

The design and implementation of Olkiluoto 3 applies the best, financially feasible technology which minimizes environmental harm, while taking into account the full life cycle of the plant unit.

Corporate safety policy

The corporate safety policy includes production and operating safety, personnel and facility safety, rescue and preparedness operations, and information security.

Production and operating safety, personnel, and facility security

The procedures related to safety are implemented in a well-planned, proactive, and comprehensive way. The procedures ensure the safe operation of the plant and the integrity of the personnel and others working at the plant.

Rescue and emergency

TVO maintains and develops action preparedness for special situations. Rescue and emergency are rehearsed on a well-planned and regular basis.

The company continuously maintains its awareness of risks related to the company, personnel, and the operating environment.

Information security

The information security procedures are dimensioned according to the importance and risks of TVO's functions. The objective is to protect nuclear safety, the financial interest and privacy of personnel, to ensure the availability of correct, reliable information, and to prevent damage caused by information processing.

TVO's information security procedures cover the availability, authenticity, and confidentiality of information and information systems as well as access right management procedures.

TVO's employees are assigned access rights to the company's information and information systems according to their work tasks. Handing over information to outsiders is only allowed for the benefit of TVO. Processing information submitted by other parties to TVO is at least subject to the information security procedures used or required by the party submitting the information.

GRI INDICATOR TABLE

GRI indicator table (G3 guidelines)

AR = Refers to the Report of the Board of Directors and Financial Statements 2010
CG = Refers to the Corporate Governance Statement 2010

▶ Reported ▶ Partially reported ▷ Not reported

CODE	GRI CONTENT	PAGE	COMMENTS
Strategy and analysis			
▶ 1.1.	CEO's statement	10–11	
▶ 1.2.	Key impacts, risks, and opportunities of the organization concerning sustainable development	13–15, 58, AR	
Organizational profile			
▶ 2.1.	Name	7	
▶ 2.2.	Primary brands, products, and services	7	
▶ 2.3.	Operational structure	7–9	
▶ 2.4.	Location of headquarters	7–9	
▶ 2.5.	Countries of operations	7–9	
▶ 2.6.	Nature of ownership and legal form	7–9	
▶ 2.7.	Markets served	13–15	
▶ 2.8.	Scale of reporting organization	7–9	
▶ 2.9.	Significant changes during the year	8, 10–11, 20–24	
▶ 2.10.	Awards received	75	None
Report parameters			
▶ 3.1.	Reporting period	4	
▶ 3.2.	Date of previous report	4	
▶ 3.3.	Reporting cycle	4	
▶ 3.4.	Contact point	83	
Report scope and boundary			
▶ 3.5.	Process for defining report content	3–4	
▶ 3.6.	Report boundary and calculation module	3–4	
▶ 3.7.	Particular limitations to the scope and boundary of the report	17	
▶ 3.8.	Basis for reporting on joint ventures or subsidiaries	3–4, AR, CG	
▶ 3.9.	Data measurement and calculation techniques	3–4, 67–68	
▶ 3.10.	Changes to previously reported information	3–4, 67–68	No changes
▶ 3.11.	Significant changes from previous reporting period (report coverage, calculation principles)	3–4, 67–68	No significant changes
▶ 3.12.	GRI content index	75–77	
▶ 3.13.	External assurance of the report	49, 78	
Governance, commitments, and engagement			
▶ 4.1.	Governance structure	8–9	
▶ 4.2.	Independence of chair	CG	
▶ 4.3.	Share of independent members on the board	CG	
▶ 4.4.	Mechanisms for shareholders and employees to provide recommendations or direction to the board	CG	
▶ 4.5.	Rewarding the management	53, AR, CG	
▶ 4.6.	Preventing conflicts of interest	CG	
▶ 4.7.	Process for determining qualifications of the board	CG	
▶ 4.8.	Mission, values, and code of conduct	8–9, 69–72	
▶ 4.9.	The board's methods of monitoring the management of corporate responsibility	53, 64, CG	
▶ 4.10.	Process for evaluating the board's own performance	CG	
▶ 4.11.	Applying the precautionary approach	28–29, 67–68, 69–73	
▶ 4.12.	Externally developed charters, principles, and other initiatives endorsed	35, 58, 63	
▶ 4.13.	Memberships of associations and advocacy bodies	64	

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▶ Reported ◗ Partially reported ▷ Not reported

▶ 4.14.	List of stakeholders	51	
▶ 4.15.	Stakeholder identification and selection	51	
▶ 4.16.	Approaches to stakeholder engagement	35, 62–64	
▶ 4.17.	Key topics and concerns of stakeholders	35, 62–64	
Management approach and results			
Economic performance indicators			
▶ EC1	Generating and distributing added economic value between the stakeholders	19, AR	
▶ EC2	Financial implications and risks due to climate change	AR	
◗ EC3	Coverage of the organization's defined benefit plan obligations	51, AR	
▶ EC4	Significant financial assistance from government	AR	
▷ EC5	The ratio between minimum wage and initial wage		
◗ EC6	Using local suppliers	20, 51	As tenderer when possible
▶ EC7	Local recruitment	23, 53, 65	
▶ EC8	Infrastructrure investments and service procurement for public purposes	76	No investments of this kind
◗ EC9	Indirect economic impacts	19	
EMAS Regulation's requirements for environmental reporting			
▶ A	Organizational profile	7–9	
▶ B	Environmental policy and a brief description of the environmental system	33–39, 69–73	
▶ C	Significant environmental aspects	34–35, 38	
▶ D	Environmental objectives and targets	36–38	
▶ E	Level of environmental protection in comparison to the environmental objectives and targets	32–47	
▶ F	Other factors related to the level of environmental protection	33, 40–43	
▶ G	A reference to statutory requirements related to the environment	43	
▶ H	Confirmation of compliance	49	
Environmental performance indicators			
▶ EN1	Use of materials	39, 44, 46	
▶ EN2	Use of recycled materials	40–41, 45, 46	
▶ EN3	Direct energy consumption	44, 46	
▶ EN4	Indirect energy consumption	44, 46	
▶ EN5	Energy saving measures	20–21, 34, 36–38	
▶ EN6	Measures for improving energy efficiency	34, 36–38	
▶ EN7	Measures for decreasing indirect energy consumption	20–21, 34, 36–38, 53	
▶ EN8	Water withdrawal	41, 44, 46–47	
▶ EN9	Water sources which water intake has a significant impact on	34, 41	
▶ EN10	Water recycling and reuse	41	
▶ EN11	Owned and managed areas with respect to biodiversity	34	
▶ EN12	The operations' impact on biodiversity	34, 71	
▶ EN13	Protected and renovated habitats	63	
▶ EN14	Strategies, measures and plans concerning biodiversity	71	
▶ EN15	Endangered species within the sphere of influence of the operations	71	
▶ EN16	Greenhouse gas emissions	46–48, AR	
▶ EN17	Other greenhouse gas emissions	70–71, 76	No identified emissions
▶ EN18	Measures aimed at reducing greenhouse gas emissions	70–71, 76	Measures like this are not possible
▶ EN19	Emissions of substances causing ozone depletion	70–71	No identified emissions
▶ EN20	Other emissions into the air (SOx, NOx)	46–47	
▶ EN21	Emissions into water, waste water	41, 46–47	
▶ EN22	Waste by type and processing	37–38, 40–41, 45, 47	
▶ EN23	Chemical, oil, etc., leaks	35	
▶ EN24	Amount of hazardous waste	40, 41, 47	
▶ EN25	The impact of emissions on waterways	34, 41, 44, 47	
▶ EN26	Reducing the environmental impact of products and services	36–39	
▶ EN27	Number of reused and recycled products	40, 45	
▶ EN28	Environmental violations	76	None

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▶ Reported ▶ Partially reported ▷ Not reported

▷ EN29	Environmental impacts related to transports		
▷ EN30	Environmental costs and investments		
Social performance indicators			
▶ LA1	Number of jobs	51, 65	
▶ LA2	Employee turnover	51, 65	
▶ LA3	Employee benefits	52–53	
▶ LA4	Percentage of employees covered by collective bargaining agreements	51	
▶ LA5	Notice period applied in situations of reorganization	53, 77	TVO applies the Act on Co-operation within Undertakings
▶ LA6	Occupational health and safety committees	58–61	
▶ LA7	Occupational health and safety statistics	23, 52, 59, 65	
▶ LA8	Counseling and advising employees regarding serious diseases	20, 58–61, 65	
▶ LA9	Health and safety topics covered in formal agreements with trade unions	58–61	
▶ LA10	Personnel training	54–57, 65	
▶ LA11	Training programs	54–57	
▶ LA12	Development discussions and performance assessments	51–53	
▶ LA13	The diversity of administrative bodies and personnel groups	51	
▶ LA14	Equal wages	51	
Human rights			
▶ HR1	Observing human rights in investments	67, 77	Observed in TVO's ethical principles
▶ HR2	Number of subcontractors that have undergone screening on human rights	68	
▶ HR3	Training related to human rights	8–9, 67, 77	The company values are introduced in the induction training
▶ HR4	Prevention of discrimination	67, 77	Observed in TVO's ethical principles
▶ HR5	Uphold freedom of association and recognition of right to collective bargaining	77	TVO employees are free to unionize
▶ HR6	Uphold abolition of child labor	67, 77	Observed in TVO's ethical principles
▶ HR7	Eliminate all forms of forced and compulsory labor In violation of company-level policies	69–73, 77	Observed in TVO's company-level policies
▶ HR8	Safety procedures	69–73, 77	Observed in TVO's company-level policies
▶ HR9	Indigenous rights In violation of the company's code of conduct	67, 77	Observed in TVO's ethical principles
Society			
▶ SO1	Operating in the community	60–64	
▶ SO2	Analyzing risks related to corruption	67	
▶ SO3	Training against corruption The practical recommendations for the company's hospitality were issued in 2010	69–73, 77	Practical recommendations for the company's hospitality were issued in 2010
▶ SO4	Measures in case of corruption	77	No cases of corruption
▶ SO5	Political involvement and lobbying	62–63	
▶ SO6	Donations to political parties	77	None
▶ SO7	Violations against the legislation concerning competition	77	None
▶ SO8	Fines or sanctions	77	None
Product liability			
▶ PR1	The health and safety aspects of products	25–29, 60–63	
▶ PR2	Violations against the health and safety requirements of products	77	None
▶ PR3	Mandatory product information related to products and services	77	Not relevant to TVO
▶ PR4	Violations against product labeling regulations	77	None
▶ PR5	Customer satisfaction surveys	11, 24, 62–63	Parliamentary voting on the OL4 decision-in-principle
▶ PR6	Marketing communication principles	62, 67	
▶ PR7	Violations against marketing communication regulations	77	None
▶ PR8	Customer satisfaction protection	77	Not relevant to TVO, TVO follows the Mankala principle
▶ PR9	Fines and sanctions related to product and service use	77	None

TVO's own and third-party verified assessment of report content relative to GRI's G3 guidelines: C+

Verification of conformity

DNV Certification OY/AB has verified Teollisuuden Voima Oyj's
Corporate Social Responsibility Report 2010, A period of major projects.

Scope and methodology of verification

This verification included specially the examination of the following parts in Corporate Social Responsibility Report 2010: Environmental Responsibility, Social Responsibility, TVO's policies and GRI indicators. All the financial figures included in the reports are based on figures presented in TVO's Report of the Board of Directors and Financial Statement 2010 publication and Corporate Governance Statement 2010 publication, which have been audited by PriceWaterhouseCoopers Oy. Their correlation has been audited, but they have not been verified separately.

In terms of corporate social responsibility, the verification of the Report was carried out following the requirements of the GRI reporting guidelines and the DNV Verification Protocol for Sustainability Reporting. The Report presents a table of equivalence for complying with the requirements of the GRI guidelines.

During the verification process, DNV also verified that TVO's environmental performance description complied with the EU's EMAS regulation 1221/2009 and the requirements of the EMAS environmental statement. The Report includes a separate EMAS compliance statement.

The assurance was carried out by interviewing key personnel at the TVO Olkiluoto site, by auditing internal operating procedures and sites and comparing the reported information and their origin with TVO's relevant original source data.

Observations and Summary

- In this verification focus has been on securing the compliance with the requirements of afore mentioned guidelines with regard to the Report's contents, including: adequacy, clarity, comparability, accuracy, timeliness, reliability and sustainability.
- During the verification no such findings were made, on which basis it reasonably could have been concluded that afore mentioned requirements would not be fulfilled.
- Several observations or suggestions for clarification made during the verification have been noted in the final report.
- The description of the environmental management aims at fulfilling the new EU EMAS requirements 1221/2009 and indicators. Also the environmental targets, as well as their attainment and the all relevant environmental issues are including in report.
- The contents and scope of TVO's Corporate Social Responsibility Report are sufficient for such a report in Finland and the information contained, considering the nature of this verification, is reliable.
- The report reflects TVO's responsible and uncompromising attitude towards the realization of its mission and values by emphasizing a safety – and environmental culture of the highest standards both in its present large projects and in its basic operations.

Espoo 23.02.2011
DNV Certification OY/AB
EMAS-Accredited Verifier FIN-V-002

Seija Meriluoto
Lead Verifier, Corporate Social Responsibility

DET NORSKE VERITAS 1864 HELSINKI

Glossary

A

Activity
The number of spontaneous nuclear disintegrations occurring in a given quantity of radioactive material within a certain time. The unit of radioactivity, becquerel (Bq), equals one disintegration per second.

B

Background radiation
Radiation from natural radiation sources. These sources can be radioactive substances of the Earth, such as radon, radiation from space, or radioactive substances contained in the human body.

Becquerel, Bq
Expresses the number of nucleus decays of a radioactive material per time unit. 1 Bq corresponds to one decay per second.

BOD_{7ATU}
The biological oxygen demand of wastewater.

Boiling Water Reactor (BWR)
A light-water reactor in which water used as the coolant boils as it passes through the reactor core. The resulting steam is used to drive a turbine.

C

Capacity factor
A number describing the output of a power plant during one year, or other suitable period. Capability factor is the share of energy produced by a power plant in a year as a percentage of the energy that the plant would have produced if it had operated without interruption at full capacity for the entire year.

Carbon-14
Carbon-14 is a long-lived, beta-active radioisotope created by cosmic radiation in the atmosphere. Carbon-14 also forms in the reactor when the oxygen of the coolant is activated, and carbon-14 transfers from there into the atmosphere, bonded with carbon dioxide.

CCS
Carbon Capture and Storage.

CO_2
Carbon dioxide.

Consortium
A temporary union of companies, formed for a particular business venture.

D

Decibel, dB
Noise is measured on the decibel scale, indicating the intensity of sound.

DNV
An abbreviation of Det Norske Veritas. Det Norske Veritas acts as an independent third party in certain inspection/assessment work. Its key operations include services related to ship classification and operations related to the certification of management systems.

Dose rate
The dose rate, that is, the radiation dose per time unit (e.g. mSv/h) expresses the radiation dose received by a person within a certain time.

E

EMAS
The Eco-Management and Audit Scheme is the environmental management system of the EU area. TVO's environmental management system also complies with EMAS.

Emission right
EU-internal carbon dioxide emissions trading commenced as of 2005. For the entire EU area, annual carbon dioxide quotas were specified for industry and energy plants emitting carbon dioxide. The objective is to cost-efficiently allocate emission reduction measures to where their implementation is the most inexpensive. Plants that successfully and cost-efficiently reduce their emissions to a lower level than their quota may sell their spare emission rights in emissions trading. Plants for which emissions reduction is expensive may purchase emissions rights from the market.

EPR, European Pressurized Water Reactor
A pressurised water reactor developed from the latest French and German pressurized water reactors with four steam generators and four parallel, mutually independent safety systems.

EURATOM
European Commission's agency responsible for the monitoring of nuclear material.

F

Fission
The splitting of one heavy atomic nucleus into two or more intermediate-mass nuclei, releasing neutrons and a considerable amount of energy in the process.

Fission products
Habitually radioactive intermediate-mass atomic nuclei created in fission.

G

Gigawatt, GW
Unit of power. One gigawatt is one million kilowatts.

Gigawatt hour, GWh
A unit of electrical energy. One gigawatt hour equals one million kilowatt hours.

Global Reporting Initiative (GRI)
International reporting guidelines for sustainable development, aiming to harmonize the procedures of organizations in the reporting of financial, social, and environmental responsibility. The GRI issues instructions for preparing the reporting content, and detailed key figures for reporting financial, environmental, and social responsibility. The key figures are grouped in key indicators shared by all organizations, and additional indicators which may be reported if they are relevant to the operations of the organization.

H

Half-life time
The time where the activity of a substance decreases to 50% of the original.

I

IAEA
The International Atomic Energy Agency.

INES Scale
The International Nuclear Event Scale (INES) uses seven classes to describe the severity of nuclear power plant accidents and incidents. The lowest classes (1–3) describes incidents weakening plant safety, and the highest (4–7) describe accidents which may result in emissions into the environment requiring radiation protection measures.

Iodine
With respect to radiation protection, iodine-131, with a half-life of eight days, is the most important iodine isotope created as a fission product.

Ion exchange resin
Material used for removing impurities from water.

ISO 9001 standard
An international standard that specifies requirements for quality management systems.

ISO 14001:2004 standard
A standard related to environmental management, used extensively throughout the world.

Isotope
Atoms of the same element differing from each other in the number of neutrons in their nucleus. Almost all natural elements occur as more than one isotope.

K

KAJ storage
Interim storage facility for intermediate-level waste.

KPA store
Interim storage facility for spent fuel.

L

LTA
Lost Time Accident, that is, the accident frequency. LTA1, for example, indicates an absence of more than one day.

M

Mansievert, manSv
The manSv unit describes the total radiation dose of a specific group of people.

MEE
The Finnish Ministry of Employment and the Economy

Megawatt, MW
Unit of power. One megawatt equals 1,000 kilowatts or 1,000,000 watts.

N

Noble gas
The name of some gaseous elements that rarely occur in nature (air). The noble gases are helium (He), neon (Ne) argon (Ar), krypton (Kr), xenon (Xe) and radon (Rn).

Nuclide
A type of atom nucleus with a specific number of protons and neutrons.

O

Occupational accident
An accident that has taken place at work or while commuting and has resulted in an absence of one day at the least.

Occupational accident severity scale
The occupational accident severity scale indicates how many days of absence each accident has caused on average (the figure is calculated by dividing the days of absence by the number of accidents).

Occupational Safety Card
The Occupational Safety Card course is particularly intended for those who work at shared work locations. The course lasts one day and involves a written examination. A person completing the course receives an Occupational Safety Card, valid for five years. A course leader, who has completed safety card trainer training, is in charge of the implementation of the course.

ONKALO
ONKALO is the name of the underground rock characterization facility of the final disposal facility for spent nuclear fuel.

P

PWR, Pressurized Water Reactor
A light-water reactor in which the pressure inside the reactor is so high that the coolant water will not boil. Hot water is led from the reactor to the steam generator. Here, the water inside the secondary circuit kept at a lower pressure becomes steam, which is then conveyed to rotate a turbine.

R

Radiation
Either electromagnetic waves or particle radiation consisting of the smallest particles of matter.

Radioactive operating waste
Waste created in a power plant's maintenance work. The volume of the waste can be decreased by compression. Examples include plastic, paper, and cloth.

S

Screenings
The organic matter which accumulates on the screening plant's fine screen and traveling basket filters in cooling water intake. The screenings mainly consist of debris, algae, mussels, and fish carried with the cooling water.

Sievert, Sv
A radiation dose unit describing the harmful impact on health caused by ionizing radiation. The dose is usually given by using the multiple units of mSv (millisievert), i.e. one-thousandth of a sievert, or µSv (microsievert), one-millionth of a sievert.

STUK
The Radiation and Nuclear Safety Authority, or STUK, is the authority that supervises the operation of nuclear power plants in Finland.

T

Terawatt, TW
Unit of power. One terawatt equals one billion kilowatts.

Terawatt hour, TWh
A unit of energy. One terawatt hour equals one billion kilowatt hours.

Tritium
A hydrogen isotope, the nucleus of which consists of a proton and two neutrons.

U

Uranium
An element (U): 0.0004% of all materials in the Earth's crust (four grams in a ton) is uranium. All uranium isotopes are radioactive. Natural uranium is mostly in the form of isotope U-238, which has a half-life of 4.5 billion years. Only 0.72% of natural uranium is in the form of isotope U-235, which can be used as a nuclear fuel.

V

VLJ repository
The repository for low-level and intermediate-level waste.

VTT
Technical Research Centre of Finland.

VYR
The Finnish State Nuclear Waste Management Fund.

W

WANO (World Association of Nuclear Operators)
An international organization of nuclear power plant companies. Within the framework of WANO, nuclear power companies can exchange operating experiences and thus increase the safety of their plants.

Y

YVL guide
Nuclear power plant guide.

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