Corporate Social Responsibility Report 2009

Teollisuuden Voima Oyj

Well-being with Nuclear Electricity

Reporting principles

Our target

The social responsibility-based target of Teollisuuden Voima Oyj (TVO) is to give information about our company to those interested both in TVO as a company and about how we generate electricity responsibly for Finnish consumers and industry. Our goal is to explain how social responsibility is linked with TVO's everyday operations.

Report coverage

As a result of the assessment project conducted in 2008 by our Corporate Social Responsibility Group, we specified the most important reader of our report to be the Finnish electricity consumer.

The three publications that make up our reporting as a whole are Well-being with Nuclear Power: TVO 2009, Annual Review 2009 and Corporate Social Responsibility Report 2009.

Our collection of reports tells not only about matters connected with the economy, environment, personnel and social activities but also about our safety culture, authority regulations and systems directing our operations. We also describe our operating environment.

We report on our main activities – in other words, the production of electricity using nuclear power and our company's events, objectives and results in 2009. Our reporting covers the operations of the parent company Teollisuuden Voima Oyj. We also report on accidents as well as training with regard to TVO's subcontractors. In addition, we describe the production at Meri-Pori coal-fired power plant as well as the final disposal of spent nuclear fuel, managed by our joint venture company Posiva Oy. No changes have been made to the scope, boundaries or measuring methods of the report by reference to the previous year. Similarly, no changes have been made to the data reported in previous years.

The Well-being with Nuclear Power: TVO 2009 publication presents TVO as a company as well as its operating environment and principles of responsibility, in addition to the operations in 2009 of the OL1 and OL2 units, the OL3 unit now under construction, and the OL4 unit, which is in the application stage.

The Annual Review 2009 publication particularly outlines the economic responsibility and our management systems.

The Corporate Social Responsibility Report 2009 publication reports comprehensively on the matters connected with our company's economic, environmental and social responsibility.

We provide information about our permanent activities on our company´s web pages at www.tvo.fi, where there is supplementary information regarding responsibility.

Comparability

Our report has been drawn up in accordance with the Global Reporting Initiative (GRI) G3 guidelines. The GRI Table is in our Corporate Social Responsibility report on page 34.

We have published a Corporate Social Responsibility Report annually since 2001 and our Environmental Report already before this, starting in 1996. Our report describing the year 2008 appeared in May 2009. The next report will be published on our website in spring, 2011.

The Corporate Social Responsibility Report shows the comparison figures for 2008 in brackets. The key figures and graphs cover the years 2005–2009.

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

The details describing our responsibility for the environment are based on reports compliant with EMAS statute 761/2001. The requirements for EMAS reporting and the equivalence of our reports with them are presented on page 20.

The key figures for social responsibility are bases on the data collected and calculated within our company.

Verification

The independent and neutral accredited environmental verification agency, DNV Certification OY/AB, verified the compliance of our corporate social responsibility report with the EMAS statute in February 2009. The statement of verification is on page 21.

The 2009 reporting has been verified by DNV Certification OY/AB. This statement of verification is on page 35.

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FINANCIAL RESPONSIBILITY

The best production output in our history

Olkiluoto nuclear power plant achieved the highest production output in its operating history. Our OL1 and OL2 plant units produce electricity consistently throughout the year, with the exception of the planned annual outages. The capacity factors were on a high level by international comparisons.

The year 2009 was the best year for electricity production in the history of the Olkiluoto power plant so far. The OL1 and OL2 plant units generated 14.5 TWh – about one-sixth of the electricity consumed in Finland. The total capacity factor of the plant units – 96.0 per cent – is on a high level by international comparisons.

The OL1 plant unit produced 7.3 TWh of nuclear power and its capacity factor was 97.0 per cent. The output for the year of the OL2 plant unit was 7.2 TWh and its capacity factor was 95.1 per cent.

TVO's turnover totalled EUR 295.9 (245.1) million. Turnover and electricity production costs were in accordance with the owners' set 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 power plant units as good as new and to ensure safe, predictable and uninterrupted production during future production periods.

We will achieve our objectives and a good generation result when we operate in accordance with our values, responsibly, proactively, taking a continuous improvement approach and implement open communication and interaction with our stakeholder groups.

We generate electricity in accordance with cost price principle (so called Mankala-principle) which means that the plant costs are charged annually in the price 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.

Cash flows 2009 (EUR million)

SOURCES OF FUNDS			APPLICATION OF FUNDS	
		Personnel	46	Salaries
		State, municipal, tax authorities	42	Nuclear waste management fee
			2	Social security contributions
			8	Property tax
Delivery of electricity	296	**Owners**	6	Interest
Equity	100			
Loans and receivables	684	**Financiers**	131	Interest
Interest and dividends	38			
Other income from operations	16	**Suppliers (subcontractors)**	44	Nuclear waste management services
			87	Raw material suppliers
			81	Service providers
			729	Investments
Working capital	42	**Company**		
	1,176	**Total EUR million**	**1,176**	

Olkiluoto's wind power plant generated 0.002 TWh of electricity.

TVO's bond was of interest to international investors.

Small amounts of coal-fired power and wind-generated electricity

We have a 45 per cent shareholding in Fortum Power and Heat Oy's Meri-Pori coal-fired power plant. Our share of the plant's electricity production was 0.8 (0.8) TWh. We are responsible for our share of the plant's costs and in return we receive 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 required for fuel.

We also generate electricity through a wind turbine plant at Olkiluoto. Output from the wind power plant was 0.002 (0.002) TWh.

Olkiluoto's gas turbine plant, built as a joint venture between Fingrid Oyj and TVO, produces electricity rapidly for the grid if 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 0.001 (0.001) TWh.

Our Euro Bond Issue received strong international interest

We guarantee the availability of long-term financing also under difficult market conditions by means of diversified funding sources. In June, TVO established a 2 billion Euro Medium Term Note Programme and issued a EUR 750 million bond under the programme. The bond is rated A- by Fitch Ratings.

As a result of extensive international interest, over 200 European investors participated in the bond which was clearly oversubscribed. In 2009, TVO also issued three private placements, totalling approximately EUR 185 million.

The support of a comprehensive international bank group financing TVO and firm demand for the bonds proves strong confidence of investors and banks in TVO's financing ability, also with regard to future power plant investments.

The liquidity and financing position of the Group were stable and loans were raised according to plan. The Company's interest-bearing liabilities (non-current and current), excluding the loan from the Finnish State Nuclear Waste Management Fund relent to shareholders, totalled EUR 2,586.6 (1,959.5) million at the end of the year.

The Annual General Meeting decided in 2009 on a private offering to the company's B series owners, by which the company share capital was raised by EUR 100 million. The subscription price was paid in November 2009 and registered in December 2009. In 2008, the increase in share capital was EUR 95.6 million.

Long-term partners complete our operations

In addition to our own highly skilled personnel, the success of annual out-

ages is ensured by our reliable long-term partners. In addition to TVO's personnel, about 800 individuals at maximum made up our contractors' work force, of which 700 were from Finland. The long annual outages next year will bring additional challenges to our partners.

The rooftop height ceremony on the OL3 site was arranged with approximately 4,000 employees on hand for the festivities. Poles numbered about 30 per cent of those on the OL3 site, with Finns at about 25 per cent and the remaining 45 per cent a mix of 53 nationalities. With regard to construction, the peak of work force at the site has been reached.

Our other long-term partners look after the environment, cleaning, catering and dining services as well as guarding and surveillance. Safe commutes are handled by several buses from various parts of Rauma and Eurajoki.

We're building the future of nuclear power

We are constructing an advanced EPR (European Pressurized water Reactor) power plant unit, with the electrical output of approximately 1,600 MW. Our investments were focused primarily on the OL3 project. In total, our investments were EUR 802.7 (600.3) million, of which the share for the OL3 project was EUR 749.5 (537.0) million.

The dome part of the steel liner that ensures the gas-tightness of the containment building of OL3 reactor was raised into place in September. The main components of the nuclear island– four steam generators and a pressurizer – were

The Olkiluoto 3 rooftop height was celebrated in autumn.

The annual outage building functions as a combined entrance for the power plant units. The building features a new radiation monitoring system based on double-monitors.

delivered to Olkiluoto at the end of the year. Installation work continued on the turbine island. We tell more about the OL3 project in our Well-being with Nuclear Electricity: TVO 2009 publication on pages 16 and 17.

The OL1 and OL2 annual outage building was completed to the annual outages for 2009. The building functions as a main entrance for both the plant units and is equipped with double monitoring. Anyone leaving the plant unit goes through two different personnel monitors, by which we ensure that no radioactive contamination is released outside the power plant.

The project to replace the OL1 and OL2 low-pressure turbines and generators scheduled for the years 2010 and 2011 was continued, and the objective is to install them during the next annual outages.

TVO imports uranium fuel by ship. The fuel is in stock and in various stages of preparation throughout the world covering several years of fuel need.

Nuclear fuel is in store for several years

We procured nuclear fuel by means of long-term delivery agreements totalling EUR 45.9 (48.5) million. Our consumption of nuclear fuel was EUR 40.1 (38.2) million. The carrying value of nuclear fuel and uranium stocks at the end of the year was EUR 162.8 (157.0) million.

299.3 (286.6) thousand tones of coal were used by the Meri-Pori coal-fired power plant to generate our share of its electrical output.

Already preparing for final disposal

According to the Nuclear Energy Act in Finland, the producers of nuclear power are responsible for the final disposal of spent nuclear fuel as well as all costs related to it. Posiva Oy, a joint venture established by TVO and Fortum Power and Heat Oy, takes care of the final disposal of spent nuclear fuel generated at the power plants of Olkiluoto and Loviisa for its owners.

The Group's balance sheet includes a provision related to nuclear waste management obligations. The provision is based on measures expected to be taken in nuclear waste management and their costs, taking into account measures already carried out.

In the consolidated financial statements, the liabilities show a nuclear waste management liability of EUR 633.5 (599.8) million, and a corresponding amount represents the Company's share in the Finnish State Nuclear Waste Management Fund in the assets.

In order to cover the future costs of nuclear waste management, we make contributions in accordance with the Nuclear Energy Act to the Finnish State Nuclear Waste Management Fund. The Ministry of Employment and the Economy has set TVO's liability for nuclear waste management at EUR 1,160.7 (1,137.6) million to the end of 2009 and the Company's target reserve in the Fund for 2010 at EUR 1,069.8 (1,001.2) million. The difference is covered by guarantees.

We tell more about nuclear waste management and its organization in our Well-being with Nuclear Electricity: TVO 2009 publication, pages 22 and 23.

Nuclear liability means being liable for detriment potentially caused to outside persons by nuclear power plant accidents. In Finland, nuclear liability is regulated in related laws based on an international agreement system. TVO has statutory nuclear liability insurances.

The costs of our research and development activity totalled EUR 21.2 (20.6) million, most of which we used on nuclear waste management.

Key economic figures

EUR Million	2009	2008	2007	2006	2005
Teollisuuden Voima Oyj's financial statement has been made in accordance with the Finnish Accounting Standards (FAS).					
Turnover	296	245	225	227	199
Fuel costs	65	56	66	65	44
Nuclear waste management costs	66	56	49	29	27
Personnel expenses	55	55	51	47	44
Other income and expenses related to electricity production	66	54	50	59	50
Capital expenditure (depreciation and financial income and expenses)	68	61	57	56	59
Profit/loss before appropriations	-24	-37	-48	-29	-24
Investments	803	600	228	275	647
Equity	713	613	604	408	408
Appropriations	150	175	221	269	298
Long-term and short-term interest-bearing liabilities (excluding loan from VYR)*	2,587	1,960	1,362	1,242	1,146
Loans from equity holders of the company (included in the former)**	179	179	179	179	179
Loan from VYR	751	696	648	620	595
Balance sheet total	4,377	3,617	2,951	2,639	2,519
Equity ratio (%)***	28.8	33.1	43.6	42.5	46.0
Average number of personnel	830	806	780	748	693

* VYR = The Finnish State Nuclear Waste Management Fund

** Subordinated loans.

*** Equity ratio (%) = $100 \times \frac{\text{equity + appropriations + shareholders' loans}}{\text{balance sheet total – loan from VYR}}$

TVO's share of the Finnish State Nuclear Waste Management Fund (VYR) EUR million	1,069.8	1,001.2	927.7	864.1	826.6
Electricity delivered to equity holders of the company (GWh)					
Olkiluoto 1	7,263	7,039	7,317	6,956	7,208
Olkiluoto 2	7,122	7,288	7,032	7,278	6,984
Olkiluoto total *	14,385	14,327	14,349	14,234	14,192
Meri-Pori	845	817	1,374	1,509	250
Total	15,230	15,144	15,723	15,743	14,442

* Includes wind power 1.5 (1.6 in 2008) GWh and gas-turbine power 0.5 (0.5) GWh.

Capacity factors (%)					
Olkiluoto 1	97.0	93.7	97.5	93.8	98.3
Olkiluoto 2	95.1	96.9	93.7	96.9	94.0
Capacity factors total	96.0	95.3	95.6	95.4	96.1
TVO's share of the electricity used in Finland (%)	18.8	17.4	17.4	17.5	17.0

ENVIRONMENTAL RESPONSIBILITY

Continuous work on behalf of the environment

TVO's social responsibility policy observes the principles of sustainable development. We bear our responsibility by recognizing the environmental aspects of our operations and minimizing the detrimental effects during all stages of the production chain of electricity. With regard to nuclear fuel, we ensure its safe use from procurement of the raw material all the way through to final disposal. We want to be forerunners in the management of environmental issues.

In 2009, the activity at Olkiluoto nuclear power plant was in accordance with our environmental policy, environmental permits and environmental management system.

We look after the management of environmental issues and related environmental impacts of our power plant units and the infrastructure supporting our operations. We require a responsible attitude to our company's policies and operational principles with regard to environmental issues also from the companies and partners that operate in the power plant area.

Annual targets for environmental and energy aspects

The goal of our environmental management system certified in accordance with the ISO 14001 standard and the EMAS Regulation is to continuously improve our operations and raise the level of environmental protection. We specify the environmental and energy-related aspects for our activities, for which the company management confirms the improvement- and upkeep-based targets monitored annually. Of these factors, 18 are recognized to be significant.

We set seven improvement targets for 2009 and achieved six. The implementation of two of them continues as before with three of them being updated in 2010. In addition, a cooling water research programme development project was set to be launched as a new improvement target.

Of the nine maintenance targets, we achieved eight. The implementation of the maintenance targets is continuing in 2010, supplemented by the goal for practical utilization of surplus concrete. These targets and their results are explained in the Tables on pages 11-12.

Environmental research – the basis of operations

We have carried out environmental studies on the island of Olkiluoto since the 1970s, years before the initiation of electricity production. The baseline studies performed during the first years established the foundation for, among other things, environmental monitoring programmes for radiation and waterway impacts.

For our new power plant unit projects – OL3 and OL4 – we have implemented extensive environmental impact assessment procedures. Final disposal of spent nuclear fuel has already been studied since the 1980s and has also been evaluated by means of environmental impact assessment methods. The island of Olkiluoto and its environs have become quite familiar to us.

Stakeholders included in our operations

We are assessing the significance of environmental and energy-related aspects on the basis of the subject-to-licence and legislative requirements and by noting, for example, the quality, frequency and probability of occurrence as well as its criticality, duration, extensiveness and the number of persons subjected to its influence. Our evaluations are also influenced by complaints from stakeholder groups as well as the possibility and costs.

In 2009, TVO received five (three) external enquiries and complaints. They concerned traversing the private areas of Olkiluoto and non-permitted examing of fish traps in the water area to the fore of Olkiluoto, as well as TVO's functions to protect the Baltic Sea. We handled and replied to these inquiries in addition to implementing the measures required. Together with our stakeholders, we engage in discussions and questions are answered also in connection with visits.

Our initiative function also supports the participation of stakeholders in the management of TVO's environmental issues. In 2009, the initiative function has, for instance, improved waste sorting in the accommodation village used by OL3 builders.

No significant environmental deviations were detected by TVO in 2009. We developed the reporting method compared to previous years by taking even the smallest environmental events into consideration as well as monitoring 'near miss' incidents in order to prevent deviations.

Our most significant environmental aspect is the thermal load into the sea caused by cooling water.

A total of seven (two) minimal environmental deviations were detected, of which one report was made to the authorities. Moreover, the consortium reported 31 environmental incidents at the OL3 site.

Cooling water the most significant environmental aspect

We use seawater at the Olkiluoto power plant for cooling approximately 30 m^3/s per plant unit. In 2009, seawater was utilized for cooling 1,826 (1,822) million m^3, and the resulting thermal load into the sea was 27.7 (27.5) TWh. The most significant environmental aspect relating to our operation is the environmental effect caused by the thermal load of cooling water.

We have studied the effect of cooling water during the entire period of our operation, most recently in the Natura assessment procedure for the OL4 project. On the basis of the Natura assessment, the combined influence of the four plant units would not incur significant detrimental effects on the objects of protection on the Natura area in archipelago of Rauma.

The cooling water is not in direct contact with the power plant's process water. The cooling water warms approximately 13 °C as it proceeds through the plant unit, after which it blends with the seawater. According to our environmental permit, the

Significant environmental and energy-related aspects in 2009 and 2010

Aspect	Management method	
	2009	2010
Cooling water thermal load into the sea	*MT 5*	*IT 6, MT 5*
Radioactive emissions into the air in normal operations	*IT 2, MT 6*	*IT 1, MT 6*
Radioactive discharges into the water in normal operations	*IT 2, MT 7*	*IT 1, MT 7*
Significant radioactive environmental emission from the reactor in an accident	*MT 8*	*MT 8*
Environmental responsibility of the service, materials and equipment suppliers selected	*OI*	*OI*
Operations of service suppliers	*OI*	*OI*
Environmental responsibility of uranium fuel suppliers selected	*OI*	*OI*
Environmental responsibility of coal fuel suppliers selected	*MT 4*	*MT 4*
Impact of the quality of the coal purchased on the burning process	*OI*	*OI*
Chemical, fuel and oil tank leaks	*OI*	*OI*
Sanitation waste water load	*MT 1*	*MT 1*
Condition monitoring of measuring-instruments	*OI*	*OI*
Amount of scrap cleared after monitoring	*OI*	*OI*
Wastes generated in operation	*IT 1, IT 3, IT 4, IT 5, IT 6, MT 2, MT 9*	*IT 2, IT 3, IT 4, MT 2, MT 9, MT 10*
Spent nuclear fuel generated in operation	*OI*	*OI*
Landfill load	*IT 1, IT 3, IT 4, IT 6*	*IT 3, IT 4, MT 10*
Equipment renewal and process improvement	*IT 7, MT 3*	*IT 5, MT 3*
Storage of agents dangerous or detrimental to health and the environment at the OL3 site	*OI*	*OI*

Improvement targets (IT) and maintenance targets (MT) are numbered and can be found on pages 11–12.

IT = Improvement target MT = Maintenance target OI = Operating instruction

Realization of targets set for environmental objectives in 2009

- The target was implemented in a planned manner
- The target was partly implemented
- The target was not reached

	Improvement targets (IT) in 2009	Results	
IT 1.	***Utilization of surplus concrete*** *Continuing the utilization of surplus concrete generated at the OL3 site or at the concrete batching plants for the excavation work carried out at Olkiluoto in 2009.*	*A total of 33,350 tonnes of surplus concrete was produced in 2009. Of these, 8,600 tonnes have been utilized, among others, in the work connected with closing the decommissioned landfill site.*	●
IT 2.	***The implementation of procedures connected with ensuring the purity of the process in the controlled area*** *To reduce the number of loose parts ending up in the process and to prevent the possibility of the same causing fuel damage by 2010 by means of measures approved in the plant meeting.*	*In 2009, no fuel damage whatsoever has been caused by loose particles.*	●
IT 3.	***The reduction of the impact of office work on the environment*** *To minimize the environmental impacts caused by office work, for instance, by reducing the use of materials and energy and increasing environmental awareness on the part of personnel. The improvement target remains valid until the end of 2009.*	*We implemented the planned number of measures and reached the target. Measures have been carried out for, among other things, reduction in paper consumption and making personnel aware of environmental issues.*	●
IT 4.	***Sorting of wastes*** *To develop the sorting of waste at source so that the amount of total waste going to practical utilization is over 85%, calculated as a three year moving average. This target shall be in effect until 2011 and shall also be valid on the OL3 construction site.*	*The sorting of wastes was realized in accordance with the target with regard to 2009. The ratio of the amount of waste going to practical application relative to the amount of waste as a whole during the three-year period as a moving average was 89%.*	●
IT 5.	***Closing down the decommissioned landfill*** *To close down the decommissioned landfill in accordance with an environmental permit decision by the end of 2009.*	*The work on the closing down of the decommissioned landfill was carried out in accordance with the plans during the period of 2008–2009.*	●
IT 6.	***Development of waste sorting: accommodation villages, contractor area and ONKALO worksite*** *To realize the sorting of municipal waste in the accommodation villages, contractor area and on the ONKALO worksite in compliance with TVO's instructions and to improve the standard of sorting in 2009–2011.*	*The collection point-based targets for the sorting of wastes in the accommodation villages, contractor area and on the ONKALO worksite were reached. The combined target for all four areas was also achieved in 2009.*	●
IT 7.	***Integration of the energy efficiency system into the environmental management system*** *To add energy awareness amongst personnel by holding office and department information sessions. Arranging an energy review is also a target in 2009.*	*The information sessions set as a target were held according to schedule, but realization of the energy review has been transferred to 2010. The target in this respect was not fulfilled.*	●

	Maintenance targets (MT) in 2009	Results	
MT 1.	***Sanitation waste water load*** *Sanitation waste water cleaning efficiency ≥90%*	*The cleaning efficiency of the sanitation waste water treatment plant was, with respect to total phosphorus 99% and BOD_{7ATU} 97%.*	●
MT 2.	***Use of intermediate agents in production*** *Restriction of quantity of filter masses*	*The usage quantity of powdered ion-exchange resins undershot the target by 35%.*	●
MT 3.	***Process water reduction*** *Reduction in the consumption of demineralized water*	*The consumption of demineralized water exceeded the target by 11%, so the target was not achieved. This target can be reached through the renewal of the old humidifiers at the plant.*	●
MT 4.	***Suppliers' environmental responsibility*** *Selection of coal fuel supplier*	*An assessment visit was made to the coal fuel supplier in Kazakhstan in 2009.* *The requirement for management of environmental issues was entered into all signed coal procurement contracts.*	●
MT 5.	***Thermal load into the sea*** *Remaining within the limits required for a water permit in relation to cooling water temperature*	*The average operating efficiency of the OL1 and OL2 plant units during the inspection period was 34.3%. With respect to cooling water temperature, the terms of the water permit have been fulfilled and the thermal utilization possibilities contained in the cooling water have been examined in accordance with the plans.*	●
MT 6.	***Radioactive emissions released into the air: normal operation*** *Keeping radioactive emissions released into the air at a level significantly lower than required by authorities*	*In 2009, there were no noble gas emissions whatsoever, so the target was achieved very well.*	●
MT 7.	***Radioactive discharges released into the sea: normal operation*** *Keeping radioactive discharges released into the sea at a level significantly lower than required by authorities*	*In 2009, discharges from fission and activation products were 0.07% of the limit set by the authorities.*	●
MT 8.	***Radioactive environmental emission: accident*** *Control of radioactive risks*	*The risk of core damage and radioactive environmental emissions is very small, and its fluctuation remained at a normal range in 2009.*	●
MT 9.	***Waste management*** *More efficiency in the management of wood waste at Olkiluoto*	*All wood waste produced was crushed at Olkiluoto and delivered for practical energy use.*	●

Targets set for enviromental objectives in 2010

	Improvement targets (IT) in 2010	Operational plan
IT 1.	***The implementation of procedures connected with ensuring the purity of the process in the controlled area***	*To reduce the number of loose parts ending up in the process and prevent the possibility of the same causing fuel damage by the end of 2010, by means of measures approved in the plant meeting.*
IT 2.	***Reduction of one's own environmental impacts resulting from work practices***	*To minimize environmental impacts caused by daily work, for instance, by increasing cost and environmental awareness with regard to personnel's own work. The improvement target remains valid until the end of 2011.*
IT 3.	***Sorting of wastes***	*To develop the sorting of waste at source so that the amount of total waste going to utilization is over 85%, calculated as a three year moving average. This target shall be in effect until the end 2011 and shall also be valid on the OL3 construction site.*
IT 4.	***Development of sorting: accommodation villages, contractor area and ONKALO worksite***	*To realize the sorting of municipal waste in the accommodation villages, contractor area and on the ONKALO worksite in compliance with TVO's instructions and to improve the standard of sorting in 2009–2011.*
IT 5.	***Development of the energy efficiency system in the environmental management system***	*The target is to implement an energy review and, on its basis, plan and initiate measures for the improvement of energy efficiency. This target shall be in effect in 2010–2011.*
IT 6.	***Development project for the initiation of a cooling water research programme***	*The target is to gather the available research data together and plan, on its basis, possible development measures for the utilization of cooling water. This target is set for 2010–2011.*

	Maintenance targets (MT) in 2010	Operational plan
MT 1.	***Sanitation waste water load***	*To ensure operations in accordance with the permit terms for the sanitation waste water treatment plant.*
MT 2.	***Use of intermediate agents in production***	*The target is to maintain the usage amount aim set for 2005 for powdered filter masses.*
MT 3.	***Process water reduction***	*The target is to achieve and maintain the consumption target set for 2005.*
MT 4.	***Suppliers' environmental responsibility***	*To obtain information from coal fuel suppliers with regard to the status of their management of environmental issues. The requirements are consistently entered into all coal procurement contracts.*
MT 5.	***Thermal load into the sea***	*The target is to remain within the limits required by the environmental permit with regard to cooling water temperature, continue the studies of utilization possibilities for warm cooling water, and retain the average operating efficiency for the plant units on the level of 1996 (32.8%) at minimum.*
MT 6.	***Radioactive emissions released into the air: normal operation***	*The target is to keep the plant's total calculated noble gas emissions on the average level of 1993–1997 at maximum, which is 0.04% of the authority limit as an equivalent of Kr-87.*
MT 7.	***Radioactive discharges released into the sea: normal operation***	*The target is to maintain the quantity of radioactive water discharges (fission and activation products) at 0.5% of the authority limit at maximum.*
MT 8.	***Radioactive environmental emission: accident***	*The target is to prevent the nuclear safety risk from increasing above the current level. Risks are recognized actively and measured in relation to the results of likelihood with up-to-date PRA. Recognized risks are reduced in accordance with the SAHARA (Safety As High As Reasonably Achievable) principle.*
MT 9.	***Waste management***	*To continue the crushing of wood waste at Olkiluoto and as a consequence reduce the environmental loading caused by the transport of wood waste.*
MT 10.	***Utilization of surplus concrete***	*To continue the utilization of surplus concrete generated at the OL3 site or at the concrete batching plants for the excavation work carried out at Olkiluoto.*

temperature of the seawater is not permitted to exceed 30 °C as a target value, measured as weekly average 500 metres away from the cooling water discharge channel.

The cooling water forms a surface layer on an extensive sea area from which part of the heat is transferred to the air. Depending on the weather conditions, the rise in temperature is detected at a distance of approximately 3–5 kilometres from the discharge site of the cooling water.

The cooling water also causes changes to the ice situation, since the discharge area of the cooling water remains unfrozen throughout the winter. Depending on the winter, the size of the unfrozen area varies 3–20 km^2. We warn about the unfrozen area through, for example, newspaper notices.

Energy efficiency part of normal operations

The Olkiluoto power plant is involved in the business and industry sector's energy efficiency contract system. The energy efficiency system was integrated as part of our environmental system, and we implement energy efficiency-related measures as part of our normal operations.

We utilize the lost heat from Olkiluoto's power plant units as district heating in the heating of buildings in the area. Renewal and expansion of the district heating network was in progress in 2009 and shall continue in 2010. Our target is to further increase the use of district heating at sites where its utilization is possible and economically justified.

In 2009, taking energy efficiency into consideration has been adopted as part of the modification process. We assess the significance of energy efficiency in connection with each modification.

During the annual outages of 2010 and 2011, we shall renew the low-pressure turbines of the OL1 and OL2 plant units as part of the plant units' continuous, long-term modernization. Due to renewal, the operating efficiency of the plant units is improving by approximately one percentage unit, which shall raise the electrical efficiency of both plant units about 25 MW with the current amount of fuel. This measure shall improve the plant's energy efficiency and reduce the amount of heat discharged to the sea area.

We are also renewing the seawater pumps of the condensers at the plant units, thereby increasing the capacity of the pumps. This renewal shall improve the operating efficiency of the plant units and shall be responsible for a growth of approximately 2 MW in electrical efficiency at both plant units.

Recovery of carbon dioxide progressing at Meri-Pori

Together with Fortum Power and Heat Oy, we continued the pre-planning of the outfitting of the carbon dioxide recovery facility at the Meri-Pori coal-fired power plant. TVO's share of the electricity generated by Meri-Pori coal-fired power plant is 45%.

We have chosen a partner with which we are studying the possibilities to realize a recovery plant. The goal is to become involved with the EU's CCS demonstration programme and initiate recovery of carbon dioxide in 2015. The implementation of this project requires, however, strong political and economic support from both the Finnish State and the European Union.

The environmental research is clarifying the impacts on the environment of our operations.

Minimal emissions and responsible waste management

The basic principle behind our waste management is to prevent the production of wastes and promote their beneficial use. We isolate radioactive wastes from organic nature as long as it takes for their radioactivity to decrease to a harmless level. In the control of emissions from radioactive agents, our goal is to always come well below the maximum limits set by the authorities as well as our own self-imposed targets, which are stricter than the official ones.

Our operations produce ordinary municipal waste, hazardous waste and radioactive waste, as well as small amounts of conventional and radioactive emissions into the air and discharges into the water.

The radioactive emissions into the air and discharges into the water from Olkiluoto's nuclear power plant were, in the manner of previous years, quite minimal and came well under both the authorities' and our own strict self-imposed limit values. No noble gas emissions at all were released into the air, and the iodine emissions were 0.00009 (0.001) per cent of the permitted official limit.

Radioactive fission and activation product discharges into the water were 0.07 (0.12) per cent and the tritium discharges were 10.1 (13.1) per cent of the limit set by the authorities.

We reported the amounts of radioactive emissions in more detail in the key figures on environmental responsibility on pages 18–19.

Sorting reduces landfill waste

We are committed to the minimizing of waste quantities and require the same from all who work in our area. We wish to intensify the efficiency of the sorting and handling of waste produced as well as guide the sorted wastes into practical application. We sort conventional wastes into nine specific types. Only those wastes that are ineligible for utilization are taken to the landfill site. We gather hazardous wastes into a storage facility for the purpose, from which they are delivered for processing to the appropriate processing plant.

The increased amount of packaging materials for components delivered to the OL3 site raised the amount of total waste composed at Olkiluoto 1.5 times by reference to the previous year. The total amount of waste was 14,350 (9,777) tonnes.

The proportion of total waste recycled or used for energy generation was 84 (91) percent, the proportion of landfill waste was 15 (8) per cent, and the amount of hazardous waste was 1 (1) per cent. We report the amounts of waste in more detail in the key figures on environmental responsibility on pages 18–19.

A total of 33,350 (31,800) tonnes of surplus concrete was produced at Olkiluoto. We utilized 8,600 tonnes of this in the land construction sites in the area of Olkiluoto, such as the work connected with the decommissioning of the old landfill site.

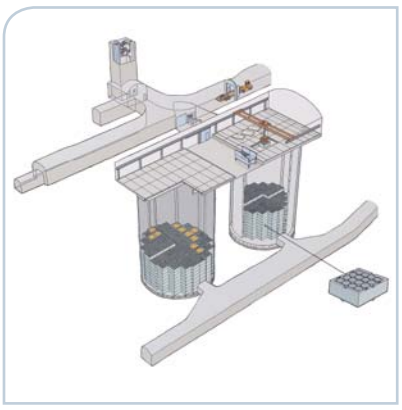
Always the right treatment for power plant waste

On the basis of the radioactivity contained in the waste, we classify the waste produced at the power plant as waste cleared after monitoring, low- and intermediate-level power plant waste, highly radioactive spent fuel and decommissioning waste.

Waste cleared after monitoring has such a minimal quantity of radioactive agents that the waste can be returned to practical use or subjected to final disposal at our landfill site. Waste is produced both in power plant use and in maintenance operations. Maintenance waste cleared after monitoring amounted to 16 (16) tonnes. We also cleared approximately 33.6 (8.8) tonnes of metal from monitoring for recycling, and delivered 16.3 (5.4) tonnes of hazardous waste for treatment.

Protective equipment used at the power plant and in maintenance work, apparatus from the process and insulation materials are low-level waste. We pack them tightly and locate them in the final repository existing in the plant area, at a

Noble gas emissions have not been caused by our operations, and the iodine emissions were only thousandth-parts of the limits set by authorities.



Power plant waste is treated in accordance with the radioactivity it contains and placed in the final repository.

depth of approximately 100 metres. Low-level waste amounted to 117 (113) m^3.

The ion-exchange resins used in the cleaning of process water are intermediate level waste. We mix them with bitumen and locate them in the final repository. Intermediate-level waste amounted to 50 (115) m^3.

Decommissioning waste is the waste generated during dismantling of the power plants, which also undergoes final disposal at Olkiluoto.

We deal with the procurement of uranium as a raw material in the Well-being with Nuclear Electricity: TVO 2009 publication on page 12, and the final disposal of high-level fuel on pages 22–23.

Water recycling reduces consumption of fresh water

In addition to the seawater used as cooling water, we use fresh water at the Olkiluoto power plant for general consumption and process water. No salts, impurities or particles can be present in the boiling process water used in the reactor, as these could damage the internal parts of the reactor. All the required facilities for water treatment are available at Olkiluoto: water treatment plant, desalination plant, laboratory and waste water treatment plant.

The increased water consumption at the OL3 site has increased the consumption of fresh water at the Olkiluoto power plant. A total of 500,669 (485,158) m^3 of water was taken from the Eurajoki River for the power plant.

We prepare household and process water in our own water treatment plant. We clean the water used in the power plant process also with ion-exchange and reverse osmosis techniques. We recycle and purify process water continuously. During annual outages, the fuel basin water is stored in storage basins, from where it is taken to be re-used. These measures reduce the annual need for clean process water and the amount of waste process water discharged by approximately 30,000 m^3.

We treat sanitation water in the Olkiluoto waste water treatment plant, after which it is discharged into the sea. The amount of cleaned sanitation water in 2009 was 157,383 (150,069) m^3. The phosphorus load caused to the seawater was 15 (40) kg, which corresponds to about 0.2% of the load transported along the Eurajoki River. The nitrogen load was 8,395 (6,222) kg, which corresponds to approximately 3.6% of the loading of the Eurajoki River. Biological oxygen demand (BOD_{7ATU}) totalled 1,460 (1,061) kg. The increase in loading derived from the increase in the number of those working at Olkiluoto. We treat sanitary water in accordance with the requirements of the permit regulations and related legislation set for the cleaning efficiency and waterway loading.

The phosphorus and nitrogen discharges released into the sea from TVO's sanitary water treatment plant were a fraction of the load carried by the river in 2009.

The authorities monitor our operations

The operations of a nuclear power plant are subject to permit and are monitored by the authorities. In nuclear, radiation and safety-related matters, STUK – Radiation and Nuclear Safety Authority acts as our official supervisor.

The responsible authority concerning our enviromental permit matters was until the end of 2009 Western Finland Environmental Permit Authority (Regional State Administrative Agency for Southern Finland as of the beginning of 2010), and the supervising authority was Southwest Finland Regional Environment Centre (Centre for Economic Development, Transport and the Environment for Southwest Finland as of the beginning of 2010). Other authorities participating in the management of our environmental issues are, among others, the Environment Office of our resident municipality Eurajoki and the Ministry of Employment and the Economy functioning as the contact authority in the environmental impact assessment procedures.

The radiation monitoring samples taken from the Olkiluoto surroundings are delivered to STUK for analysis. We deliver an annual report about the amounts of waste and emissions caused by our operations to many regional and national authorities. We report our environmental investments and operating costs of environmental protection on an annual basis to Statistics Finland. The annual carbon dioxide emissions of TVO's backup power diesel engines and backup boilers are reported to the Energy Market Authority after verification.

No environmental effects from special situations

In 2009, no special situations or operational disturbances occurred at the Olkiluoto power plant which would have resulted in nuclear safety or radiation-related environmental effects. We provide separate case-based reports in the event of possible special situations and operational disturbances.

Six special reports about our activities were prepared for STUK. Of the events concerned, three were classified as exceptional INES scale Class 1 events in terms of their effect on safety. Two events were classified as class 0 (no significance for nuclear or radiation safety). One event was classified as out of scale by reference to INES.

Environmental permit for Olkiluoto nuclear power plant legally valid

Western Finland Environmental Permit Authority granted TVO an environmental permit with regard to plant units OL1 and OL2 as well as for expanding the power plant with plant unit OL3 in June 2006. After the processing of complaints, the permit became legally valid by means of the resolution by the Supreme Administrative Court in September 2009. The licence decision required, among other things, the updating of our environmental monitoring programme and initiating the removal of the material carried with the cooling water to the plant with the screening waste recovery plant.

The Environmental Permit Authority granted an environmental permit in December 2006 for the closing of the terminated landfill site and for the commissioning of a new one. In accordance with the environmental permit regulations, we closed the terminated landfill site in 2009.

In June of 2009, the Environmental Permit Authority granted a permit in accordance with the Water Act for the construction of a embankment between the islands of Olkiluoto and Kuusisenmaa. The processing of the permit continues in the Administrative Court of Vaasa.

The Finnish Radiation and Nuclear Safety Authority STUK analyzes the radiation monitoring samples gathered from the environs of Olkiluoto.

Olkiluoto nuclear power plant: environmental balance sheet 2009

EMAS
Verified environmental management
REG.NO. FI - 000039

DNV Certification OY/AB granted a certificate in accordance with the ISO 14001 standard for TVO's environmental management system for the first time in 1999. The present certification is valid until 31 May 2011. Our environmental management system includes not only the OL1 and OL2 plant units but also the OL3 plant unit construction stage.

Our Olkiluoto power plant is registered under the EMAS (Eco-management and Audit Scheme) with the code FI-000039. This registration is currently valid until 30 June 2012.

ISO 14001
DNV
SERTIFIED ORGANISATION

Olkiluoto nuclear power plant: environmental balance sheet 2009 (2008)

Emissions into air

Noble gases	0 TBq (Kr-87 equiv.)	(0)
Iodine	0.0000001 TBq (I-131 equiv.)	(0.000002)
Aerosols	0.000059 TBq	(0.00002)
Carbon-14	0.78 TBq	(0.88)
Tritium	0.32 TBq	(0.43)

URANIUM FUEL 39.8 t (40.8)

Intermediate agents:

• bitumen	18 t	(25)
• solvents (consumed)	3 m^3	(3)
• nitrogen (containment)	110 t	(107)
• fuel oil	188 m^3	(167)
• ion-exchange resins	14 t	(21)
• water treatment chemicals	127 t	(112)

Raw water (household and process water) 500,669 m^3 (485,158)

Cooling water 1,826 million m^3 (1,822)

ELECTRICITY 14.5 TWh (14.4)

Municipal waste	*OL1 and 2*	*OL3**	*Total*
• recyclable waste	1,191 t (1,664)	10,896 t (7,189)	12,087 t (8,852)
• landfill waste	531 t (396)	1,601 t (387)	2,132 t (783)
• hazardous waste	60 t (102)	71 t (39)	131 t (141)

** construction stage*

Radioactive waste

• low-level radioactive waste	117 m^3	(113)
• intermediate-level radioactive waste	50 m^3	(115)
• spent fuel	37.1 t	(38.6)

Discharges released into water

Cooling water	1,826 million m^3	(1,822)	
Thermal load into the sea	27.7 TWh	(27.5)	
Fission and activation products	0.0002 TBq	(0.0003)	*Permitted annual maximum* (0.296 TBq)
Tritium	1.85 TBq	(2.39)	(18.3 TBq)
Phosphorus	15 kg	(40)	
Nitrogen	8,395 kg	(6,222)	
BOD_{7ATU}	1,460 kg	(1,061)	

Key environmental figures

	2009	2008	2007	2006	2005
Production process					
OL1					
Net output (GWh)	7,296	7,066	7,335	6,973	7,221
Electricity for own use (GWh)	266	258	268	256	268
Capacity factor (%)	97.0	93.7	97.5	93.8	98.3
Cooling water (million m^3)	923	895	924	886	927
Thermal load into sea (GWh)	14,006	13,516	13,985	13,453	14,184
Operating efficiency (net) (%)	34.2	34.3	34.4	34.1	33.7
OL2					
Net output (GWh)	7,156	7,314	7,051	7,294	6,997
Electricity for own use (GWh)	256	262	251	250	260
Capacity factor (%)	95.1	96.9	93.7	96.9	94.0
Cooling water (million m^3)	903	927	892	924	891
Thermal load into sea (GWh)	13,694	13,965	13,475	13,982	13,535
Operating efficiency (net) (%)	34.3	34.4	34.4	34.3	34.1
Wind power plant					
Net output (GWh)	1.5	1.6	1.8	1.7	2.0
Capacity factor (%)	17	18	20	20	23
Efficiency of electricity production (MW)	1	1	1	1	1
Raw water treatment					
Water (m^3) [1]	500,669	485,158	344,509	280,798	223,373
Sludge (m^3) [2]	44,013	55,630	37,701	31,030	24,120
H_2SO_4 (100%) (kg) [3]	14,925	14,455	14,839	16,964	15,574
NaClO (10%) (kg) [3]	3,996	3,108	2,220	1,332	1,368
NaOH (100%) (kg) [3]	14,853	13,985	21,101	13,405	14,390
Chemical reagents (kg) [4]	35,444	34,584	25,813	22,888	17,719
Sewage treatment					
Water (m^3)	157,383	150,069	101,104	70,795	58,415 [2]
Content (mg/l) [1]					
BOD_{7ATU}	9.3	7.1	12.0	4.5	8.0 [2]
Phosphorus	0.095	0.27	0.15	0.41	0.24 [2]
Efficiency of treatment [1] average (%)					
BOD_{7ATU}	97	98	96	98	96 [2]
Phosphorus	99	97	99	97	97 [2]
Load on sea area (kg)					
Phosphorus	15	40	15	29	14 [2]
Nitrogen	8,395	6,222	4,380	2,555	2,738 [2]
BOD_{7ATU}	1,460	1,061	1,204	318	475 [2]
Compost sludge (t)	3,092	1,532	1,117	349	828
Chemical reagents (kg) [3]	56,062	42,632	36,062	19,950	17,417
Conventional municipal and hazardous waste					
OL1 and OL2 (OL3)					
Landfill (t) [1]	531 (1,601)	396 (387)	130 (122)	133 (57)	202 (53)
Crushed bricks and concrete (t)	182 (376)	519 (40)			
Paper and board (t)	107 (74)	70 (78)	60 (60)	54 (29)	36 (21)
Wood and sawdust (t) [2]	206 (5,310)	399 (4,412)	368 (1,521)	272 (447)	180 (433)
Metal (t)	220 (3,645)	228 (2,046)	155 (819)	141 (108)	125 (134)
Cable scrap (t)	40 (7.5)	29 (2.5)	26 (1.2)	36 (0.7)	26 (0.3)
Refuse derived fuel RDF (t)	326 (1,459)	336 (567)	189 (291)	181 (117)	112 (64)
Bio (t)	99 (24)	69 (44)	62 (37)	58 (24)	59 (8)
Glass (t)	14 (0)	13 (0)	2 (1)	0.4 (0.1)	0.9 (0.1)
Hazardous waste (t)	60 (71)	102 (39)	89 (5)	78 (13)	56 (5)
Intermediate agents					
Solvents (l) [1]	2,849	3,171	4,963	4,795	4,781
Fuel oil (l) [2]	187,537	167,406	181,367	166,960	152,216
Bitumen (kg) [3]	17,550	24,630	18,030	8,620	28,620
Nitrogen (kg) [4]	110,000	107,380	108,688	108,464	89,000
Fuels (l) [5]	79,827	86,848	122,217	106,381	88,297
NaClO (15%) (l) [6]	37,011	40,380	30,800		
Powdered ion-exchange resins (kg)	4,530	6,080	5,300	5,550	4,700
Granular ion-exchange resins (kg)	7,450	13,455	8,683	10,235	11,558
Inert masses (kg)	2,290	1,910	2,520	2,100	2,100
Radioactive wastes					
Low-level (m^3)	117	113	76	549	691
Intermediate-level (m^3)	50	115	36	37	74
Operating waste cleared after monitoring (t)	16	16	22	30	25

[1] Surface water pumped from the Eurajoki River to the Korvensuo reservoir.
[2] Sludge from the chemical water treatment plant at the Korvensuo reservoir.
[3] Chemicals used in water treatment (water treatment and demineralising plant, DynaSand).
[4] Iron and aluminium salts.

[1] Permit conditions for sewage water: BOD_{7ATU} level of sewage discharged into the sea must be no more than 15 mg O_2/l and the phosphorus level no more than 0.7 mg P/l. Efficiency of treatment with regard to the value of BOD_{7ATU} and phosphorus must be at least 90%. All values are given as annual averages.
[2] In 2005, bypass flow totalled 419 m^3. Table shows actual emissions, including bypass.
[3] Kemwater PAX 18, FIN 12.

[1] Calculated in 1997–2004 using coefficient 0.7 (1 m^3 = 0.7 t). Weighing started in 2005.
[2] Values estimated in 1997–2005. Weighing started in 2006.

[1] Tehopesu-Super, Alfa-C, Formula no. 80330, P3 Upon, Pineline, Asetoni, Industol PE 2, (amounts consumed). Attention: In the years 2007, 2008 and 2009, no 80330 & P3 Upon.
[2] Backup diesels and heating boilers (amounts consumed).
[3] For solidifying ion-exchange resins (amounts purchased).
[4] Liquid nitrogen used for the nitrification of the atmosphere of the reactor containment building (amounts purchased).
[5] Consumption by TVO vehicles supplied by TVO's own tanks (petrol+diesel).
[6] Used for prevention of Cordylophora caspia.

	2009	2008	2007	2006	2005
Nuclear fuel					
Amount of nuclear fuel removed from the reactor during the year (OL1 and OL2) [1]					
Assemblies (quantities)	228	238	244	228	234
Assemblies (t)	37.1	38.6	39.9	37.8	38.9
Amount of nuclear fuel transferred to the reactor during the year (OL1 and OL2)					
Assemblies (quantities)	228	234	240	226	234
Assemblies (t)	39.8	40.8	41.6	39.1	40.2
Spent fuels in OL1 and OL2 storage pools and interim storage pools (KPA)					
Assemblies (quantities)	7,210	6,982	6,748	6,508	6 282
Assemblies (t)	1,216.9	1,179.8	1,141.9	1,102.6	1,065.2
Amount of fresh fuel in storage pools (OL1 and OL2)					
Assemblies (quantities)	156	144	142	150	134
Assemblies (t)	27.3	25.1	24.6	26.0	23.3

[1] Computational amount.

Coal fuel					
Coal used for the TVO share of the Meri-Pori coal-fired power plant (t)	299,323	286,839	458,408	524,532	92,414
Noise [1]					
Year	2009	2008	2007	2006 [3]	2005 [2]
Measurement dates	30.10.–13.11.	1.–7.12.	7.–12.2.	11.1.	27.10.
Point 1 (dB)	46	49	53	55	35
Point 2 (dB)				37	
Point 3 (dB)	50	57	65	62	42
Point 4 (dB)	45	47	47		50
Point 5 (dB)				44	
Point 6 (dB)			56	48	
Point 7 (dB)	39	37 [4]	44	48	40
Point 8 (dB)	42	38 [4]	47	48	42
Point 9 (dB)					
Point 10 (dB)	55	62	55	56	
Point 11 (dB)	58	53	45	41	
Point 12 (dB)	54	55	49	54	
Point 13 (dB)	51	50	54	49	
Point 14 (dB)	42	41	43	47	

[1] The noise measurements have been carried out as based on the environmental noise measurement instructions of the Ministry of the Environment.
[2] The results are weighted average results as estimated during a period of three minutes.
[3] Measurement period 10 min., measurement interval 1 s. The measurement points have been changed in accordance with Olkiluoto Noise Study 2006 so that they are comparative.
[4] Measurements performed on Sunday.

Point 1: Luonto/Raunela intersection, nearest regular habitation.
Point 2: Munakari.
Point 3: Main gate, plant end.
Point 4: OL1 water intake screen.
Point 5: Between the training centre and the 110 kV switchgear installation.
Point 6: Olkiluodonvesi, about 1 km away.
Point 7: Nousiainen, villa.
Point 8: Leppäkarta, villa.
Point 9: At the waterworks between OL1 and OL2.
Point 10: OL3 harbour.
Point 11: OL3 parking place.
Point 12: OL3 near truck gate.
Point 13: Satamatie, opposite ONKALO.
Point 14: Visitor centre, terrace.

Radioactive emissions					
Emissions into air					
Noble gases [1]					
TBq (Kr-87 equiv.)	0	0	0.113	0.649	0.152
% of permissible	0	0	0.0006	0.0037	0.0009
Iodine [1]					
TBq (I-131 equiv.)	0.0000001	0.000002	0.000015	0.00016	0.000069
% of permissible	0.00009	0.001	0.013	0.14	0.06
Aerosols					
TBq	0.000059	0.00002	0.00003	0.00004	0.00004
Tritium					
TBq	0.32	0.43	0.38	0.30	0.32
Carbon 14					
TBq	0.78	0.88	1.08	0.77	0.66

[1] Permit conditions for radioactive emissions into air: Noble gases 17,700 TBq Kr-87 equiv., Iodine 0.114 TBq I-131 equiv.

Discharges into water					
Fission and activation products [1]					
TBq	0.0002	0.0003	0.0006	0.0006	0.0007
% of permissible	0.07	0.12	0.19	0.21	0.23
Tritium [1]					
TBq	1.85	2.39	2.41	2.46	1.95
% of permissible	10.1	13.1	13.2	13.5	10.7

[1] Permit conditions for radioactive discharges into water: Other beta-active nuclides 0.296 TBq.

Verified CO_2 emissions at the Olkiluoto power plant					
Backup heating boilers (8 MW + 12 MW = 20 MW) (t)	2	5	1	1	1
Backup diesels (8 x 1.5 MW = 12 MW) (t)	483	433	470	432	392
Total (t)	485	438	471	433	393

EMAS Table

EMAS regulation provision	Title or requirement	Page of report
Annex III 3.2.a	A clear and unambiguous description of the organization and a summary of its activities, products and services as well as its relation to any parent organizations as appropriate.	Well-being with Nuclear Electricity: TVO 2009; 2, 3, 10–12
Annex III 3.2.b	Environmental policy of the organization and a short description of the environmental management system.	9–13, 17, 36–38, www.tvo.fi
Annex III 3.2.c	A description of all the significant direct and indirect environmental aspects that result in significant environmental impacts, and an explanation of the nature of the impacts as related to these aspects.	10, 13
Annex III 3.2.d	A description of the environmental objectives and targets in relation to the significant environmental aspects.	11–12
Annex III 3.2.e	A summary of the data available on the performance of the organization against its environmental objectives and targets with respect to its significant environmental impacts. The summary may include figures on emissions, wastes, consumption of raw material, energy and water, noise as well as other aspects indicated in Annex VI. The data should allow for year-by-year comparison to assess the development of the environmental performance of the organization.	9–19
Annex III 3.2.f	Other factors regarding environmental performance, including performance against legal provisions with respects to their significant environmental impacts.	10, 14–16
Annex III 3.2.g	The name and accreditation number of the environmental verifier and the date of validation.	21

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 environmental policy, internal audits and environmental programmes and the Environmental Management System are fulfilling the requirements stated in (EY) nr. 761/2001.

Scope and methodology of verification

The verification of EMAS statement has been carried out at TVO's Olkiluoto unit on February 18 and 19, 2010. The coverage and credibility of the report and reported data has been verified based on written evidence. 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 2009, which comprises the following three publications: Well-being with Nuclear Electricity TVO 2009, Annual Review 2009 and Corporate Social Responsibility Report 2009, is presenting an overall 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 761/2001.

The Corporate Social Responsibility Report 2009 is also well reflecting the commitment of Teollisuuden Voima Oyj to the management and improvement of Safety, Quality, and Environmental aspects in its operations.

In Mustasaari 24.2.2010
DNV Certification OY/AB
EMAS- Accredited Verifier
FIN-V-0002

Seija Meriluoto
Lead Verifier, Lead Auditor

DET NORSKE VERITAS 1864 HELSINKI

SOCIAL RESPONSIBILITY

Continuous dialogue with stakeholder groups

Our most important interest groups are our personnel, owners, the authorities, neighbours and neighbouring municipalities, decision-makers, financiers, subcontractors and suppliers, as well as the media. We engage in continuous dialogue with them. We want to be a good 'business citizen'.

TVO's personnel are pioneers in the nuclear power field. We look after our jobs responsibly, in a highly motivated manner, competently and with a commitment to observing agreed operational modes.

At the end of 2009, TVO employees totalled 797 (777) people, with the average during the year set at 830 (806). Permanent personnel at the end of the year amounted to 717 (709).

Employment relationships at TVO are long and personnel turnover is minimal. The average period of employment for our personnel was 15 years. There are many Finnish pioneers in the nuclear field in our employ. As a result of the OL3 project, we have hired new pioneers and are ensuring the preservation of strong know-how.

Women made up 21 (20) per cent of our personnel. A total of 18 (15) women work in management and supervisory tasks in the various units. There have not been any women on our Board of Directors. One woman was in our Management Group. The average age of our personnel was 44.6 (44.4).

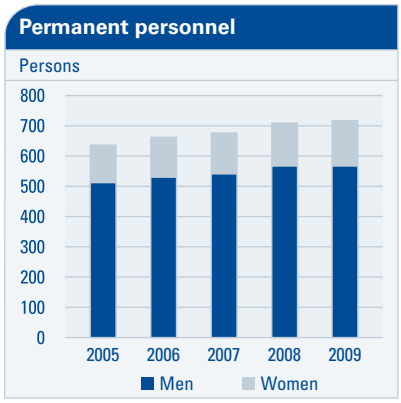
TVO has interest as a working place

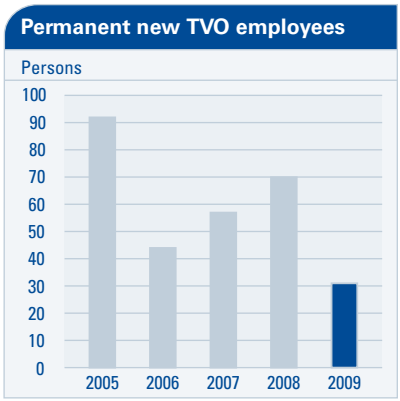
In 2009, we hired 31 (70) new people for permanent employment, of which women numbered 10 (16). The average age of these new TVO employees was 34 (33). During the year, 23 (37) left the permanent employ of the company, 13 (12) of whom retired.

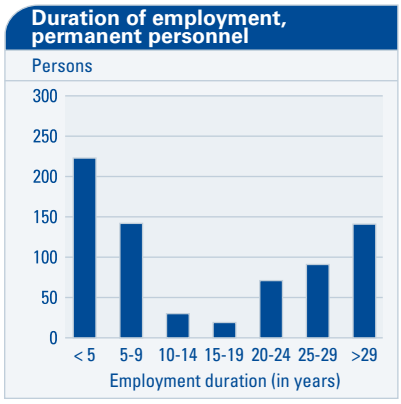
We received 512 (806) applications for positions open. We had open applications arriving in abundance as well as over 700 practical summer work experience applications. During the summer, 186 (166) youths participated in practical work experience. Of these, 54 (72) were studying at university, and one-third were enrolled at universities of applied sciences. Moreover, there were students from vocational colleges, upper secondary schools, comprehensive schools and other educational institutions. A total of 96 (78) of the summer workers were completing their studies in technical fields. The practical work experience periods were 1–4 months in length.

We spent EUR 55.4 (55.0) million on personnel costs, of which salaries totalled EUR 45.7 (44.2) million, pension charges EUR 7.7 (7.1) million and other compulsory expenditures EUR 2.0 (3.7) million.

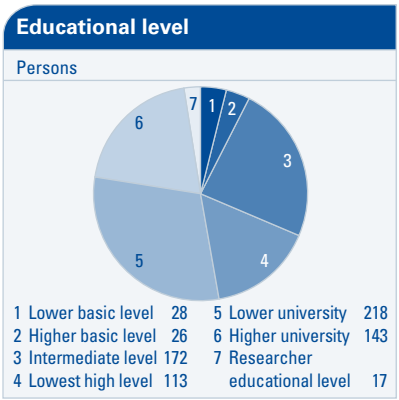
We observe the collective labour agreements in the energy field. The salary systems agreed within the energy field for technical and industrial office personnel as well as other employees are based on the competence classifications for the jobs concerned, and support the implementation of equal salary policies. Various employment relationship benefits concern the entire personnel as a rule, with the exception of those who have very short labour contracts.





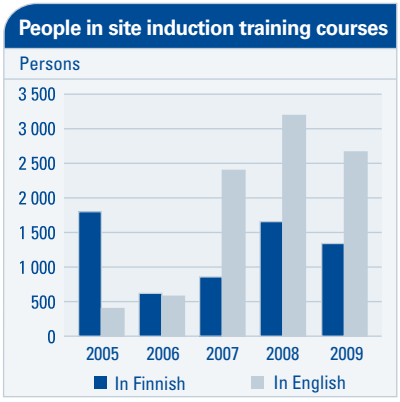


Educational level



Training days in total

People in site induction training courses



Flexible working hours ease the daily life of TVO employees

We have created prerequisites for harmonizing working life and free time. The personnel can take advantage of a system of flexible working hours. The features of the system are that the working days are from Monday to Saturday, daily working time is between 6 a.m. and 8 p.m. and, in addition to daily flexitime, it is possible to have a whole day off.

Our employees value this flexible working time system because it suits a variety of situations involving the balance of work with daily life, such as daily child-care organization, procedures related to sickness, coordinating hobbies, arranging the care of aged parents or relatives, and studying.

Our personnel have the possibility of remaining on alternation leave or doing part-time work. Those on part-time retirement totalled 19 (11) and 2 (5) persons were on alternation leave. At the outset of the 1990s, we also had a longer-term sabbatical leave system in effect. During the year, 4 (4) persons had taken sabbatical leaves (3–6 months). About 170 (180) people have accrued sabbatical leave, totalling approximately 7,900 (8,000) days.

Our personnel clubs offer possibilities for exercise and recreation with sport, cultural and leisure activities. Holiday locations are also at our personnel's disposal for their free-time enjoyment.

Development in participatory work programmes

We continued the development of shift work and implemented a control room rest experiment approved by the Finnish Radiation and Nuclear Safety Authority STUK. In the OL1 and OL2 control rooms, employees work according to a six-shift system in which the length of each shift is 12 hours. During the control room rest pilot project from July to December, the control room personnel could take a nap of 30 minutes at maximum during the night shift. The experiments of the pilot project were quite positive, and in 2010 we intend to make the practice permanent.

We implemented a personnel research in cooperation with Corporate Image Oy. TVO's working atmosphere and work satisfaction were confirmed to be on a good level. Significant changes on the previous study conducted in 2006 did not emerge. According to the research, our personnel wish to have more information about various career possibilities at TVO. On the basis of the research, we also launched a development project in which each TVO employee makes proposals for the development of their own as well as TVO's activities.

Occupational health care expanded by accident and medical cost insurance

To ensure successful coping with work, we look after the working capacity and well-being at work of our employees as well as the continuous development of know-how. We offer

Among other places, our personnel have leisure cottages available to them in Lapland.

opportunities for job rotation and for new, challenging tasks. As part of our working capacity maintenance efforts, we arranged various Well-being at Work events: for instance, Enjoy Your Work and Work, Family and Me lectures.

Occupational health service functions are guided by an operational plan. The costs for occupational health care reached approximately EUR 0.6 (0.6) million. The occupational health services at Olkiluoto are provided by private clinic Minerva on workdays through the occupational health centre. The latter is manned by an occupational health physician as well as a nurse and physiotherapist specialized in industrial health. With regard to our Helsinki office, the services are provided by Mehiläinen's medical centre, Forum.

In addition to the services legislated by law, our occupational health services include nursing services affirmed according to requirement by a company physician on the general medical level, consultations by a specialist, and work-related physiotherapy services. Our occupational physiotherapist provides guidance and advice connected with, for instance, ergonomics at work. The coverage of occupational health care has been expanded with accident and medical cost insurance.

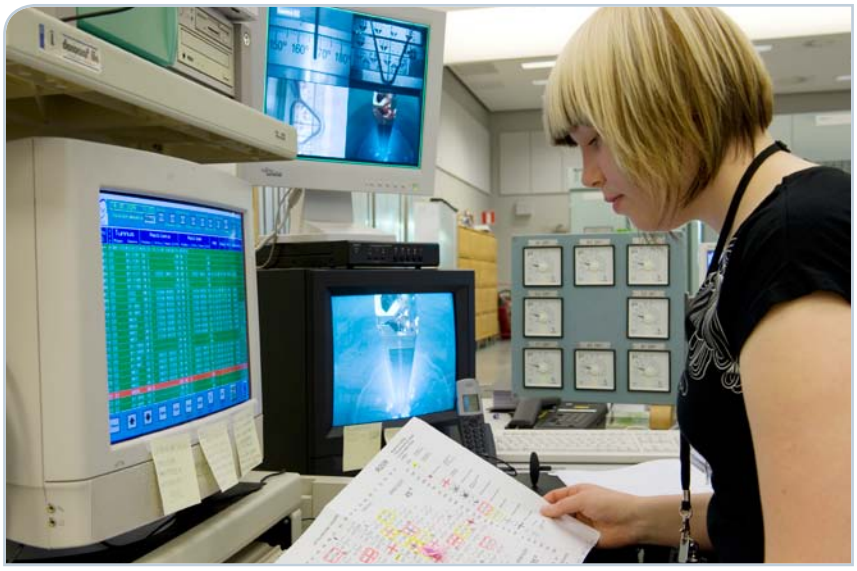
All personnel in the performance-related salary system

Our entire personnel is involved in the performance-related salary system. Performance-related compensation is specified on the basis of measurement and assessment of the quality and effectiveness of operations conducted by the company and its operating units. Since 2005, our personnel have been able to invest their performance-related compensation in a personnel fund. Over half of the personnel members have invested such compensation in the fund during its years of operation.

We offer our employees work transportation from Rauma and Eurajoki. Eleven bus service runs go to Olkiluoto daily from Rauma, six from Eurajoki. About 60 per cent of our personnel live in Rauma and about 20 per cent in Eurajoki.

Together with our personnel groups, we held 3 (4) personnel meetings in which we discussed work transportation bus runs, matters connected with industrial safety, the standard of personnel cafeteria operations, performance-related salary systems and the results of personnel research. In addition, the cafeteria committee discussed the development of personnel cateria operations, the holiday committee distributed the holiday periods to the personnel and discussed questions concerning holiday making locations, and the initiatives committee took up the proposals suggested by personnel and rewarded members of personnel. Moreover, the personnel have administrative representation in the company's Management Group.

In the development project we launched, each TVO employee makes suggestions for the development of his/her own work.



Possibilities for continuous learning and development

We offer our personnel the opportunity for continuous learning and development. We continuously transfer know-how and plant-related ability to new skilled personnel.

Our personnel have unique know-how in the development of the nuclear power plant infrastructure, the successful operation of the plant units, their maintenance and modernization projects, and the planning and construction of the new plant unit. Personnel turnover at Olkiluoto has been minimal, but there will be more and more transition to retirement before us in the years to come. We shall be continuously transferring the know-how and plant-related ability we have obtained to new skilled personnel.

About 40 per cent of our personnel have been in the employ of the company for over 20 years. During the last five years, we have recruited almost 300 new persons for various jobs. The new ones working in the OL3 project are being trained for the tasks connected with the coming operations during the construction and initialization stage.

A training and development plan for every TVO employee

Personnel that are motivated in their tasks, professionally skilled and competent ensure the safe operation of a nuclear power plant. We are achieving a high level of expertise by means of, for example, a general know-how survey, position-specific training requirements and programmes, work task rotation and orientation programmes. Training specialists plan, along with supervisors, a suitable orientation for each TVO employee and put together a training and development plan.

In the management of know-how, we apply a position-specific method in which we have specified the minimum competence requirements with training plans for an office group performing the same function. Our method is an application of the SAT (Systematic Approach to Training) method developed by the International Atomic Energy Agency (IAEA).

We annually prepare the company's annual training programme, which is based on the position-specific training requirements coming from the organizations, while taking into account the management's development-based targets for personnel and other current training needs. The programme functions as systematic support in the maintenance and development of personnel know-how and competence.

We trained our personnel for a total of 9,008 (8,869) days – i.e. an average of 12.5 (12.7) days per each TVO employee. The emphasis in education was on the basic training of new people and the development of technical expertise and supervisory skills. The goal of the development program in supervisor skills is to give supervisors both knowledge- and competence-based supervisor readiness.

In 2009, we launched our own, company-based TVO/Posiva Pioneer & Supervisor Training Programme. A total of 14 are taking part in the advanced training programme for supervisors, which lasts one year. The course deals with, for instance, strategic management, supervisor communications, corporate finance, work-related legislation and leadership. As tools for the development of supervisor skills, we also initiated assessments of supervisor skills.

Via training to Olkiluoto

In our ten-day orientation training programme, we tell new TVO employees about our operations at Olkiluoto, the working environment and procedures connected with daily work. We introduce the persons in charge of various operations and the in-house information sources. The initial-stage basic training includes, among other things, Occupational Safety Card training, a fire safety course, power plant familiarization course, high-quality and productive operations and the permit-sanctioned operation of a nuclear power plant.

We arrange induction training to all who work at the OL1 and OL2 plant units, in which we provide basic information on radiation, the environment, fire and occupational safety protection and the procedural modes of a nuclear power plant. Induction training was completed by 1,382 (1,530) people and was given in Finnish, Swedish, English and German.

We demand familiarity with security and occupational safety matters from those working in the site areas

Training days 2005–2009

Year	2009	2008	2007	2006	2005
Total	9,008	8,847	10,166	11,065	10,037
Internal	8,383	8,271	9,446	10,290	9,369
External	625	576	720	775	668
Employees: total	8,038	7,874	9,299	10,379	9,347
Workers: total	970	973	867	686	690

TVO employees' training days according to theme

	Theme	Days 2009	Days 2008
00	Technology, general	52	32
10	Technology, nuclear	1,112	1,317
20	Technology, plant	2,281	2,169
30	Technology, operation	1,795	1,549
40	Maintenance	433	490
50	Protection and emergency	1,334	1,131
60	Management and economics	204	284
70	ADP and IT	130	302
80	Cooperation and communications	207	357
90	Other	835	640
	Total	**8,383**	**8,271**

of Olkiluoto nuclear power plant and arrange site induction training composed of related themes, etc. Site induction training was completed in 2009 by 3,997 (4,839) people. The teaching languages for site induction training were Finnish and English.

Together with Lappeenranta University of Technology, the Ministry of Employment and the Economy, the Finnish Radiation and Nuclear Safety Authority (STUK) and other operators in the nuclear field, we arranged a National Nuclear Safety course for the seventh time. The National Nuclear Safety Course is instruction covering six study modules totalling about 20 contact-teaching days directed towards those working in the nuclear field. Its participants are led through the functions of a nuclear power plant and themes connected with nuclear safety. A total of 65 took part in the course, of which 15 were TVO employees.

Operational situations practised in simulator training

We demand a high level of basic professional know-how from persons working as nuclear power plant operators. In addition to this, we give them training in nuclear power plant technology.

Operators receive, as support for their theoretical instruction, operational experience on a power plant simulator as well as guidance in practical procedures from a more experienced working pair. The total length of the basic training varies between two and three years, depending on the type of power plant concerned and the total number of practical work experience periods while the training is going on. The duration of the on-the-job training is at least half a year, and it begins at the end of the basic instruction stage after a written examination. Those who pass the examination successfully can be licensed as operators.

We maintain the competence of operators annually by means of organized theory and simulator training. We verify this competence at designated interims by oral examination and with practical simulator tests.

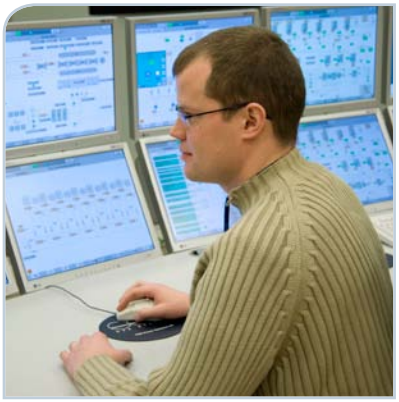
The plant operators who have operational licences for plant units OL1 and OL2 participated in the operational training days and advanced simulator courses, by which we also assessed the operations during work shifts in which the simulated problem situations occur. We organized a 10-day simulator course for 14 work shifts. A total of four new operators graduated during the year, and four persons began the operator training.

The year 2009 was a special anniversary year for the OL1 and OL2 simulator. The nine-week basic course initiated in March was the tenth for the simulator built in 1990, and we have arranged a total of 40 advanced courses using this equipment.

We continued the instruction of OL3 plant unit operators according to the plans.

TVO employees participated in 12.5 days of training on average in 2009.

Each year the power plant operators practise various situations in a 10-day simulator training.



Long-term work to prevent workplace accidents

We made progress in our occupational safety effort. Our target is to prevent accidents in accordance with the zero-accident concept. We look after working conditions and the atmosphere at work.

Our goal in the occupational safety effort is to prevent accidents in accordance with the zero-accident concept and nurture a good working atmosphere; good, safe working conditions and work-related enjoyment. The certified OHSAS 18001:2007 compliant occupational health and occupational safety system is at our disposal.

We made progress in our occupational safety effort. Work accidents requiring more than one day of absence occurred 2 (5) times, and the frequency of accidents came to 1.5 (3.8) accidents per million working hours. The degree of accident seriousness came to 11.5 days per accident. During journeys between home and the workplace, one accident occurred leading to absence from work.

Our occupational safety organization is comprised of an occupational safety manager, two occupational safety engineers and an occupational safety expert. In addition, we have appointed representatives working as occupational safety personnel to ensure conformity with the industrial cooperation required by the Occupational Safety and Health Act. The occupational safety personnel are an industrial safety delegate for the workers and two deputy delegates in addition to seven industrial safety representatives, an industrial safety delegate for the office personnel and two deputies. There is a TVO occupational safety manager as well as two occupational safety engineers on the OL3 worksite.

Those working at Olkiluoto must complete an Occupational Safety Card

We are a member of the Zero Accident Forum. The Zero Accident Forum awards level classifications on an annual basis to those member workplaces that have successfully increased their occupational safety. In granting the level classification, the forum inspects the frequency of accidents at the workplace as well as their seriousness. In addition, it is required that accident investigation and the report procedure are both properly performed. In May 2009, we achieved a diploma for compliance with classification I (World peak).

For the purpose of acknowledging even small events and realizing possible procedures that can rectify them, we have a near-miss report system and, during annual outages, safety-related occurrence cards that were in active use. We received 166 (111) near-miss reports, and safety-related occurrence cards filed during annual outages totalled 193 (147).

Having a Finnish Occupational Safety Card is one of the requirements for obtaining access permission for those working at Olkiluoto. We arranged 12 basic training events for the Occupational Safety Card, in which 98 people (86) took part. We organized 42 supplementary Occupational Safety Card training sessions which were attended by 677 (102) people. In order to achieve our zero-accident target, we also arranged occupational safety information sessions for the personnel of our various offices, gave occupational safety instruction to subcontractors, and were involved in training during the Radiation Contact Person Days, Equipment Responsibility Days and in induction training.

In 2010, we are giving our attention to modifications and the safety plans for our projects and their development, the advancement of safety-related risk detection, and to the harmonize the occupational safety procedures of the existing plant units and the OL3 unit.

OL3 site has its own occupational safety system

The OL3 construction worksite has its own certified OHSAS 18001:2007-compliant occupational and work safety system. Occupational safety is being promoted by over 10 full-time supervisors. Some of them are employed by TVO, others by the construction consortium, but the majority are working for subcontractors. In 2009, the frequency of accidents on the worksite was 12.7 (13.8) LTA1.

The OL3 site is also a member of the Zero Accident Forum. The OL3 site safety culture has been rigorously built on the basis of the zero-accident concept from the very beginning by producing and developing occupational safety-related instruction given on the worksite as well as through guidelines, active follow-up and safety-based detection.

Radiation doses remained low

Our goal is to keep radiation exposure that is harmful to health as low as possible. Once again, the radiation doses come well below the maximum limits set by the authorities.

We monitor radiation doses continuously on the part of those who work in the controlled area of the power plant by means of personal dosimeters. The radiation protection of the nuclear power plant looks after the radiation supervision of both the interior of the facility and the environment. We implement environmental radiation supervision in accordance with a comprehensive measurement and sampling programme.

Workers' radiation doses remained, as in the manner of previous years, clearly below the maximum dose limits set by the authorities. At Olkiluoto nuclear power plant, the accumulated total radiation dose in 2009 was 1,186 (936) manmSv. The radiation dose was increased by the preparation for the coming major annual outages. The total calculated radiation dose of the OL1 plant unit was 395 (725) manmSv and that of the OL2 unit 791 (211) manmSv.

The final calculated dose for the year respective to our personnel was 257 (217) manmSv. For external personnel, the total calculated radiation dose totalled 929 (719) manmSv. The largest personal dose of the year at Olkiluoto nuclear power plant was 9.90 (8.10) mSv, i.e. below one-fifth the annual dose limit according to the legislation on radiation. The total number of persons subjected to personnel monitoring was 2,552 (2,355) and the doses entered totalled 1,192 (1,031) people.

According to the national dose register of the Finnish Radiation and Nuclear Safety Authority STUK, no radiation workers have received any amount of radiation exceeding the annual dose limit during the years 2005–2009 in Finland. The limits are 50 mSv in one year and 100 mSv over the course of five years.

The calculated value of the radiation dose caused by the power plant to residents in the vicinity was 0.26 (0.26) microsieverts. The average radiation dose of a Finnish citizen from various sources is approximately 3,700 microsieverts.

In the internal contamination measurements carried out by STUK on residents in the vicinity, power plant-derived radioactive nuclides were not detected, nor were any of the plant's radiation workers found in any case to show internal exposure exceeding the entry threshold value of 0.1 mSv.

Minimal radiation dose from OL1's refuelling outages

Refuelling and maintenance outages alternate in the annual outages of our plant units. The collective dose accrued during the annual outages was 83.5 (83.0) per cent of the total dose for the year.

A combined plant units main entrance building was completed for the annual outages, in which a new double monitoring and electronic dosimeter system are in use. During the first stage of double monitoring, the person is measured with the basic protective clothing of the controlled area on, and during the second stage

Leaving the controlled area always proceeds via radiation measurement. Pictured: the first monitoring stage of double monitoring.

In the annual outage, new fuel is replaced in the reactor. Pictured: the reactor's cover.

the measurement is conducted from the surface of the skin after removing the protective clothing. By means of these measurements, we ensure that radioactive contamination does not escape from the power plant.

The radiation dose of the OL1 refuelling outage was 265 (613) manmSv. The largest work-related doses were caused by the inspections of the tubes and the preparation tasks for changing the inner isolation valves of the main steam lines.

The steam dryer we renewed in 2006 keeps the steam humidity low. At the same time, the dose rates have declined in the turbine plant during the annual outage. During the annual outage in OL1, the average general level of dose rate in the turbine plant declined by reference to 2008 about 27 per cent.

Renewal of the steam dryer has reduced the radiation levels of the turbine plant during annual outages.

Maintenance outage in OL2

The total dose of the maintenance outage in OL2 came to 725 (163) manmSv. In the maintenance outages, the largest accrued from inspections of the pipe systems, changing the valve of the shutdown reactor cooling system, the preparations to changing the inner isolation valves of the main steam lines, and the work to the reactor hall.

The steam dryer we changed in OL2 has been in the reactor for two operational periods. During the annual outage of the turbine plant, the general dose rate levels declined due to the dryer fresh steam approximately 28 per cent on average as compared to 2008.

The comprehensive maintenance outage in 2010 in the OL1 plant unit will provide plenty of challenges both with regard to radiation protection and for power plant personnel. Our goal is to further improve radiation protection operations and the procedures in the controlled area of the power plant.

We emphasize good practices and aspects on radiation safety for the entire personnel with regard to production expectations in accordance with the respective Good Radiation Safety standard. We shall bring the double monitoring project to a close by the annual outages of 2010, at which time we shall obtain two-stage personal monitoring in use in accordance with modern requirements at all access points of the plant units and the spent fuel storage facility.

Interactive cooperation with neighbours

Our aim is to increase the awareness of our stakeholder groups with regard to the necessity, features and environmental impacts of nuclear power. We want to be a good neighbour.

We tell about our events and our operations openly and in versatile ways. Our most important interest groups are our personnel, owners, the authorities, neighbours and neighbouring municipalities, decision-makers, financiers, subcontractors and suppliers, as well as the media. Our stakeholder groups were defined by our Corporate Social Responsibility Group in autumn 2008.

Continuous dialogue goes on with our stakeholder groups.

We maintain contact with nearby municipalities by means of a municipal cooperation group. It convened three times to discuss matters of current interest. Matters of interest for discussion were the OL4 project, progress on the OL3 site and the modernization of the OL1 and OL2 plant units. The cooperation group was also presented with the quarterly and annual reports from the Finnish Radiation and Nuclear Safety Authority STUK.

In June, we served coffee on the marketplace in Eurajoki, and the same in Rauma in August. During these events, all who wanted to do so could discuss with our specialists about our company and questions related to nuclear power. About 300 (350) people joined us for coffee in Eurajoki and in Rauma 400 (600) did the same.

We ran an active communication campaign about our operations and events throughout the year. During the year, we sent 20 (17) press releases and arranged 7 (9) press conferences as well as one (one) stakeholder group seminar. We published 4 (3) Ytimekäs stakeholder group periodicals and 4 (4) TVO Uutiset news publications, and 4 (3) issues of What's On, directed to those working on the OL3 site. Our digital newsletter appeared 3 (3) times.

The most important tool for internal communications is the company's intranet, OlkiNet. Approximately 30 TVO employees from various units in our organization produce content for it. We arranged 3 (4) President and CEO´s briefings to our personnel which covered topical issues for the company.

Active nuclear power-related communications

The Visitor Centre at Olkiluoto is open to the public every day 10.00–20.00 h, and anyone can drop in without a reservation. The exhibition therein explains the production of nuclear power and covers the entire life cycle of uranium fuel from excavation to final disposal. Groups that announce their arrival in advance get a guide for their exhibition tour. A total of 12,724 (15,209) people participated in guided tours, and 6,079 (6,546) got acquainted with the exhibition on their own: a total of 18,803 (21,665) visitors.

We organized what is already a tradition – three science and tech-

President of Lithuania Valdas Adamkus (on the right) visited Olkiluoto in April, and discussions were held with, among others, TVO's President and CEO Jarmo Tanhua (on the left).

Our main sponsoring target is the Finnish Ice Hockey Association.

nology camps for children with the theme "Interest is awakened by trying things out". These camps lasted one week and 22 (22) children participated in each one. The young campers got familiar with natural science and technology on their own terms.

We took part in various seminars, lectures, events and fairs. We presented our operations to young people at, for instance, the NextStep fair and at a few other recruiting events for students. In June, we were strongly present at the Satakunta on Senate Square event.

Our main sponsoring target is the Finnish Ice Hockey Association. In our vicinity, we especially support sport, and cultural activities and associations.

Our operations in Olkiluoto offer work opportunities for our partners. Our long-term corporate partners are Securitas Oy, taking care of guarding and surveillance; Sodexo Oy, which looks after the cafeteria; and RTK-Palvelu Oy, which arranges cleaning and sanitation services. These companies employ about 300 people at Olkiluoto.

The Corporate Social Responsibility Group guides responsible action

In the development and implementation of TVO's social responsibility, the company management is aided by the Corporate Social Responsibility Group.

The group takes the recognition and development of TVO's social responsibility forward and reports on actions related to the subject to the President and CEO and Senior Vice Presidents. Social responsibility is communicated by the group to our own personnel as well as outside the company to various stakeholder groups.

At the beginning of the year, Ms. Anneli Nikula acted as chairperson for the Corporate Social Responsibility Group. With her transfer to Corporate Adviser in our company, the functions of the group are now led by Anna Lehtiranta, Senior Vice President, Corporate Relations.

The total number of members in the Corporate Social Responsibility Group was increased in autumn 2009. The new members of the group are Ms. Tuula Purra, Head of Uranium Section, Nuclear Fuel; Mr. Samuli Lehtonen, Quality Engineer, Quality and Environment Office; Ms. Riitta Dersten, Environmental Specialist, Quality and Environment Office; Ms. Leena Wartiainen, Head of Personnel Services; and Ms. Sini Gahmberg, Communications Officer, Corporate Relations, who acts as the group's secretary.

The other group members continue as before: Ms. Kaija Kainurinne, Manager, Brussels Office; Ms. Päivi Lahti, Manager, Accounting; Mr. Jouni Punnonen, Manager, Corporate Relations and Ms. Maija Löytömäki, Head of Corporate Social Responsibility.

Our Group convened 3 (6) times.

We present TVO and our operations in various recruiting events for young people in, for instance, Rauma, Turku, Tampere, Helsinki, Oulu and Lappeenranta.

Key social figures

	2009	2008	2007	2006	2005
Structure of personnel					
Personnel, permanent, 31 December	717	709	676	662	636
Men	567	567	541	530	512
Women	150	142	135	132	124
Personnel, fixed-term, 31 December	80	68	74	68	55
Average age of personnel [1]	44.6	44.4	44.8	44.9	45.0
Perssonnel living in (%) [1]					
Eurajoki	20	19	20	19	20
Rauma	57	57	56	59	59
Pori	9	9	8	8	8
other	14	15	16	14	13
New TVO employees [1]	31	70	57	44	92
Average age of new TVO employees [1]	34	33	34	32	31
Incoming turnover (%) [1]	4.3	9.9	8.4	6.6	14.5
Outgoing turnover (%) [1]	3.2	5.2	6.4	2.7	3.8
Number of retirees [1]	13	12	13	8	14
Average age of retirees [1]	64	63	62	62	62
Summer workers	186	166	172	199	192
Competence					
Average length of service (years) [1]	15	15	15	16	16
Training days per person	12.5	12.7	15.2	16.9	16.5
Total training days	9,008	8,869	10,166	11,065	10,037
Training days					
senior salaries employees	4,254	4,233	4,528	5,214	4,315
technical salaries employees	3,125	2,985	3,997	4,218	3,764
industrial salaries employees	257	233	297	227	259
workers	970	973	867	686	690
fixed-term employees + others	402	445	480	720	1,003
Site entry training courses in Finnish	261	315	166	140	143
participants	1,337	1,653	855	618	1,796
Training sessions in English	149	159	123	102	95
participants	2,660	3,187	2,394	577	399
Occupation Safety Card training courses	54	19	12	12	29
persons given the Card	775	189	85	176	908
Well-being at work					
Absence due to illness (%)	3.5	3.9	not calculated	3.4	3.1
Absence due to illness, hours per person	60	79	not calculated	72	65
Employees who had no sick days during the year [1]	185	200	215	216	234
Accidents of TVO personnel					
- absences more than one day [3]	2	5	8	2	5
- absences due to occupational accidents (days)	23	13	76	27	43
- occupational accidents per one million working hours	1.5	3.8	6.2	1.7	4.8
- zero accidents, no absence	4	4	5	5	4
- accidents on the way home or to work [3]	1	5	2	23 [2]	2
Near misses, number	359 [4]	111	128	116	56
Accident of TVO´s sub-contractors, absences more than one day (LTA1)	11	11	17	15	12
All accidents at OL3 absences more than one day (LTA1)	105	92	53	20	20
Personnel maximum radiation dose (mSv)	9.9	8.1	9.35	12.20	11.90
Collective radiation dose (manmSv)	1,186	936	1,180	2,201	2,286
Annual outage radiation dose (manmSv)	990	776	1,031	2,018	2,103

[1] Data reported only on the permanent personnel.
[2] The bus fell on its way to Olkiluoto.
[3] Reporting procedure changed.
[4] Occupational observations included.

GRI Indicator Table

Comparison of report with the recommendations of the Global Reporting Initiative guidelines

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

	GRI content	Corporate Social Responsibility Report 2009	Well-being with Nuclear Electiricity TVO 2009	Corporate Governnance Statement 2009
		Page	Page	Page
1.	**Strategy and analysis of sustainable development risks and opportunities**			
1.1	Review by the President and CEO		4–5	
2.	**Organizational profile**			
2.1–2.10	Basic information on organization		2–3	
3.	**Report parameters**			
3.–3.3	Report description	Inner cover		
3.4	Contact information	32, inner back cover		
3.5–3.8	Report scope and boundary	Inner cover		
3.10–3.11	Report coverage	Inner cover		
3.12	GRI Content index	34		
3.13	Verification	35		
	Governance, Commitment and Engagement			
4.1–4.4	Govenance			1–15
4.14–4.15	Stakeholder engagement	23, 31		
	Key financial figures	7		
	Key environmental figures	18–19		
	Key social responsibility figures	33		

Verification of conformity

DNV Certification OY/AB has verified Teollisuuden Voima Oyj's Corporate Social Responsibility Report 2009. The Report for 2009 comprises the following three publications: Well-being with Nuclear Electricity TVO 2009, Annual Review 2009 and Corporate Social Responsibility Report 2009.

Scope and methodology of verification

This verification included the examination of the publications Well-being with Nuclear Electricity TVO 2009 and Corporate Social Responsibility Report 2009. All the financial figures included in the reports are based on figures presented in TVO's Annual Report 2009, 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 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 system aims at describing the environmental aspects, goals and targets, as well as their attainment, more clearly than earlier.
- 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 operating procedures and the pursuit of its strategic goals and a high-level safety- and environmental culture within its operations.

In Mustasaari 25.02.2010

DNV Certification Oy
EMAS-Accredited Verifier FIN-V-002

Seija Meriluoto
Lead Verifier, Corporate Social Responsibility

DET NORSKE VERITAS 1864 HELSINKI

Company level policies

Safety culture

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

Safety culture is the product of the organisation's operating approach and the attitudes of individual people and the result is that the factors which affect the safety of a nuclear power plant receive the importance each of them merit, and are of primary importance when decisions are being made.

Company level policies

TVO and its personnel act in accordance with the policies specified by the company.

Laws, regulations and official instructions as well as international agreements are followed uncompromisingly. TVO sets demands for its own operations that are stricter than the statutory regulations.

TVO requires its business partners and those people working at Olkiluoto to commit to a high level of safety culture and high quality operating procedures. This means that companies and people contracted to work directly or indirectly operate responsibly in accordance with TVO's principles governing environmental, nuclear safety and quality policy as well as data security.

Nuclear safety and quality policy

The nuclear safety and quality policy comprises nuclear safety, radiation protection, and the supervision of nuclear material and quality.

Nuclear safety

TVO is committed to maintaining operating conditions in which it is possible to implement effective procedures in terms of safety, quality, and cost. This safeguards the ability to produce competitive electricity safely and reliably over the long-term as well.

TVO's operations may not cause harm to people, the environment, or property.

Radiation protection

TVO and its personnel are committed to the ALARA (As Low As Reasonably Achievable) principle in all radiation protection operations. Accordingly, individual and collective radiation doses are kept as low as possible by all practical means.

Restricting doses and keeping radioactive emissions as low as possible are both taken into account when structures and operations are being planned. All employees must take into consideration matters affecting radiation protection in their own work.

In planning radiation protection, international recommendations are taken into account in addition to official guidelines.

Nuclear material supervision

TVO takes particular care with nuclear material and makes sure that it does not fall into the wrong hands.

Quality

TVO ensures that the company employs high-quality working methods. They are the basis for a safe and economical operation. TVO employees are well aware of the importance of safety in their work.

Issues are dealt with openly. Competence and operations are developed on the principle of continuous improvement. Employees are encouraged to point out any possible areas for improvement and to report any shortcomings, nonconformities or faults that they observe.

We consider our internal clients to be just as important as our external ones. Our work is professional, of high quality and delivered on time.

TVO develops co-operation with its suppliers so that safety, utilisation, and environmental considerations at the plant units are maintained at a high international level.

Social responsibility policy

Social responsibility policy involves the environment, procurement, personnel, occupational safety and public relations.

Environment

TVO operates in accordance with the principles of sustainable development. TVO takes responsibility for its environment by minimising the detrimental effects of its activities and taking care of the waste it generates, by checking and examining the state of the natural surroundings and, if necessary, taking immediate corrective action. TVO nurtures the skills and expertise of its personnel in environmental matters. TVO endeavours to take the lead in the management of environmental matters.

TVO's objective is to reduce the already low emissions from radioactive materials in accordance with the principle of prevention and continuous improvement. Any non-conformities in the plant process are anticipated, and action is taken to prevent any resulting detrimental effects to the environment.

TVO understands the importance of its overall responsibility for all the stages in the fuel cycle. The company monitors and checks the management of environmental matters by fuel suppliers. TVO requires its suppliers to be responsible for protecting and developing the living conditions around the mining areas, while taking the indigenous population into account. The fuel is monitored from the uranium mine to the final repository in accordance with the "from bedrock to bedrock" principle.

TVO's objective is to take energy efficiency requirements into account and to improve the energy efficiency of its power plant processes. The company monitors its own energy use and tries to make it efficient by considering energy perspectives in its equipment procurement, technical matters and in changing its operating procedures.

TVO minimises the amount of waste that is generated by improving the use of energy, equipment and raw materials and by developing waste recovery. The aim is to increase the percentage of municipal waste that can be recovered and to lower the amount of radioactive waste generated in the controlled area.TVO also endeavours to reduce the amount of spent fuel by optimising its properties.

During the construction of the new nuclear power plant, efforts are being made to minimise the detrimental effects on, and interference with, the environment. Particular attention is being paid to the amount of waste generated and its recycling.

Procurement

Products and services procured must meet TVO's quality and environmental requirements.

The availability of products and services essential for the company's operations is guaranteed through long-term contracts based on mutual trust and partnership.

Supplier selection involves close attention to the continuity of operations, reliability of deliveries, management of quality and environmental matters and competitiveness, while at the same time respecting the nationality and location of the supplier.

Suppliers are rated, the quality of deliveries is monitored and any corrective measures necessary are taken immediately.

Personnel

TVO's objective is to ensure that its employees handle their duties responsibly and that they are motivated, competent and committed to observing the agreed operating methods.

TVO ensures that the company has adequate and appropriate personnel resources for achieving the targets set for the company.

The availability of skilled professional personnel is ensured by competitive pay that stimulates productive working, good daily activity and achievement of long-term goals.

The principles of the personnel policy are implemented in good co-operation with the personnel.

TVO aims to have a workplace community that is based on equality where all discrimination is rejected and equality is promoted, and that provides equal opportunities for all employees to develop their skills and apply for different jobs irrespective of their gender or age.

TVO creates the conditions for employees to maintain their working capacity.

Occupational safety

The objective of our occupational safety activities is to promote health and occupational safety in accordance with the "zero accidents" principle.

TVO maintains a good working atmosphere and working conditions.

TVO and its employees do not tolerate harassment or bullying in the workplace.

The occupational safety objective for everyone working in the plant area is to look after their own safety and that of their co-workers. Occupational safety is taken into consideration in all activities.

Public relations

TVO openly publicises events within the company and at the Olkiluoto nuclear power plant and promotes

general knowledge about nuclear power. TVO regards it as important that interest groups are informed of the necessity, characteristics, and the environmental effects of nuclear power.

The Visitor Centre at Olkiluoto provides information to those interested in the company's operations, and the exhibition is open to visitors.

The company functions as a good corporate citizen in the local area around Olkiluoto.

Internal communications ensure that the personnel are informed promptly about special situations relating to the operations of the plant and the company, and that they are always aware of the company's policies and decisions and of its position regarding both finance and power generation.

Power generation policy

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

Operation and maintenance

TVO's operation and maintenance activities are aimed at uninterrupted, predictable and competitive electricity generation. Nuclear safety and operational safety always take priority.

Plant safety and reliability are developed systematically. Any changes or renovations are carried out according to pre-approved plans with the aim of keeping the plant operational for as long as possible.

Systematic and comprehensive testing and inspection ensure that the plant operates safely and reliably.

The plant's maintenance operations are carried out systematically, and any faults or malfunctions are anticipated, and preparations are made to take the measures required.

Increasing generation capacity

TVO monitors the development of nuclear power technology and takes part in international co-operation with power plant suppliers and nuclear power companies.

The electricity output of the present Olkiluoto power plant units will be increased where possible using the latest technology available.

The planning and implementation of OL3 applies technology that is financially the best available and that minimises the detrimental effects to the environment, taking into account the entire life cycle of the power plant unit.

Corporate security policy

The corporate security policy includes the security of production and operations, the security of people and premises, rescue and emergency activities, and data security.

Security of production and operations, and security of people and premises

Security procedures are carried out systematically, pre-emptively and comprehensively. The procedures ensure that the plant's operations run securely and that the company's personnel and other people working at the plant come to no harm.

Rescue and emergency

TVO maintains and develops its operational readiness for special situations. Rescue and emergency operations are practised systematically and regularly.

The company continuously updates its knowledge of the risks to itself, its personnel, and the operating environment.

Data security

Data security procedures are scaled according to the importance and risk of TVO's operations. The objective is to protect nuclear safety, financial interests and personnel privacy, to ensure that correct and reliable information is being used, and to avoid any damage caused by the processing of information.

TVO's data security procedures cover the usability, accuracy and confidentiality of data and information systems and user rights management procedures.

TVO employees are given the appropriate user rights to access company information systems to carry out their duties. Disclosure of information to outside parties is allowed only when it benefits TVO. In handling information provided to TVO by other parties, the minimum data security procedures observed are those used or required by the provider of the information.

Glossary

A

Activity
The number of spontaneous nuclear disintegrations in radioactive matter within a certain time. The unit of radioactivity, the Becquerel (Bq) equates to one disintegration per second.

B

Background radiation
Radiation emanating from natural sources, such as radon from the soil, radiation from space, and radioactive materials in one's own body.

Becquerel, Bq
The unit expressing the activity of a radioactive substance. 1 Bq is equal to one spontaneous nuclear disintegration in the substance per second.

BOD_{7ATU}
The biological oxygen demand in waste water.

BWR (Boiling Water Reactor)
A light water reactor in which water is used as the coolant which then boils as it passes through the reactor core. The steam generated rotates the turbines.

C

Capacity factor
A figure depicting the production at a power plant in, for example, one year. The capacity factor is the energy produced by a power plant in a year as a percentage of the energy that it would have produced had it been operating at full capacity for the entire year.

Carbon-14
Carbon-14 is a long-lived naturally-occurring, beta-emitting radioisotope created by cosmic rays in the earth's atmosphere. It is also formed in a nuclear reactor when the oxygen in the coolant is activated from where it moves into the atmosphere bound in carbon dioxide.

CO_2
Carbon dioxide

Consortium
A temporary grouping formed by several companies for a specific business project.

D

Decibel, dB
Noise is measured by a decibel scale expressing sound intensity.

DNV
An abbreviation of the words Det Norske Veritas. Det Norske Veritas acts as an independent third party in different inspections/auditing. The main issues are connected with services of classifying ships and issues connected to the certification of management systems.

Dose rate
A dose of radiation per time unit (for example, mSv/h) expressing the amount of radiation a person is exposed to within a certain period of time.

E

EMAS
Eco-Management and Audit Scheme, an EU environmental management scheme to which the TVO environmental management system conforms.

Emission rights
The EU introduced emission rights trading within the EU at the beginning of 2005. Annual carbon dioxide quotas were defined for plants producing carbon dioxide emissions throughout the entire EU area. The concept behind the scheme is to focus emission-reducing measures cost-effectively in areas where they are the most affordable to implement. In other words, the plants that manage to reduce their emissions in a cost-effective way so that they fall under the quotas can sell the "saved" emission rights in the emission rights trading system. Conversely, plants for which reducing emissions would be expensive can buy emission rights.

EPR, European Pressurized Water Reactor
A pressurised-water reactor based on the most recent French and German pressurised-water reactors, with four steam generators and four parallel, independent safety systems.

Euratom
A unit of the EU Commission that supervises nuclear material.

F

Fission
The disintegration of two heavy nuclei into two or more medium-heavy nuclei. The process also releases neutrons and a large amount of energy.

Fission products
The medium-heavy nuclei produced in nuclear fission. They are usually radioactive.

G

Gigawatt, GW
A unit of power. One gigawatt equals one million kilowatts.

Gigawatt hour, GWh
A unit of electrical energy. One gigawatt hour is a million kilowatt hours.

H

Half-life
The time it takes for the radioactivity of an isotope to reduce by half.

I

IAEA
International Atomic Energy Agency

INES (International Nuclear Event Scale)
A seven-level scale used internationally to depict the seriousness of accidents and incidents at nuclear power plants. The lower levels (1–3) depict incidents that have weakened plant safety and the upper levels (4–7) accidents that could cause emissions into the environment that require protective measures against radiation.

Iodine
From the point of view of radiation safety, the most important isotope of iodine among fission products is iodine-131, which has a half-life of 8 days.

Ion-exchange resins
Substances used to remove impurities from water.

ISO 9001 standard
International standard for quality management systems.

ISO 14001: 2004 standard
A standard for the management of environmental matters that is widely used in various parts of 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 for intermediate-level waste. (KAJ is the Finnish acronym for "intermediate-level waste".)

KPA
Interim storage for spent fuel. (KPA is the Finnish acronym for "spent fuel".)

L

LTA
Lost Time Accident. LTA1 e.g. means an absence of one working day.

M

ManSievert, manSv
The unit used to indicate the collective radiation dose received by a certain number of people.

MEE
Ministry of Employment and the Economy

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

N

Noble gas
The name for certain gases that are rarely found in the atmosphere. The noble gases are helium (He), neon (Ne), argon (Ar), krypton (Kr), xenon (Xe) and radon (Rn).

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

O

Occupational accident
An accident that occurs at work or on the way to or from work and which causes an absence of at least one day.

Occupational Safety Card
Occupational Safety Card training is meant particularly for employees working in a shared workplace. The course lasts one day and concludes with a written examination. Passing the examination entitles the candidate to receive an Occupational Safety Card, which is valid for five years. The course is delivered by a course leader who has an Occupational Safety Card trainer qualification.

P

PWR, Pressurized Water Reactor
A light-water reactor with such a high reactor pressure that water used as the coolant does not boil in the reactor. The hot water is conducted from the reactor to a steam generator, in which the water in the secondary circuit, at lower pressure, evaporates and the steam is forced to rotate the turbine.

R

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

Radioactive operating waste
Waste such as plastic, paper and cloth that is generated during maintenance work at the power plant. The volume can be reduced by baling.

S

Screenings
Organic matter that accumulates on the fine screen and basket filters of the screening plant during the intake of cooling water. It comprises mostly of debris, algae, clams and fish that have been carried in with the cooling water.

Sievert, Sv
A unit of radiation dosage that illustrates the harm to health caused by ionising radiation. The dosage is usually expressed in multiples of thousandths mSv (millisievert) or millionths µSv.

STUK
Finnish Radiation and Nuclear Safety Authority. STUK is the authority that regulates the Finnish nuclear energy sector.

T

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

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

Tritium
Tritium is an isotope of hydrogen with a nucleus consisting of one proton and two neutrons.

U

Uranium
An element with the chemical symbol U. Uranium comprises 0.0004% of the earth's crust (4 grams per tonne). 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 nuclear fuel.

V

VLJ repository
A repository for low and intermediate-level radioactive waste (VLJ is the Finnish acronym for "power plant waste".)

VTT
Technical Research Centre of Finland.

VYR
Finnish State Nuclear Waste Management Fund.

W

WANO (World Association of Nuclear Operators)
An international organisation that forms a framework for nuclear companies to exchange operation experiences and improve the safety of their plants.

Further information

Anna Lehtiranta
Senior Vice President, Corporate Relations
anna.lehtiranta@tvo.fi
Tel +358 2 8381 5200

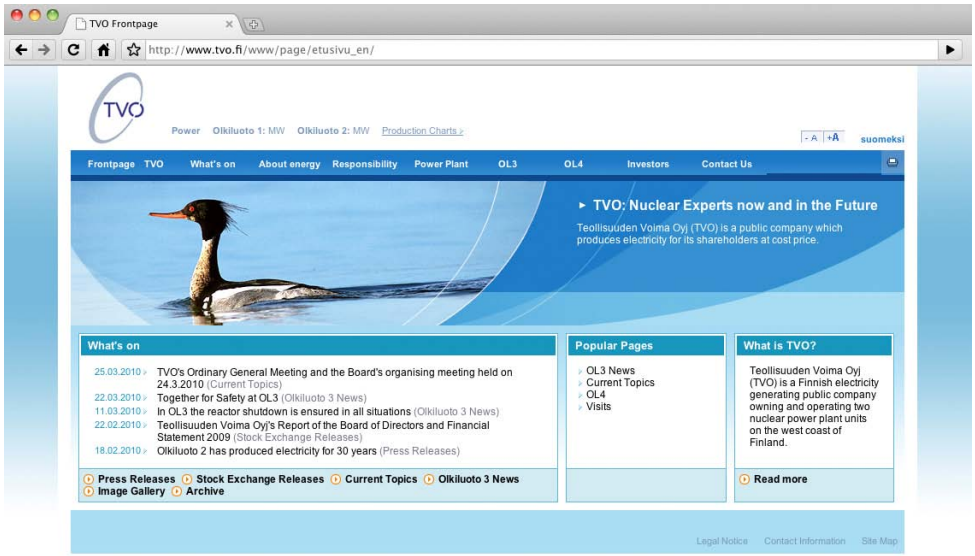
Päivi Lahti
Manager, Accounting
paivi.lahti@tvo.fi
Tel. +358 2 8381 6500

Riitta Dersten
Environment Specialist
riitta.dersten@tvo.fi
Tel. +358 2 8381 5152

Leena Wartiainen
Head of Personnel Services
leena.wartiainen@tvo.fi
Tel. +358 2 8381 5701

www.tvo.fi

TVO: website contains a considerable amount of additional information regarding TVO, corporate social responsibility and nuclear power.



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Teollisuuden Voima Oyj
Olkiluoto
FI-27160 EURAJOKI, FINLAND
Tel. +358 2 83 811
Fax +358 2 8381 2109
www.tvo.fi

Teollisuuden Voima Oyj
Töölönkatu 4
FI-00100 HELSINKI, FINLAND
Tel. +358 9 61 801
Fax +358 9 6180 2570

Teollisuuden Voima Oyj
4 rue de la Presse
BE-1000 BRUSSELS, BELGIUM
Tel. +32 2 227 1122
Fax +32 2 218 3141

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