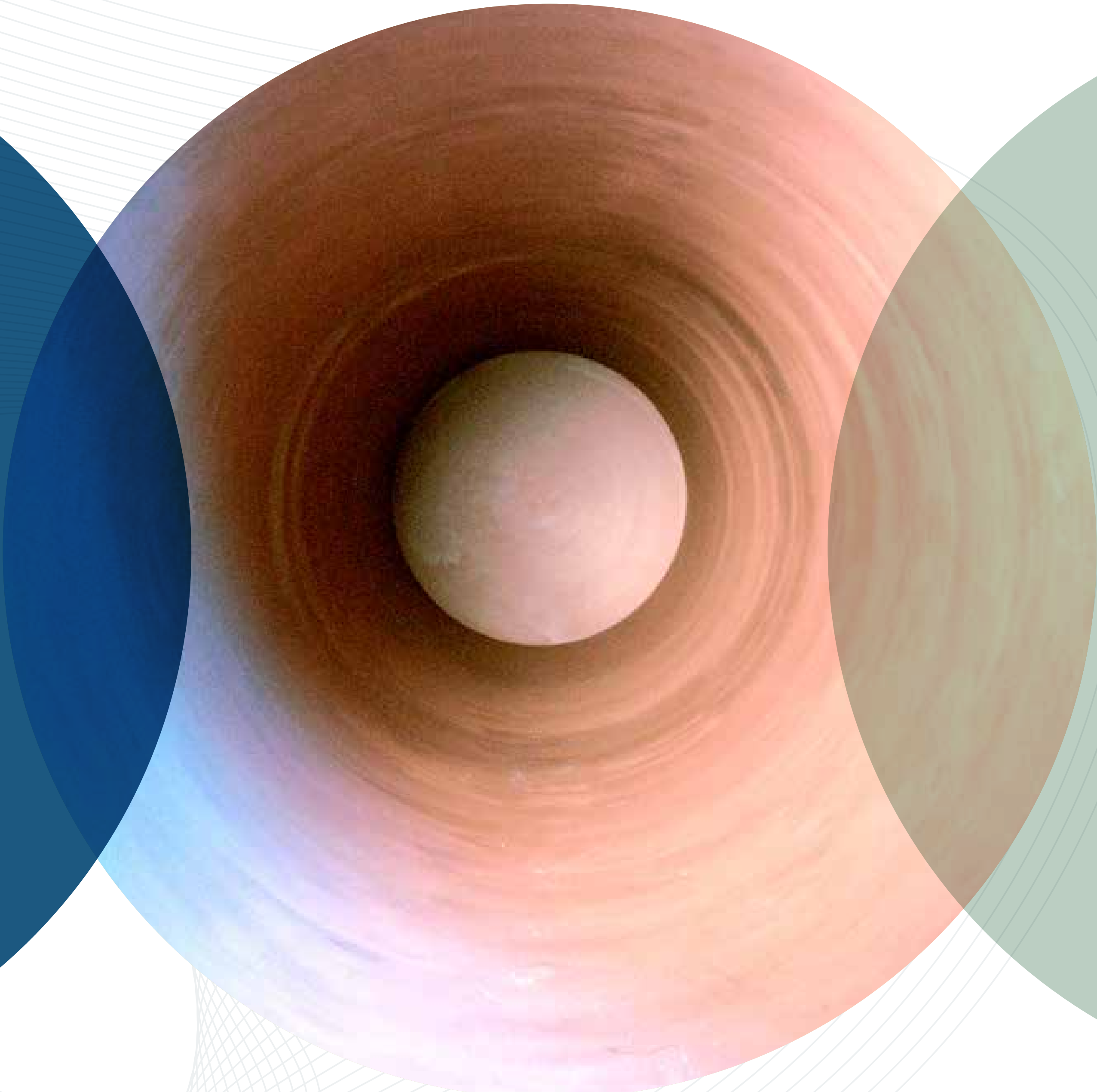
WELL-BEING WITH
NUCLEAR ELECTRICITY



# Report of the Board of Directors and Financial Statements 2017

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# Year 2017 in brief

The role of low-carbon energy, such as renewable energy and nuclear power, is crucial in the mitigation of climate change. According to the International Energy Agency IEA, the global share of nuclear energy production should be doubled. Nuclear power remains a major part of the energy selection of Finland and the entire EU as we make our way towards a carbon-neutral society. In 2017, the share of nuclear power was about 33 percent of all electricity produced in Finland.

The electricity generation at Teollisuuden Voima Oyj's (TVO) Olkiluoto nuclear power plant in 2017 totaled 13.4 terawatt hours (billion kilowatt hours), which accounted for about 16 percent of all electricity consumed and about 21 percent of all electricity produced in Finland. The Group's turnover was EUR 320.9 (343.4) million.

Olkiluoto 1 and 2 plant units are in safe and good production condition. The largest modernization work in TVO's history was conducted at the plant, and the Company's safety culture, which is the base of all operations, was further developed. Thanks to the historically extensive and versatile improvements completed during the annual outages, the nominal output of the OL2 plant unit was raised at the turn of the year to 890 megawatts (previously 880 MW). In January 2017, TVO submitted to the Ministry of Economic Affairs and Employment an application for a new operating license for the Olkiluoto 1 and 2 plant units to await the Government's decision. The operating license was applied for until the end of 2038. The current 20-year operating license must be renewed by the end of 2018.

Preparing the Olkiluoto 3 EPR (OL3 EPR) plant unit for production proceeded in 2017. Simulator training for the operating personnel commenced in February. The cold functional testing to ensure the integrity of the primary circuit was completed in July. The hot functional testing phase started in December. According to the schedule updated by the Supplier in October, regular electricity production at the OL3 EPR plant unit will commence in May 2019.

TVO has been granted three significant, final and binding partial awards in the arbitration proceedings regarding the delay of the completion of the OL3 EPR and the ensuing costs. These partial awards confirm TVO's view that TVO's claims are stronger than those of the Supplier. TVO considers its claims to be well-founded and has found the claims of the Supplier to be without merit. The arbitration proceeding is still going on and it now proceeds towards the final award where the Tribunal will declare liabilities to pay compensation.

The excavation work of Posiva's final disposal facility for spent nuclear fuel at Olkiluoto has progressed according to plan. The first excavations under the construction license were started in December 2016 and they are estimated to take two and a half years. The excavation work for the foundation of the encapsulation plant was completed.

At the end of the year, the total number of personnel in the Group was 807 (747). The number of personnel working for Posiva and its subsidiary Posiva Solutions Oy was 80 (80). Last year was the largest recruitment year in the history of the TVO Group: a total of 110 new staff members were recruited during 2017.

# Operating environment

The total electricity consumption in Finland in 2017 was 85.5 terawatt hours (TWh). The consumption increased by 0.4 percent compared to the previous year. The share of net electricity imports was 23.9 percent (20.4 TWh) of the total consumption. The amount of nuclear power generated in 2017 was 21.6 TWh, which accounted for 25.2 percent of the electricity procured.

The Government's proposal to Parliament for amending the Nuclear Energy Act was approved in November 2017, and the amendments entered into force as of the beginning of 2018. The amendments concern the fulfillment of the requirements of the directives adopted under the Euratom framework. In addition, some necessary changes to national legislation related to e.g. the decommissioning of nuclear facilities and nuclear waste management were reviewed during the preparation.

The International Energy Agency (IEA) stated in its new World Energy Outlook 2017 report that the share of fossil fuels is still high at 81 percent. In the future, however, the role of the low-carbon energy like renewables and nuclear power, will be decisive in addressing climate change. The report says that the share of nuclear power should double. According to IEA, growth in electricity consumption in the world is fast, over 60 percent by the year 2040.

A set of legislative measures on energy, so called “Clean Energy for all Europeans” package published by the European Commission in November 2016 is currently being dealt with by the European Parliament and the Council. From the nuclear industry’s perspective, the most relevant legislative proposals of the Clean Energy package are energy efficiency Directive, renewable energy Directive, electricity Directive & Regulation, and Regulation on the governance of the Energy Union. In December 2107, the Council reached an agreement on the legislative package. The European Parliament will vote on it during the spring 2018. The trilogue negotiations between the Commission, the Parliament and the Council will commence after the vote in the EP. The legislative process is estimated to last until autumn 2018.

## Main events

- TVO’s Olkiluoto nuclear power plant production in 2017 remained under the levels of last years due to major modernization projects. The production volume of the power plant totaled 13.4 TWh of electricity in 2017. The combined load factor of the plant units was 87.2 percent. Together with the share of the Meri-Pori coal-fired power plant TVO's production totaled 13.5 TWh. The electricity produced in Olkiluoto accounted for about 16 percent of the electricity consumed in Finland and for about 21 percent of the electricity produced in Finland.
- The refueling and maintenance outages carried out at the plant units on alternating years are designed to ensure that a good level of operability and production is maintained at the Olkiluoto nuclear power plant at all times. The annual outages of 2017 at the Olkiluoto nuclear power plant were carried out from April 26 to July 14, 2017. Olkiluoto 1 (OL1) had a refueling outage taking more than 10 days. Olkiluoto 2 (OL2) underwent a major maintenance outage that extended due to extensive and complex maintenance and refurbishment work and lasted a total of over 64 days. As a result of the modifications carried out, the nominal output of OL2 was increased at the turn of the year from 880 megawatts to 890 megawatts. Corresponding modifications and an increase in nominal output will be implemented at OL1 in the annual outage of spring 2018.
- In January 2017, TVO submitted to the Ministry of Economic Affairs and Employment a new application for an operating license for its Olkiluoto 1 and 2 plant units. The current operating license will expire at the end of 2018. The operating license will be granted by the Finnish Government, which is expected to make a decision by mid-2018.
- Preparing the Olkiluoto 3 EPR (OL3 EPR) plant unit for production proceeded in 2017. Simulator training for the operating personnel commenced in February. The cold functional testing to ensure the integrity of the primary circuit was completed in July. The hot functional testing phase started in December. In the hot functional tests that will take several months, the OL3 plant systems are tested as a whole, but without the fuel. According to the Supplier’s schedule updated in October 2017, regular electricity generation at the plant unit will commence in May 2019.
- In the International Chamber of Commerce (ICC) arbitration proceeding related to the delay and the ensuing costs incurred at the OL3 EPR project, a final and binding partial award was granted in July and November 2017. The partial award received in July addressed the preparation, submittal, review, and approval of design and licensing documents on the project. The partial award finally resolved the great majority of these facts and matters in favor of TVO. The partial award of November 2017, in turn, addressed the execution and construction works and the overall project management of the OL3 EPR project. The partial award finally resolved many of the facts and matters concerning the execution of the construction works in favor of TVO and notably deferred many of the issues raised by TVO including the Supplier’s project management for determination in a subsequent award. The arbitration proceeding is still going on and it now proceeds towards the final

award where the Tribunal will declare liabilities to pay compensation.

- In 2016, Areva Group announced a restructuring of its business. The restructuring involved a transfer of the operations of Areva NP to a company called New NP, the majority owner of which is going to be EDF. The transaction was completed at the end of 2017, and 75.5 percent of the shares of New NP were transferred to EDF. (New NP was renamed Framatome as of January 2018.) OL3 EPR project and the means required to complete the project, as well as certain other liabilities will remain within Areva NP and Areva GmbH, within the scope of Areva SA. In January 2017, the EU Commission made a decision on the state aid, and in May 2017, the Commission accepted the merger. In September 2017, TVO filed an appeal to the General Court of the European Union of the Commission decision on French state aid to the Areva Group. TVO requires that the restructuring of the French nuclear industry will not compromise the completion of the OL3 EPR project within the Supplier's schedule and that all liabilities of the plant contract are respected.
- The excavation work of Posiva's final disposal facility for spent nuclear fuel has progressed according to plan. The first excavation works under the construction license were started in December 2016 and they are estimated to take two and a half years. The excavation works to prepare the ground for the encapsulation plant were completed.

# TVO as a company

TVO is a non-listed public limited liability company owned by Finnish industrial and energy companies. According to TVO's Articles of Association, the Company operates in the fields of power plant and transmission system construction and acquisition as well as generation, relay and transfer of electricity primarily to the Company's shareholders in accordance with the terms set in the Articles of Association.

TVO operates on a cost-price principle (Mankala principle). TVO's goal is not to make profit or pay dividends. The shareholders are charged incurred costs on the price of electricity and thus in principle the profit/loss for the period under review is zero, unless specific circumstances dictate otherwise. The shareholders pay variable costs based on the volumes of energy supplied and fixed costs in proportion to their ownership, regardless of whether they have made any use of their share of the output or not. Because of the Company's operating principle, key indicators based on financial performance will not be presented. See "The cost-price principle" in the Notes to the consolidated financial statements.

TVO is owned by six shareholders, some of which, like TVO, operate on the Mankala principle. Electricity generated by TVO serves the needs of numerous Finnish industry and energy companies, some of which are owned also by 132 Finnish municipalities. TVO generates about 16 percent of all electricity consumed by Finns.

TVO's operations are founded on strong safety culture and securing the safety of production. TVO's activity-based management system covers production activities at the Olkiluoto nuclear power plant, maintaining and developing production capacity, additional construction of production capacity and functions required to control and resource these activities. The system meets the requirements of international quality control, environmental, occupational health and occupational safety standards and has been certified by DNV GL Business Assurance Finland Oy Ab. The general part of the activity-based management system also acts as the licensee's quality control system approved by the Radiation and Nuclear Safety Authority in Finland (STUK). The implementation, functionality and efficiency of the activity-based management system is regularly monitored with internal audits and management reviews.

TVO's Corporate Governance system is described in a separate report. TVO's principles of responsible operating practices are described in TVO's Code of Conduct (see Responsibility).

The objectives of TVO's strategy include safe and competitive electricity production, satisfied customers and solid safety brand. The goal is to maintain a competitive average electricity production cost and to ensure that the usability of the plant units meets the Company's goals. Safety culture is maintained at a high level and safety is systematically upheld and developed at all stages of nuclear power lifecycle.

## Financial performance

The consolidated turnover for 2017 was EUR 320.9 (343.4) million. The amount of electricity delivered to the shareholders was 13,516 (14,886) GWh. The lower delivery volume of electricity to shareholders was mainly due to longer than planned maintenance and refurbishment work of OL2 and lower delivery volume of Meri-Pori coal-fired power plant compared to the previous year.

The consolidated profit/loss was EUR -9.4 (-10.5) million.

## Financing and liquidity

TVO's financial situation has developed as planned.

TVO's liabilities (non-current and current) at the end of the year, excluding the loan from the Finnish State Nuclear Waste Management Fund relent to shareholders, totaled EUR 4,412.0 (December 31, 2016: 4,521.8) million, of which EUR 579.3 (479.3) million were subordinated shareholder loans. During 2017, TVO raised a total of EUR 200.0 (975.0) million in non-current liabilities, of which EUR 100.0 (0.0) million were subordinated shareholder loans. Repayments during the year amounted to EUR 258.9 (375.2) million.

In February 2016, TVO signed a new syndicated revolving credit facility of EUR 1.3 billion. The facility consists of two tranches: EUR 1,000 million 5-year tranche and EUR 300 million 3-year tranche. In January 2017, both of the tranches were extended by one year, and in December 2017, another one-year extension option was implemented for both tranches. In March, TVO signed bilateral revolving credit facilities totaling EUR 200 million and in April, bilateral credit facilities totaling EUR 80 million. Both syndicated and bilateral facilities are undrawn. In August, TVO raised EUR 100.0 million of subordinated shareholder loans. In December, TVO’s B-series shareholders issued a EUR 150 million shareholder loan commitment to the Company. Thereafter, shareholder loan commitments worth EUR 350.0 million are still undrawn.

In January, Japan Credit Rating Agency (JCR) affirmed TVO’s long term rating at AA- and assessed the outlook as stable. In May, Fitch Ratings downgraded TVO’s long term issuer rating from BBB to BBB-. The outlook Fitch Ratings assessed as stable. In October, Standard & Poor’s placed TVO’s long term issuer rating (BB+) on CreditWatch with negative outlook.

The OL3 EPR project's share of financing costs has been capitalized in the balance sheet.

TVO uses its right to borrow funds back from the Finnish State Nuclear Waste Management Fund within the framework of legal regulations. On December 31, 2017 the amount of the loan was EUR 655.5 (1,027.1) million and it has been relent to the Company's A-series shareholders. On March 31, 2017, the loan from the Finnish State Nuclear Waste Management Fund was decreased by EUR 371.5 (March 31, 2016: increase 18.0) million.

## Share capital

TVO's share capital on December 31, 2017 was EUR 606.2 (606.2) million.

The Company has 1,394,283,730 (1,394,283,730) shares, of which 680,000,000 belong to the A series, 680,000,000 to the B series and 34,283,730 to the C series. The A series shares entitle to electricity generated at the OL1 and OL2 units and the B series shares to the electricity generated at the OL3 unit. The C series owners have right to acquire electricity generated by TVO's share of the Meri-Pori coal-fired power plant.

## Administrative principles

Because TVO is a non-listed public company applying the cost-price principle, it observes the Corporate Governance Code for listed companies where applicable. TVO is not obligated to observe the Corporate Governance Code nor therefore its Comply or Explain principle. According to the Securities Market Act (746/2012), section 7 of chapter 7, the issuer of a security subject to public trading must provide a Corporate Governance Statement in its Annual Report or separately. TVO has given a separate Corporate Governance Statement which is published on its website, www.tvo.fi at the same time with this Report of the Board of Directors.

## Administrative bodies

TVO's administrative bodies and their operations in 2017 have been described in a separate Corporate Governance Statement to be found on the Company's website.

## Regulatory environment

The basic principle of nuclear energy legislation is that the use of nuclear energy must be in line with the overall good of society. The key regulations governing the use of nuclear energy, the monitoring of its use and nuclear safety are included in the Nuclear Energy Act and the Nuclear Energy Decree as well as in subordinate regulations issued by them, such as YVL Guides by the Radiation and Nuclear Safety Authority in Finland (STUK). In addition to these, regulations applied to the use of nuclear energy are included e.g. in the Radiation Act.

At the end of 2017, Parliament passed an act to amend the Nuclear Energy Act (HE 93/2017). Regulations regarding a new license on decommissioning nuclear facilities issued by the Finnish Government were added to the Act. The license would be valid until further notice. The new legislation also enforced the new directive on the amendment of the nuclear safety directive. Licensee’s responsibility to ensure the compliance of products and services produced by suppliers and subcontractors that are significant from the viewpoint of nuclear safety of the facility was also included in the regulations. The amendments came into force on January 1, 2018.

New Regulatory Guides on nuclear safety (YVL Guides) published by the Radiation and Nuclear Safety Authority in Finland (STUK) in November 2013 have been adopted at the Olkiluoto power plant. Most of the requirements specified for nuclear power plants and the licensees of the plants were enforced already as of September 1, 2015. The new YVL Guide implementation decisions for the Olkiluoto 3 EPR plant unit were received at the end of 2017. They will be enforced at the plant unit primarily after the operating license has been received.

In addition, the Nuclear Liability Act concerns the liability the operator of a nuclear plant has in the event of a nuclear accident. A temporary amendment to the Nuclear Liability Act came into force as of the beginning of 2012. According to the temporary amendment, the plant operator's liability for a nuclear incident in Finland is unlimited but limited to a maximum amount of 600 million Special Drawing Rights (SDR), corresponding to EUR 700 million, for nuclear damage outside of Finland. The operator has to have insurance up to a minimum of 600 million SDR. The OL3 plant unit’s fuel was included in the nuclear liability insurance in autumn 2017.

The use of nuclear energy is subject to license. Applications for a decision-in-principle, construction license and operating license as well as the new, upcoming license for decommissioning a nuclear power plant are made to the Government. The

Radiation and Nuclear Safety Authority in Finland (STUK) is responsible for monitoring the safety of nuclear energy use, and it also supervises safety and emergency arrangements and nuclear material safeguards.

# Risk management

The objective of risk management is to support the realization of TVO's strategy and business objectives and to ensure TVO's operating environment. Risk management is carried out according to company-level policies and good governance.

Risk management is supervised by the Company’s Board of Directors, which also verifies the Company’s principles of risk management. The President and CEO, with the help of the Company's Management Group, is in charge of risk management in accordance with TVO’s objectives and strategy. Under the Management Group operates a risk management group, which is in charge of ensuring adequate risk treatment in the Company and also for confirming the implementation of risk management measures.

Each organization unit is responsible for the identification, analysis and treatment of risks connected to its operations, as well as the follow-up of measures. Risk identification is carried out as part of TVO’s strategic and operational planning and follow-up and also as part of project management.

## Risk management process

TVO has a company-wide risk management process, used to ensure that risks facing the Company’s operations are systematically identified and each risk is treated according to its severity. The objective of the risk management process is to either prevent the risk from materializing or to reduce its likelihood or consequences. All risks are reported to the company’s Management Group and the Board of Directors in accordance with the management’s annual schedule.

The comprehensive development of risk management is evaluated with the help of the annually prepared risk management evaluation, which is used to set the goals for the development of risk management. Risk management evaluation is implemented in accordance with a model based on risk maturity levels.

In 2017, TVO’s management process continued to increase the integration of risk management. Risk management is a part of the Group’s strategy and, as such, it is being developed to help meet the Group’s objectives with an acceptable risk level. TVO Group’s project management processes and risk management were revised during the last two quarters as part of the investment process.

# Major risks and uncertainties

The risks connected to safety and production are reduced by keeping the plant units in good condition. Safe and reliable production is ensured by efficient life-cycle management of the plant units and high-quality planning and implementation of the annual outages.

Fuel for the production of electricity, uranium and coal, is bought on the global market. Risks connected with nuclear fuel have been reduced by purchasing the fuel from a variety of suppliers and by making long-term contracts.

At OL3 EPR, risk management during the commissioning stage is primarily a question of overseeing and guiding the work of the Supplier according to the terms of the turnkey contract. Property damage risks and possible delays caused by them are covered by insurances.

Indemnity and property risks are covered with insurances. The aim of insurance management is to keep the scope, cover and cost of insurance at an acceptable level. TVO is a member of European mutual associations for nuclear insurance. Statutory liability insurance is in force for nuclear liability.

There are no major risks or uncertainties in view concerning electricity production at OL1 and OL2 plant units.

Financial risk management and fuel price risks are dealt with in the notes to the consolidated financial statements, note 27: Financial Risk Management.

## Risks related to OL3 EPR project

### Schedule and planned completion

TVO's major risks are related to the schedule and profit-yielding capacity of the OL3 EPR project. Under the plant contract, electricity production was scheduled to start at the end of April 2009. The completion of the project, however, has been delayed. According to the schedule last updated by the Supplier in October 2017, regular electricity production in the unit will commence in May 2019. The delay causes additional costs and losses, for which TVO has claimed compensation from the turnkey supplier of the OL3 EPR plant unit.

In 2016, Areva Group announced a restructuring of its business. The restructuring involved a transfer of the operations of Areva NP to a company called New NP, the majority owner of which is going to be EDF. The transaction was completed at the end of 2017, and thereafter 75.5 percent of the shares of New NP were transferred to EDF. (New NP was renamed Framatome as of January 2018.) OL3 EPR project and the means required to complete the project, as well as certain other liabilities remained within Areva NP and Areva GmbH, within the scope of Areva SA. TVO requires that the restructuring of the French nuclear industry will not compromise the completion of the OL3 EPR project within the Supplier's schedule and that all liabilities of the plant contract are respected.

The risk related to the planned completion refers to a situation in which commercial use cannot be launched as planned, which leads to additional costs.

During 2017, several risk management measures related to the OL3 EPR project have been executed to improve TVO's readiness to commission the OL3 unit as well as operate three nuclear power plant units. In addition, TVO has carried out an Organizational Readiness Review by an external operator to ensure that the Company has the readiness to operate three nuclear power plant units.

### Profit-yielding capacity of OL3

If the OL3 EPR project fails to reach the projected output level, load factor or operating cost structure during the warranty period, there is a risk that the production cost will rise in comparison to the objective. This risk has been analyzed with the help of various scenarios influencing OL3's profit-yielding capacity.

As risk management measures, TVO ensures, among other things, that the OL3 EPR plant unit has undergone extensive functional testing before nuclear test operations are launched. TVO will ensure that the experiences from the Taishan sister plant are fully utilized during the hot functional testing and nuclear commissioning of the OL3 EPR plant unit.

## Major plant modifications and their implementation

Increase of production costs and deterioration of profitability may be consequences of failed implementation of plant modifications. In major large-scale plant modification projects, it is vitally important to establish and assign responsibility for requirements related to nuclear safety and to ensure that the project parties meet these requirements in advance to avoid unexpected costs during the project.

In risk assessment analysis, increased project costs are viewed to arise either from inadequate preparation and requirement specifications, major unpredicted technical issues, challenges in the execution of the licensing process or deficiencies in project management and control.

As risk management measures, TVO has in 2017 continued to prioritize projects and measures that are most vital in view of the schedule and costs to secure adequate resourcing for them. Furthermore, TVO aims to ensure that project suppliers have the readiness and interests to complete the projects they are involved in.

## Organization’s capabilities

An organization’s competence and ability to function as a licensee may be compromised by dysfunctional management, failed reaction to changes in the operational environment or negative atmosphere of the work community. In addition to the rise of immediate costs, this may also lead to an increased likelihood of other risks being realized.

In order to maintain its capability to function as a licensee, TVO has prepared for the operation phase of the Olkiluoto 3 EPR plant and for future retirements by recruiting 110 new staff members in 2017. Furthermore, TVO has also executed a competence survey project, the results of which are used for personnel planning. OL3 trainings and the qualification of licensed personnel have progressed during 2017. TVO has also undertaken measures to further develop its work community culture and to strengthen its safety culture.

## Financial and liquidity risks

The financing risks of TVO's business include liquidity, market and credit risks. By diversifying sources of finance, and with long-term credit commitments and liquid funds, financing risks are reduced. The financial position has been strengthened by issuing long term private placements and bonds. TVO has reduced market risks by making use of interest rate and currency derivatives. According to the Company’s financing policy, the loans denominated in foreign currencies will be hedged to the euro until the maturity date by using derivatives.

Financing costs are impacted by the changes in TVO’s credit rating and outlooks as well as market changes to interest rates and corporate loan margins. There is a risk of significant rise in financing costs from their current level. This risk has been analyzed through various scenarios based on the changes in the average interest rate and margin of TVO’s loan portfolio. If the risk is realized, the consequences include increased cost of financing and thus increase in production costs.

TVO’s financing situation has developed as planned as the Company utilizes a variety of financing sources in diverse ways. In addition to the international capital market, the Company also acquires long-term financing from banks and other financial institutions. Credit ratings play a major role in capital market financing.
Financing is used to secure TVO’s liquidity under all circumstances. For this purpose, the Company maintains significant liquidity buffers in form of various revolving credit facilities and liquid assets. It is TVO’s basic principle to acquire about three quarters of its financing from the financial market and one quarter from its shareholders. TVO aims to maintain long-term financial arrangements and financing is arranged for the Company, not for separate projects.

TVO’s shareholders, banks and investors have a solid trust in the Company’s operations. This is reflected in the shareholder loan commitments to complete the OL3 project, significant revolving credit facilities, and successful bond issues.

## Increase in the cost of final disposal of spent nuclear fuel

If Posiva’s final disposal project is not implemented according to plan, project costs rise or the completion of the project is delayed, the production cost estimate of final disposal will rise, which in turn will influence the amount of the existing nuclear waste management liability of spent fuel.

As a risk management measure, the cost estimate was specified during 2017 and the most significant industrialization measures related to final disposal were defined.

## Pending court cases and disputes

In 2012, TVO submitted a claim and defence in the International Chamber of Commerce (ICC) arbitration proceedings concerning the delay and the ensuing costs incurred at the Olkiluoto 3 EPR project. In July 2015, TVO updated its quantification estimate of its costs and losses to amount to approximately EUR 2.6 billion until December 2018, which, according to the schedule submitted by the OL3 Supplier in September 2014, was the estimated start of regular electricity production of OL3.

The proceedings were initiated in December 2008 by the OL3 Supplier. The Supplier's monetary claim, as last updated in April 2017, is now approximately EUR 3.59 billion in total. The sum is based on the Supplier's updated analysis of events that occurred through September 2014, with certain claims quantified to December 31, 2014. The sum includes penalty interest (calculated to June 30, 2017) and payments allegedly delayed by TVO under the plant contract amounting to a combined total of approximately EUR 1.58 billion, as well as approximately EUR 132 million in alleged loss of profit.

In November 2016, the ICC Tribunal made a final and binding partial award. In the partial award, the ICC Tribunal addressed the early period of the project (time schedule, licensing and licensability, and system design). This comprised many of the facts and matters that TVO relies upon in its main claims against the Supplier, as well as certain key matters that the Supplier relies upon in its claims against TVO. In doing so, the partial award finally resolved the great majority of these facts and matters in favor of TVO, and conversely rejected the great majority of the Supplier's contentions in this regard. The partial award did not take a position on the claimed monetary amounts.

The ICC Tribunal made another final and binding partial award in July 2017. This partial award addressed the preparation, submittal, review, and approval of design and licensing documents on the project. This comprises the key facts and matters that the Supplier relies upon in its main claims against TVO, as well as certain matters that TVO relies upon in its claims against the Supplier. In doing so, the partial award has finally resolved the great majority of these facts and matters in favor of TVO. Conversely, it has also rejected the great majority of the Supplier's contentions in this regard. Although the partial award did not take a position on the claimed monetary amounts, it has conclusively rejected the analytical method used by the Supplier to support its principal monetary claims against TVO.

The parties received a final and binding partial award also in November 2017. This partial award addresses the execution and construction works and the overall project management of the OL3 EPR project. This comprises many facts and matters that TVO relies upon in its main claim against the Supplier, as well as certain matters that the Supplier relies upon in its claims against TVO. The partial award finally resolves many of the facts and matters concerning the execution of the construction works in favor of TVO and notably defers many of the issues raised by TVO including the Supplier's project management for determination in a subsequent award.

The arbitration proceeding is still going on and it now proceeds towards the final award where the Tribunal will declare liabilities to pay compensation.

TVO considers its claims to be well-founded and has considered and found the claims of the Supplier to be without merit. The three significant partial awards granted by the Tribunal provide further material confirmation of this position, and reinforce TVO's view that the balance of the claims is in TVO's favor.

In September 2016, TVO summoned Areva in an urgent interim proceeding before the President of the Commercial Court of Nanterre in order to obtain information about the restructuring of French nuclear industry and the potential consequences on the performance of the OL3 contract. Discussions between the parties enabled TVO to withdraw from this action in May 2017. The continuation of discussions is expected to favor completion of the OL3 EPR project and the start-up of the plant.

In January 2017, the EU Commission made a decision on the French state aid to the Areva Group. In September 2017, TVO filed an appeal to the General Court of the European Union of the Commission decision. TVO requires that the restructuring of the French nuclear industry will not compromise the completion of the OL3 EPR project within the Supplier's current schedule and that all liabilities of the plant contract are respected.

The Supplier consortium companies (Areva GmbH, Areva NP SAS and Siemens AG) are jointly and severally liable for the plant contract obligations.

TVO has not recorded any receivables or provisions on the basis of claims presented in the arbitration proceedings.

## Nuclear power

TVO owns and operates two nuclear power plant units, Olkiluoto 1 (OL1) and Olkiluoto 2 (OL2), and is building a new plant unit, Olkiluoto 3 EPR (OL3 EPR) at Olkiluoto in Eurajoki, Finland.

## Olkiluoto 1 and Olkiluoto 2

The electricity production of the Olkiluoto power plant units, OL1 and OL2, during 2017 was 13,415 (14,348) GWh. The total load factor was 87.2 (93.0) %.

The plant units operated safely. OL1's net production was 7,158 (7,048) GWh and load factor 93.1 (91.4) %. OL2's net production was 6,256 (7,301) GWh and load factor 81.3 (94.6) %.

The planned production of OL1 was reduced by the replacement of damaged fuel assemblies in the autumn. The production volume and load factor of OL2 did not rise as high as in the previous years due to some major modification and repair works carried out during the annual outage. Thanks to the modifications the nominal output of OL2 was increased from 880 megawatts to 890 megawatts at the turn of the year. Corresponding works and an increase in nominal output will be implemented at the OL1 plant unit during the annual outage of 2018.

In January 2017, TVO filed with the Ministry of Economic Affairs and Employment an application for the renewal of the operating license of OL1 and OL2. The renewal of the operating license is applied for from the Government until the end of 2038. The current 20-year operating license must be renewed by the end of 2018.

In connection with the operating license application, an extensive periodic safety review to be performed every ten years has been submitted to the Radiation and Nuclear Safety Authority in Finland (STUK) to make it possible for STUK to provide their own assessment of the safety of the operation at the plants.

## Annual outages

The 2017 annual outages of the Olkiluoto nuclear power plant were started on April 26 with a refueling outage at OL1. In addition to refueling, the OL1 outage also included annually recurring maintenance work. The outage lasted more than 10 days.

At OL2, the annual outage commenced on May 10 and was completed on July 14. The OL2 outage was prolonged due to large and complex maintenance and refurbishment work and took more than 64 days.

The major works carried out during the OL2 maintenance outage included replacement of the recirculation pumps and their frequency converters, renewal of the neutron flux calibration system, repair work of the reactor pressure vessel nozzles as well as preparation work for installing a new, ac-independent high and low pressure water supply system for reactor cooling, and modernization of the heating system contributing to residual heat removal. In addition, the turbine condenser was renewed and the high pressure feed water preheaters were replaced. Modifications for pumping the condensate forward were also made.

In addition to TVO's own personnel, up to 1,100 contractor employees took part in the 2017 annual outage works.

The refueling and maintenance outages carried out at the plant units on alternating years are designed to ensure that a good level of operability and production is maintained at the Olkiluoto nuclear power plant.

## Olkiluoto 3 EPR

Olkiluoto 3 EPR (OL3 EPR), currently under construction, was procured as a fixed-price turnkey project from a consortium (Supplier) formed by Areva GmbH, Areva NP SAS and Siemens AG. As stipulated in the plant contract, the consortium companies have joint and several liability for the contractual obligations.

In accordance with the Supplier's schedule updated in October 2017, regular electricity generation at the plant unit will commence in May 2019. The Supplier's schedule review for the project completion had reached a phase where the Supplier confirmed the main milestones. According to the Supplier, the first connection to the grid takes place in December 2018, and the start of regular electricity production will take place in May 2019. According to the Supplier's plant ramp-up program the unit will produce 2–4 TWh of electricity, at varying power levels, during the period of time between the first connection to the grid and the start of regular electricity production.

In 2016, Areva Group announced a restructuring of its business. The restructuring involved a transfer of the operations of Areva NP to a company called New NP, the majority owner of which is going to be EDF. The transaction was completed at the end of 2017, and thereafter 75.5 percent of the shares of New NP were transferred to EDF. (New NP was renamed Framatome as of January 2018.) OL3 EPR project and the means required to complete the project, as well as certain other liabilities remained within Areva NP and Areva GmbH, within the scope of Areva SA. In January 2017, the EU Commission made a decision on the state aid, and in May 2017, the Commission accepted the merger. In September 2017, TVO filed an appeal to the General Court of the European Union of the Commission decision on French state aid to the Areva Group. TVO requires that the restructuring of the French nuclear industry will not compromise the completion of the OL3 EPR project within the Supplier's schedule and that all liabilities of the plant contract are respected.

Most of the construction works for the plant unit have been completed. The installation of the electrical systems, the instrumentation and control system (I&C), and mechanical systems is still in progress. Simulator training for the operating personnel commenced in February 2017. The cold functional testing to ensure the integrity of the primary circuit was completed in July. The hot functional testing phase started in December. In the hot functional tests that will take several months, the OL3 plant systems are tested as a whole, but without the fuel.

The first phase of the commissioning of the turbine plant is completed. The de-preservation started at the turbine plant in January 2017 has been completed, and the plant is ready for the hot functional testing.

The workforce at the site at the end of the year was about 2,000 persons. Occupational safety at the site remained at a good level.

The pending disputes concerning the plant unit are described in the paragraph "Pending Court Cases and Disputes".

All realized costs of the OL3 EPR project that can be recognized in the cost of the asset have been entered as property, plant and equipment in the Group balance sheet.

# Nuclear fuel

In 2017, the nuclear fuel purchases amounted to EUR 64.6 (61.3) million and the amount consumed to EUR 53.9 (54.4) million.

The nuclear fuel and uranium stock carrying value on December 31, 2017 was EUR 241.7 (231.0) million.

# Nuclear waste management

Under the Finnish Nuclear Energy Act, the Company is responsible for the measures related to nuclear waste management and the related costs.

The liabilities in the consolidated financial statement show a provision related to nuclear waste management liability of EUR 953.1 (954.6) million, calculated according to the international IFRS accounting principles. A corresponding amount, under assets, represents the Company’s share in the Finnish State Nuclear Waste Management Fund.

In order to cover the costs of nuclear waste management, TVO makes contributions to the Finnish State Nuclear Waste Management Fund. In December 2017, MEAE set TVO's liability for nuclear waste management at EUR 1,481.6 (1,450.1) million to the end of 2017 and the Company's funding target for 2018 at EUR 1,470.8 (1,428.4) million.

In March 2017, the Finnish State Nuclear Management Fund confirmed TVO’s nuclear waste management fee for 2016 at EUR 49.1 (11.4) million, which was paid into the Fund on March 31, 2017 (March 31, 2016). The nuclear waste management fee for 2017 will be confirmed in March 2018.

A total of 7,428 (6,468) $m^3$ of low- and medium-level radioactive waste has accumulated from the OL1 and OL2 plant units during their operation. During 2017, the amount of waste increased by approximately 940 $m^3$. The waste is disposed of in the final repository for low- and medium-level waste (VLJ repository) in Olkiluoto.

The total amount of spent nuclear fuel by the end of the year was 1,498 (1,465) tons, of which 33 (33) tons accumulated in 2017. The spent fuel is stored in the fuel pools of the plant units and in an interim storage facility (the KPA storage facility) at Olkiluoto.

## Final disposal of spent nuclear fuel

Posiva Oy is in charge of executing in Olkiluoto the final disposal of the spent nuclear fuel generated by its owners, TVO at its power plant in Olkiluoto and Fortum at its power plant in Loviisa.

The excavation works to prepare the ground for the encapsulation plant that were started in October 2016 are completed. The second phase of construction work in the ventilation building has also been completed, as well as fire compartmentation of the access ramp. HVAC works in the ventilation building have also been completed. Tests of work method for the reinforcement of the personnel shaft have been conducted.

The excavation work of the final disposal facility itself was launched in December 2016 and is progressing with excavations of the vehicle access tunnels leading to the final disposal facility. The excavation of the first shaft connections of the canister shaft have been completed. The first excavation works of the final disposal facility are estimated to take two and a half years. The grouting work of the final disposal facility's canister shaft has been completed for the part of the three top shaft spaces; the grouting of the fourth is ongoing. The raise boring of the canister shaft is to be started in early 2018.

At the end of March, Posiva's owners submitted the Nuclear Waste Management Annual Report for 2016 to the Ministry of Economic Affairs and Employment (MEAE).

## Coal power

TVO has a 45 percent holding in the Meri-Pori coal-fired power plant owned and operated by Fortum Power and Heat Oy. The Meri-Pori power plant is located on the Tahkoluoto Island in Pori, Finland.

## Meri-Pori

The amount of electricity produced by TVO's share at the Meri-Pori coal-fired power plant was 130.7 (562.7) GWh requiring 46.7 (198.2) thousand tons of coal and 120.7 (471.5) thousand tons of carbon dioxide emission rights.

## Research and development

Research and development costs were EUR 16.4 (13.8) million, most of which was used for R&D activities related to nuclear waste management.

TVO is a major financier of Finnish public sector research programs for reactor safety and nuclear waste management. In 2017, TVO's contribution to the Finnish State Nuclear Waste Management Fund, which finances such programs, amounted to EUR 7.2 (6.4) million.

## Acquisitions of tangible and intangible assets and shares

Investments in 2017 were EUR 299.4 (265.4) million. Investments of the parent company were EUR 297.9 (262.5) million, of which EUR 224.7 (208.3) million were allocated to the OL3 EPR project.

At present, several plant modifications are planned and implemented in Olkiluoto to prepare the OL1 and OL2 plant units for the renewal of the operating license in 2018.

Carbon dioxide emission allowances have been relinquished to the Energy authority worth EUR 2.7 (1.2) million. In 2017, emission allowances were acquired worth EUR 0.7 (2.7) million. The Company's need for carbon dioxide emission allowances for the period under review was covered by acquired emission allowances.

## Responsibility

TVO's principles of responsible business operations, based on the Company's values and ethical principles, are described in TVO's Code of Conduct, which is approved by the Company's Board of Directors and applies to the entire personnel as well as all partners and subcontractors. TVO considers any non-compliance with its Code of Conduct unacceptable. TVO's Code of Conduct complies with OECD's Guidelines for Multinational Enterprises (2011 revision). The Code of Conduct is a part of the training requirements of all TVO employees. The Code of Conduct is published on TVO's website at www.tvo.fi.

TVO respects the human rights of all people affected by the Company's operations and expects the same from all companies acting in its supply and subcontracting chains. TVO's objective is to guarantee good working conditions for all employees. In accordance with its Code of Conduct, TVO does not condone any kind of discrimination or harassment on the grounds of age, gender, ethnic origin, religion, beliefs, opinions or other personal characteristics. TVO observes an equality and equal opportunity plan.

TVO does not accept any kind of corruption or bribery. The Code of Conduct requires employees to refrain from transactions and retreat from situations, which could cause a conflict between the interests of the Company and the individual. TVO also has specific instructions regarding hospitality practices and the processing of inside information. The Company maintains a register on the engagements of specified individuals. Detailed instructions are available regarding the approval procedure of TVO's commitments (procurement agreements, orders, invoices etc.).

TVO has a procedure for reporting suspected violations of the Company's Code of Conduct, and the report can also be filed anonymously. TVO's internal audit processes all concerns regarding possible violations against the Code of Conduct in such a manner that the rights and the privacy of both the person raising the concern and the alleged violator are protected under all circumstances.

No violations against TVO's Code of Conduct that would have led to disciplinary action were brought to the internal audit's attention in 2017.

Corporate-level policies, approved by the Board of Directors in 2010, outline the Company's key objectives related to responsible operations. Corporate-level policies include:

- Nuclear safety and quality policy (nuclear safety, radiation protection, nuclear material safeguards and quality)
- Corporate social responsibility policy (environment, procurement, personnel, occupational safety and communications)
- Production policy (plant operation and maintenance as well as increasing the production capacity)
- Corporate safety policy (safety of production and activities as well as the safety of people and facilities, rescue and emergency activities and data security).

All personnel, partner and subcontractor activities at Olkiluoto are supervised by TVO. TVO has a specified procedure for the evaluation and approval of suppliers. TVO only trades with approved suppliers. During 2017, 84 suppliers were evaluated using various methods.

Responsibility is the foundation pillar of TVO's operations and one of the Company's core values, and the entire personnel is committed to observing the Company's responsibility principles. Responsible business philosophy steers the Company to operate from the viewpoint of sustainable development, which also includes the well-being of the staff and the surrounding society.

TVO reports on its corporate social responsibility in accordance with the core extent of Global Reporting Initiative (GRI) Standards. TVO's corporate social responsibility reporting is available on the Company's website at www.tvo.fi.

## Objectives and results of TVO's responsibility principle

| | Objective | Realization 2017 |
|---|---|---|
| Reputation index | 75 | 73 |
| Personnel survey, category | B | C |
| Sick leaves, % | 2.4 | 2.1 |
| Occupational accident frequency | 4.0 | 6.0 |
| Collective radiation dose, manmSv | 636 | 950 |
| Environmental incidents, pcs | 0 | 3 |
| Unplanned energy unavailability factor, % | 0 | 9.6 |
| Unplanned automatic scrams, pcs | 0 | 0 |

Reputation index: TVO Group stakeholder survey, average of respondent groups 0–100; under 50=Weak, 50–62=Moderate, 62–70=Good, over 70=Excellent.
Personnel survey: AAA=Excellent, AA+=Good+, AA=Good, A+=Satisfactory+, A= Satisfactory, B=Negative, C=Weak. Implemented annually.
Occupational accident frequency: per million working hours. The meter is Group-level.
Collective radiation dose: WANO indicator. Reference point: other WANO members' NPPs. Goal: the best quarter.
Unplanned energy unavailability factor: % of total production.

# Safety and occupational safety

## Safety

Safe use of the Olkiluoto nuclear power plant is based on competent and responsible personnel, high-quality plant technology, principle of continuous improvement and independent internal and external supervision. TVO's activity-based management system meets the requirements of the ISO 9001 standard. In order to ensure safe operation, TVO systematically estimates the level of safety and safety culture, and the entire TVO personnel is committed to observing a high-quality safety culture.

TVO regularly assesses the state of its overall safety from the viewpoints of production, nuclear safety, safety and service life management as well as management, organization and personnel. The overall level of safety is good.

The state of the safety culture is regularly assessed according to the IAEA procedure. TVO's safety culture is estimated to be at a level at which the strategic importance of safety has been recognized and preventative practices are observed. TVO aims at reaching the highest possible level of safety culture. TVO has continued to employ various measures to maintain and develop the Company's safety culture.

The Company regularly assesses the operations of its plant units with the help of internationally used safety indicators. Of the safety indicators, collective radiation dose, unplanned energy unavailability factor and unplanned automatic scrams realization are described in Table "Objectives and results of TVO's responsibility principle" (see "Responsibility").

The Olkiluoto nuclear power plant units, OL1 and OL2, operated safely throughout the year. TVO classifies events affecting nuclear safety in accordance with the international INES scale (0–7). There were no INES classified issues significantly affecting nuclear safety. In 2017, the Olkliuoto nuclear power plant had a total of seven incidents classified as level 0 (No safety significance) on the INES scale. In case of special situations and operational disruptions, the Company submits separate, incident-specific reports to the Radiation and Nuclear Safety Authority in Finland (STUK).

## Occupational safety

TVO aims to provide its personnel and subcontractors a safe workplace and operating environment. The goal of occupational safety on the entire island of Olkiluoto is to have zero incidents and common operating methods. TVO has a certified occupational health and safety system, which also includes operations at the OL3 EPR site. The system meets the requirements of the OHSAS 18001 standard.

The group-level goal of occupational safety is to reduce the Company's accident frequency annually towards the goal of zero accidents. An action plan for the development of occupational safety has been drawn, and its main focus in 2018 is on further developing supervisory work and risk evaluation. The realization of occupational safety goals is presented in Table "Objectives and results of TVO's responsibility principle".

In order to meet the goals, all Olkiluoto employees are encouraged to make safety observations. The number of safety observations reported in 2017 was 2,602. In addition to TVO Group's own personnel, also subcontractors have reported their observations.

Key occupational safety figures for 2017 are reported in further detail in the corporate social responsibility and environmental reporting on the TVO website at www.tvo.fi.

## The environment

TVO is committed to observing the principles of sustainable development, and environmental responsibility is a part of the Company's management system. The Company's environmental management system, which also includes the construction stage of OL3 EPR, meets the requirements of the international ISO 14001 standard and the energy efficiency system. The system is EMAS registered, and its goal is continuous improvement and raising the level of environmental protection.

Energy produced with nuclear power is climate-friendly. TVO recognizes the environmental and energy aspects of its operations and works to minimize their negative impacts at all stages of the electricity production chain. TVO constantly monitors the environmental impacts of its operations.

The Company's operations met the requirements set in legislation, environmental permits and the environmental management system. The most significant environmental impact of the Olkiluoto nuclear power plant is the local warming of the sea water near the plant. During the year under review, the temperature of cooling water remained within the limits required by the environmental permit. The environmental load caused by the Olkiluoto nuclear power plant was minimal. Radioactive emissions into the atmosphere and water were below regulatory limits.

Operations were developed in accordance with the regulations of environmental permits and the environmental management system. In accordance with the principle of continuous improvement, the environmental management system sets goals for the Company's operations. The system is regularly monitored by an environmental team consisting of experts from various fields. TVO is also involved in the energy efficiency agreement. The Company's total energy savings target for the agreement period 2017–2025 is 150 GWh.

There were no major environmental incidents or non-conformances in the area of the Olkiluoto nuclear power plant in 2017. Three minor environmental incidents occurred.

Risks related to the environment have been recognized and no significant risks influencing operations were detected in risk analysis. Risk management is used to predict any non-conformances and prevent their consequences, which may be hazardous to the environment.

In December 2016, The Regional State Administrative Agency for Southern Finland issued decisions on the adjustment of the Olkiluoto nuclear power plant's environmental permit and water permit regulations. The decisions are not yet valid.

Environmental issues from 2017 and key figures related to the environment as well as the results of the environmental program are reported in further detail in the corporate social responsibility and environmental reporting on the TVO website at www.tvo.fi. The information has been verified by an external party.

# Group personnel and training

## Personnel

TVO's Code of Conduct and group-level policies lay down the principles of the Company's personnel policy. TVO aims to provide a healthy, equal work community that promotes equality and does not condone any form of discrimination.

At the year-end, the total number of personnel in the Group was 807 (747), and the average during the year was 801 (765). The year-end total number of personnel in TVO was 806 (746), and the average during the year was 800 (764). The year-end total for permanent personnel was 783 (720).

TVO recruited 110 (48) employees in 2017. During the year, 47 (58) permanent employees left the Company, including 8 (17) who retired. TVO's sick leave percentage was 2.1 (2.4)% .

In June, the TVO Board of Directors appointed two new members to the Management Group: Pekka Frantti responsible for ensuring the financial interests and conditions of OL3 and Jaana Isotalo responsible for HR, communications and training. The appointments entered into force as of August 1, 2017.

The collective agreements for different groups of personnel in the energy industry are in force in accordance with the so called framework agreement of labor confederations until January 31, 2018.

Personnel performance is monitored in navigation discussions held three times a year. Personnel admission and exit interviews are held at all levels of the Company. In 2017, the Company introduced a new procedure of interviewing new employees once they have been employed for 3–6 months. Supervisors are instructed in general and professional induction training of new employees before new recruits begin their work. Summaries are drawn of both admission interviews of new employees and exit interviews of personnel leaving the Company and the results are utilized in developing operations.

As the operating phase of OL3 EPR is approaching, technical services and electricity production organizations were reinforced with several dozens of technical professionals. Considerable investments were made in personnel training that supports the Olkiluoto integration, and the number of realized training days was considerably larger than that of the same time during the previous year.

The Group's management and operational culture is being developed with the help of the Better workplace (previously Wellbeing and profitability factors 2020) project. The goals of the project include improving efficiency of operations and securing good preconditions for operations by developing issues related to the work of each individual, the immediate work community and the entire Group. The progress of the project is monitored on a regular basis and the project's effectiveness is measured with e.g. regular personnel surveys. In 2017, an equality and equal opportunity plan was published, and special attention was paid on the development of work community skills. In 2018, the project will focus on work community skills and supervisory communication.

As part of the development of occupational well-being, TVO has joint forces with occupational health care to use risk-based analysis to develop measures that are used to preventatively develop comprehensive occupational well-being. The focus of occupational health care is on preventative occupational health care, which supports the employee's health, work and functioning abilities as well as their maintenance and development.

The human resource issues and indicators for 2017 will be found in more detail in connection with corporate social responsibility reporting on TVO's website, www.tvo.fi.

## Training

The basic, continuing and further training of TVO employees was implemented according to the annual training program the same way as in previous years. The personnel was trained for a total of 10,639 (7,157) days, on average 13.2 (9.4) days per each TVO employee.

In 2017, OL1 and OL2 operators attended operational training days in the spring and in the autumn as well as advanced simulator courses according to their revision training program.

OL3 operators attended a plant knowledge course organized by the Supplier as well as basic simulator courses. OL3 operators work in shifts in the combined operating organization of the Supplier and TVO, carrying out system operation and monitoring tasks. During 2017, OL3 operators also participated in the extensive review and validation work of OL3 operation instructions.

Everyone working in the Olkiluoto nuclear power plant area participates in induction training. The general part is intended for all persons working in the Olkiluoto area and the radiation part for those working in the controlled area. During 2017, a total of 4,069 (3,734) people took the general part of the induction training and 2,438 (1,156) people the radiation protection part (those recorded by January 26, 2018). Both training courses were offered in Finnish and English. Both parts are also available for rehearsal in the external online learning environment in Finnish and English.

TVO took part in organizing a national course in the nuclear field as well as a special training in nuclear waste management together with other key operators of the industry. Through such courses, students gain a comprehensive idea of the nuclear industry and the key operating models used in the industry.

A group-wide Competence survey progressed as planned during 2017. Competence survey is used to ensure the availability of the competence and abilities required by the Company’s strategy, thus securing the attainability of the Group’s goals. During 2017, various competencies and their degree of criticality to the business operations were defined.

# Subsidiaries and joint ventures

TVO Nuclear Services Oy (TVONS) is a wholly-owned subsidiary of TVO. TVONS provides its customers with expertise and services related to high-level nuclear safety, cost-effective operations, and nuclear waste management. The special expertise of TVO personnel is at TVONS customers' disposal.

Posiva Oy, jointly owned by TVO and Fortum, is responsible for the research of the final disposal of spent nuclear fuel and implementation of the final repository of its shareholders' Olkiluoto and Loviisa NPPs. The Finnish Government granted a construction license for Posiva’s final disposal repository and encapsulation plant in November 2015.

# Major events after the end of the year

In February 2018, Japan Credit Rating Agency (JCR) downgraded TVO’s long term rating from AA- to A+. TVO’s outlook JCR assessed as stable.

# Prospects for the future

Electricity production is expected to continue as in previous years. The prerequisites for nuclear power production at Olkiluoto are good. Nuclear fuel availability is guaranteed by long-term agreements.

Realization of the OL3 EPR nuclear power plant project and preparing the plant unit for production will be continued. The hot functional testing launched in December 2017 will take several months. Following successful completion of the hot functional testing, OL3 has the prerequisites to receive an operating license and proceed to nuclear commissioning. TVO will continue to support the Supplier to complete the project.

The Meri-Pori coal-fired power plant capacity will be used in accordance with the former principles. Fortum's share of the Meri-Pori power plant has been accepted into the reserve capacity, and TVO is examining the use of its own share in the future.

The concept and cost optimization phase of Posiva's final disposal project will continue until the end of 2018. The raise boring of the canister shaft is to be started in early 2018. Full-scale in-situ system test (FISST) in ONKALO is to be conducted during 2018.

# Proposals to the Annual General Meeting

Teollisuuden Voima Oyj's distributable equity as of December 31, 2017 amounted to EUR 14,460,000. The Board of Directors proposes to the Annual General Meeting that no dividend shall be paid.

# Key figures of TVO Group

| TVO GROUP (IFRS) (M€) | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Turnover | **321** | 343 | 276 | 327 | 366 |
| Profit/loss for the financial year | **-9** | -11 | 5 | -1 | 31 |
| Research expenses | **16** | 14 | 17 | 18 | 21 |
| Investments | **299** | 265 | 345 | 339 | 335 |
| Equity | **1 667** | 1 589 | 1 612 | 1 575 | 1 462 |
| Subordinated shareholder loans (hybrid equity) (included in the former) [2] [4] | **579** | 479 | 479 | 439 | 339 |
| Non-current and current interest-bearing liabilities (excluding loan from VYR) [1] | **3 923** | 4 179 | 3 654 | 3 428 | 3 221 |
| Loan from VYR | **656** | 1 027 | 1 009 | 983 | 932 |
| Provision related to nuclear waste management | **953** | 955 | 971 | 930 | 898 |
| Balance sheet total | **7 374** | 7 952 | 7 464 | 7 054 | 6 700 |
| Equity ratio, % [3] | **28,9** | 26,6 | 29,4 | 30,6 | 30,0 |
| Average number of personnel | **801** | 765 | 794 | 863 | 894 |

[1] The Finnish State Nuclear Waste Management Fund (VYR)

[2] Subordinated loans

| | | |
|---|---|---|
| | | equity + loans from equity holders of the company |
| [3] Equity ratio % | = 100 x | balance sheet total - provision related to nuclear waste management - loan from the Finnish State Nuclear Waste Management Fund |

[4] During the accounting period 2012, the terms of the loans of the equity holders of the Company have been changed and the loans are included in equity according to IFRS standards.

| CONSOLIDATED ADJUSTED PROFIT/LOSS FOR THE FINANCIAL YEAR (M€) | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Profit/loss for the financial year (IFRS) | **-9** | -11 | 5 | -1 | 31 |
| The impact of the nuclear waste management obligation [1] (profit -/loss +) | **18** | 17 | 3 | 6 | -29 |
| The impact of financial instruments [2] (profit -/loss +) | **0** | 0 | 0 | 0 | -1 |
| Other IFRS adjustments | **-1** | -1 | -1 | 0 | 0 |
| Share of the profit/loss of joint ventures | **-1** | -2 | 0 | 0 | 0 |
| Profit/loss before appropriations | **7** | 3 | 7 | 5 | 1 |
| Adjusted profit/loss for the financial year | **7** | 3 | 7 | 5 | 1 |

[1] Includes profit/loss effects from nuclear waste management according to IFRS standard.

[2] Includes effects from financial derivatives hedging future cash-flows where hedge accounting is not applied according to IAS 39.

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| TVO's share in the Finnish State Nuclear Waste Management Fund (VYR) (M€) | **1 436,6** | 1 379,7 | 1 357,8 | 1 324,2 | 1 253,3 |
| TVO's funding target obligation to the Finnish State Nuclear Waste Management Fund | **1 470,8** | 1 428,4 | 1 369,4 | 1 345,4 | 1 310,4 |
| The carrying value of TVO's share in the Finnish State Nuclear Waste Management Fund (non-current assets) | **953,1** | 954,6 | 971,2 | 930,3 | 897,9 |

The difference between the funding target and the share in the Finnish State Nuclear Waste Management Fund at the end of each year is due to the funding target being completed by paying the nuclear waste management fee only during the first quarter of the following year.

# Key figures of Teollisuuden Voima Oyj

| **TEOLLISUUDEN VOIMA OYJ (FAS) (M€)** Parent company's financial statement has been prepared in accordance with the Finnish Accounting Standards (FAS). | **2017** | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Turnover | **316** | 340 | 273 | 325 | 363 |
| Profit/loss before appropriations | **6** | 3 | 7 | 5 | 1 |
| Fuel costs | **57** | 69 | 59 | 66 | 73 |
| Nuclear waste management costs | **64** | 73 | 38 | 51 | 89 |
| Capital expenditure (depreciation and financial income and expenses) | **51** | 52 | 111 | 59 | 61 |
| Investments | **298** | 262 | 344 | 339 | 303 |
| Equity 4) | **863** | 858 | 858 | 858 | 858 |
| Appropriations 4) | **185** | 183 | 180 | 173 | 167 |
| Non-current and current interest-bearing liabilities (excluding loan from VYR and loans from equity holders of the company) 1) 2) | **3 833** | 4 043 | 3 509 | 3 288 | 3 088 |
| Loans from equity holders of the company 2) | **579** | 479 | 479 | 439 | 339 |
| Loan from VYR | **656** | 1 027 | 1 009 | 983 | 932 |
| Balance sheet total | **6 292** | 6 793 | 6 252 | 5 879 | 5 572 |
| Equity ratio, % 3) | **28,9** | 26,4 | 28,9 | 30,0 | 29,4 |
| Average number of personnel | **800** | 764 | 791 | 858 | 890 |

1) The Finnish State Nuclear Waste Management Fund (VYR)

2) Subordinated loans

3) Equity ratio % = 100 x (equity + appropriations + loans from equity holders of the company) / (balance sheet total - loan from the Finnish State Nuclear Waste Management Fund)

4) During the accounting period 2017, accumulated depreciation difference have been corrected to be similar to accumulated depreciation difference in taxation. The effect of the correction have been EUR 5,100 thousand between appropriations and retained earnings/loss.

| **Electricity delivered to equity holders of the company (GWh)** | | | | | |
|---|---|---|---|---|---|
| Olkiluoto 1 | **7 144** | 7 035 | 7 387 | 7 254 | 7 458 |
| Olkiluoto 2 | **6 241** | 7 288 | 6 851 | 7 486 | 7 148 |
| Total Olkiluoto 1) | **13 385** | 14 323 | 14 238 | 14 740 | 14 606 |
| Meri-Pori | **131** | 563 | 167 | 400 | 725 |
| Total | **13 516** | 14 886 | 14 405 | 15 140 | 15 331 |

1) Includes wind power 0.6 (1.3 in 2016) GWh and gas turbine power 0.1 (0.4) GWh.

| **Capacity factors, %** | | | | | |
|---|---|---|---|---|---|
| Olkiluoto 1 | **93,1** | 91,4 | 96,2 | 94,5 | 97,1 |
| Olkiluoto 2 | **81,3** | 94,6 | 89,2 | 97,4 | 93,1 |
| Total capacity factor | **87,2** | 93,0 | 92,7 | 96,0 | 95,1 |

| | | | | | |
|---|---|---|---|---|---|
| **TVO share of the electricity used in Finland, %** | **15,8** | 17,5 | 17,5 | 18,2 | 18,2 |

# TVO Group financial statements

## Consolidated income statement

| EUR 1 000 | Note | **1 Jan-31 Dec 2017** | 1 Jan-31 Dec 2016 |
|---|---|---|---|
| Turnover | 3 | **320 928** | 343 398 |
| Work performed for own purpose | 4 | **12 888** | 10 718 |
| Other income | 5 | **11 844** | 11 155 |
| Materials and services | 6 | **-120 911** | -158 329 |
| Personnel expenses | 7 | **-57 728** | -59 507 |
| Depreciation and impairment charges | 3,8 | **-54 385** | -54 807 |
| Other expenses | 9 | **-92 717** | -91 608 |
| **Operating profit/loss** | | **19 919** | 1 020 |
| Finance income | 10 | **12 239** | 16 189 |
| Finance expenses | 10 | **-42 881** | -30 042 |
| Total finance income and expenses | 3 | **-30 642** | -13 853 |
| Share of the profit/loss of joint ventures | | **1 290** | 2 301 |
| **Profit/loss before income tax** | | **-9 433** | -10 532 |
| Income taxes | 11 | **2** | -1 |
| **Profit/loss for the financial year** | | **-9 431** | -10 533 |
| **Profit/loss for the financial year attributable to:** | | | |
| Equity holders of the company | | **-9 431** | -10 533 |

## Consolidated statement of comprehensive income

| EUR 1 000 | **1 Jan-31 Dec 2017** | 1 Jan-31 Dec 2016 |
|---|---|---|
| Profit/loss for the financial year | **-9 431** | -10 533 |
| Other comprehensive items | | |
| Items that may be reclassified to profit or loss in subsequent periods: | | |
| Changes in fair values of the available-for-sale investments | **-14** | -371 |
| Cash flow hedges | **-9 181** | -7 490 |
| Total other comprehensive profit/loss items | **-9 195** | -7 861 |
| **Total comprehensive profit/loss for the financial year** | **-18 626** | -18 394 |
| **Total comprehensive profit/loss for the financial year attributable to:** | | |
| Equity holders of the company | **-18 626** | -18 394 |

# Consolidated balance sheet

| EUR 1 000 | Note | **31 Dec 2017** | 31 Dec 2016 |
|---|---|---|---|
| **Assets** | | | |
| **Non-current assets** | | | |
| Property, plant and equipment | 12 | **5 261 866** | 5 040 266 |
| Intangible assets | 13 | **4 662** | 7 758 |
| Loans and other receivables | 16 | **658 679** | 1 030 307 |
| Investments in joint ventures | 14 | **4 602** | 3 312 |
| Investments in shares | 17 | **1 934** | 1 934 |
| Derivative financial instruments | 20 | **35 291** | 95 795 |
| Share in the Finnish State Nuclear Waste Management Fund | 24 | **953 136** | 954 631 |
| **Total non-current assets** | | **6 920 170** | 7 134 003 |
| **Current assets** | | | |
| Inventories | 19 | **257 090** | 249 424 |
| Trade and other receivables | 16 | **41 373** | 46 553 |
| Derivative financial instruments | 20 | **14 670** | 9 998 |
| Fund units | 17 | **0** | 200 014 |
| Cash and cash equivalents | 18 | **140 239** | 312 236 |
| **Total current assets** | | **453 372** | 818 225 |
| **Total assets** | | **7 373 542** | 7 952 228 |
| **Equity and liabilities** | | | |
| **Capital and reserves attributable to equity** holders of the company | | | |
| Share capital | 21 | **606 193** | 606 193 |
| Share premium reserve and statutory reserve | 21 | **242 383** | 242 383 |
| Fair value and other reserves | 21 | **-4 475** | 4 720 |
| Subordinated shareholder loans (hybrid equity) | 21 | **579 300** | 479 300 |
| Retained earnings | 21 | **243 293** | 256 656 |
| **Total equity** | | **1 666 694** | 1 589 252 |
| **Liabilities** | | | |
| **Non-current liabilities** | | | |
| Provision related to nuclear waste management | 24 | **953 136** | 954 631 |
| Loan from the Finnish State Nuclear Waste Management Fund | 22 | **655 518** | 1 027 050 |
| Bonds | 22 | **2 525 834** | 2 749 544 |
| Other financial liabilities | 22 | **943 997** | 1 053 700 |
| Derivative financial instruments | 20,22 | **24 360** | 58 547 |
| **Total non-current liabilities** | | **5 102 845** | 5 843 472 |
| **Current liabilities** | | | |
| Current financial liabilities | 22 | **392 540** | 309 394 |
| Derivative financial instruments | 20,22 | **35 934** | 7 742 |
| Advance payments received | 23 | **40 178** | 41 609 |
| Trade payables | 23 | **6 160** | 17 005 |
| Other current liabilities | 23 | **129 191** | 143 754 |
| **Total current liabilities** | | **604 003** | 519 504 |
| **Total liabilities** | | **5 706 848** | 6 362 976 |
| **Total equity and liabilities** | | **7 373 542** | 7 952 228 |

# Consolidated statement of changes in total equity

| EUR 1 000 | Share capital | Share premium reserve and statutory reserve | Fair value and other reserves | Subordinated shareholder loans (hybrid equity) | Retained earnings | Attributable to equity holders of the company | Total equity |
|---|---|---|---|---|---|---|---|
| **Equity 1 Jan 2017** | **606 193** | **242 383** | **4 720** | **479 300** | **256 656** | **1 589 252** | **1 589 252** |
| Profit/loss for the financial year | 0 | 0 | 0 | 0 | -9 431 | -9 431 | -9 431 |
| Other comprehensive profit/loss items: | | | | | | | |
| Changes in fair values of the available-for-sale-investments | 0 | 0 | -14 | 0 | 0 | -14 | -14 |
| Cash flow hedges | 0 | 0 | -9 181 | 0 | 0 | -9 181 | -9 181 |
| Subordinated shareholder loans (hybrid equity) | 0 | 0 | 0 | 100 000 | 0 | 100 000 | 100 000 |
| Interest paid of subordinated shareholder loans (hybrid equity) | 0 | 0 | 0 | 0 | -3 932 | -3 932 | -3 932 |
| **Equity 31 Dec 2017** | **606 193** | **242 383** | **-4 475** | **579 300** | **243 293** | **1 666 694** | **1 666 694** |

| EUR 1 000 | Share capital | Share premium reserve and statutory reserve | Fair value and other reserves | Subordinated shareholder loans (hybrid equity) | Retained earnings | Attributable to equity holders of the company | Total equity |
|---|---|---|---|---|---|---|---|
| **Equity 1 Jan 2016** | **606 193** | **242 383** | **12 581** | **479 300** | **271 542** | **1 611 999** | **1 611 999** |
| Profit/loss for the financial year | 0 | 0 | 0 | 0 | -10 533 | -10 533 | -10 533 |
| Other comprehensive profit/loss items: | | | | | | | |
| Changes in fair values of the available-for-sale-investments | 0 | 0 | -371 | 0 | 0 | -371 | -371 |
| Cash flow hedges | 0 | 0 | -7 490 | 0 | 0 | -7 490 | -7 490 |
| Subordinated shareholder loans (hybrid equity) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Interest paid of subordinated shareholder loans (hybrid equity) | 0 | 0 | 0 | 0 | -4 353 | -4 353 | -4 353 |
| **Equity 31 Dec 2016** | **606 193** | **242 383** | **4 720** | **479 300** | **256 656** | **1 589 252** | **1 589 252** |

# Consolidated cash flow statement

| EUR 1 000 | Note | **2017** | 2016 |
|---|---|---|---|
| **Operating activities** | | | |
| Profit/loss for the financial year | | **-9 431** | -10 533 |
| Adjustments: | | | |
| Income tax expenses | | **-2** | 1 |
| Finance income and expenses | | **30 642** | 13 853 |
| Depreciation and impairment charges | | **54 385** | 54 807 |
| Share of the profit/loss of joint ventures | | **-1 290** | -2 301 |
| Other non-cash flow income and expenses | | **-15 683** | -408 |
| Sales profit/loss of property, plant and equipment and shares | | **-224** | -101 |
| Changes in working capital: | | | |
| Increase (-) or decrease (+) in non-interest-bearing receivables | | **4 097** | -18 435 |
| Increase (-) or decrease (+) in inventories | | **-7 666** | 996 |
| Increase (+) or decrease (-) in short-term non-interest-bearing liabilities | | **-26 366** | 63 974 |
| Interest paid and other finance expenses | | **-562** | -2 724 |
| Interest received | | **5 734** | 8 183 |
| Taxes paid | | **2** | -1 |
| **Cash flow from operating activities** | | **33 636** | 107 311 |
| **Investing activities** | | | |
| Acquisition of property, plant and equipment | | **-290 893** | -343 479 |
| Proceeds from sale of property, plant and equipment | | **41** | 203 |
| Acquisition of intangible assets | | **-143** | -376 |
| Acquisition of shares | | **-6** | -6 |
| Investments in fund units [1)] | | **200 000** | -100 000 |
| Proceeds from sale of shares | | **486** | 0 |
| Loan receivables granted | | **-15 603** | -18 135 |
| Repayments of loans granted | | **387 278** | 276 |
| **Cash flow from investing activities** | | **281 160** | -461 517 |
| **Financing activities** | | | |
| Withdrawals of subordinated shareholder loans (hybrid equity) | | **100 000** | 0 |
| Withdrawals of long-term loans | | **100 000** | 993 000 |
| Repayment of long-term loans | | **-632 135** | -376 915 |
| Interest paid of subordinated shareholder loans (hybrid equity) | | **-3 710** | -4 448 |
| Increase (-) or decrease (+) in interest-bearing receivables | | **0** | 13 |
| Increase (+) or decrease (-) in current financial liabilities | | **-50 948** | -65 444 |
| **Cash flow from financing activities** | | **-486 793** | 546 206 |
| **Change in cash and cash equivalents** | | **-171 997** | 192 000 |
| Cash and cash equivalents 1 Jan | | **312 236** | 120 236 |
| **Cash and cash equivalents 31 Dec** | 18 | **140 239** | 312 236 |

[1)] The presentation has been corrected compared to the 2016 financial statements. Investments in fund units have been transferred to the cash flow from investing activities.

# Notes to the consolidated financial statements

## 1 General information on the Group

Teollisuuden Voima Oyj together with its subsidiary forms the TVO Group. The ultimate parent of the Group is Teollisuuden Voima Oyj, domiciled in Helsinki.

The Company owns and operates two nuclear power plant units (OL1 and OL2) and has a third unit (OL3) under construction at Olkiluoto in the municipality of Eurajoki. In addition to the nuclear power plant in Olkiluoto, TVO has a share in the Meri-Pori coal-fired power plant and in a gas turbine plant and owns a wind power plant in Olkiluoto.

Copies of the consolidated financial statements are available at the internet address www.tvo.fi.

These consolidated financial statements were authorized for issue by the Board of Directors of TVO in its meeting on 28 February 2018. Under the Finnish Limited Liability Companies Act the Shareholders' meeting may modify or reject the financial statements.

**TVO's cost-price principle**

TVO is a public limited liability company owned by Finnish industrial and energy companies. Under its Articles of Association, TVO supplies electricity to its shareholders at cost (so-called Mankala principle), which means that it delivers the electricity it has produced or procured to its shareholders in proportion to their shareholdings in each series. Each of the shareholders of each series bears their share of the variable and fixed annual costs as specified in detail in the Articles of Association.

In accordance with TVO's Articles of Association, each shareholder of each series is responsible for the following variable annual costs of the Company allocated to the series in proportion it has consumed the electricity generated or transferred by the Company:

- Acquisition, transport, transportation insurance, storage and handling costs of fuel;
- Taxes depending on the power production, and
- Other costs incurred to the company directly depending on the power volume used by the respective shareholder

In accordance with TVO's Articles of Association each shareholder of each series, irrespective of whether or not it has used its share of electricity, is responsible for the following fixed annual costs of the Company in proportion of the number of shares in particular series it holds:

- Normal operating, maintenance and administrative costs;
- Other taxes than those depending on the power production;
- Insurance costs;
- Installments and interest payments on the loans of the Company falling due annually in accordance with the loan agreements of the cCompany as well as other expenses resulting from the financing of the Company or the arranging thereof;
- Depreciations;
- Costs set out in the Nuclear Energy Act incurred by the Company's nuclear waste management (concerning the nuclear power plants), and

- Other costs independent of power production related to the Company's normal business and included in the budget or approved by the Board of Directors.

In accordance with TVO's Articles of Association, each shareholder's share of the liability for the annual costs will always be limited to the amount corresponding to the proportion of its shareholding to all shares belonging to the same series, and another shareholder's failure will not increase the shareholder's liability based on shareholding. Only the Company will have the sole right to call upon the responsibility of the shareholders defined in the Articles of Association. The shareholders shall not be liable for costs other than the costs of the Company mentioned above, unless otherwise agreed.

A prerequisite to the shareholder's right to receive electricity is that it has paid its share of costs on time. If a shareholder neglects to observe its payment obligation, the Company will have the right to immediately cut off the distribution of electricity to the shareholder and to sell the shareholder's portion of electricity to a party submitting the best offer, primarily to another shareholder of the Company.

The cost-price principle is described in detail in the Articles of Association.

# 2 Accounting policies

## Basis of preparation

These consolidated financial statements of TVO Group have been prepared in accordance with International Financial Reporting Standards (IFRS). These financial statements have been prepared in accordance with the IAS and IFRS standards and SIC and IFRIC interpretations effective at 31 December 2017. In the Finnish Accounting Act and regulations issued by virtue of it, “IFRS” refers to the standards and interpretations which have been endorsed by the EU in accordance with the procedure defined in the EU Regulation (EY) No. 1606/2002.

The consolidated financial statements have been prepared under the historical cost convention, except for fund units and investments in shares and derivative financial instruments, which are recognized at fair value.

The consolidated financial statements are presented in euros, which is the functional and presentation currency of the Group's parent company.

The consolidated financial statements have been prepared according to the same accounting policies as in 2016. The Group has adopted the following amendments to existing standards on 1 January 2017:

- IAS 12 (amendment) Income Taxes

  The amendment has not had impact on the consolidated financial statements.

- IAS 7 (amendment) Statement of Cash Flow

  As a result of the amendment, the Group discloses new information of net debts.

The following new standards, interpretations and amendments to existing standards and interpretations issued already will be adopted by the Group in 2018:

- IFRS 9 Financial Instruments

The standard replaces the multiple classification and measurement models in IAS 39 and it will bring changes to classification and measurement of financial assets, their impairment assessment and hedge accounting. The new impairment model requires the recognition of impairment provisions based on expected credit losses. The Group will apply to the recognition of the credit risk of trade receivables a simplified provision matrix, because the annual consolidated credit losses have been very low and trade receivables do not include any significant financial components. Thus the expected credit losses referred to in the new model do not have any significant impact. The classification of financial assets will not change remarkably.

Loan receivables will still be measured at amortized cost and no changes are expected to take place in the recognition practice applied to financial liabilities, because the Group does not have any liabilities to which fair value options would be applied.

Fund units investments are measured at fair value, and changes in fair value are recognized through profit or loss to the income statement. Direct market prices are not available for unquoted shares and therefore their fair value is determined using methods based on management judgement.

The hedge accounting model presented in IFRS 9 facilitates the application of hedge accounting and the new hedge accounting rules will align the accounting for hedging instruments more closely with common Group risk management practices. The hedge ratios of the Group, based on IAS 39, meet the requirements of IFRS 9 as well, and therefore remain unchanged. The application of consolidated operative hedge accounting will be facilitated as the adoption of IFRS 9 eliminates the 80–125% retrospective effectiveness requirement. With the adoption of IFRS 9, the assessment of hedge effectiveness will be exclusively prospective. The ineffectiveness of consolidated hedge ratios is expected to remain very low also in the future.

The IFRS 9 standard defines three requirements for hedge effectiveness for the application of hedge accounting. The first one requires an economic relationship between the hedged item and the hedging instrument. This means that changes in the values of the hedging instrument and the hedged item can be expected to be opposite as they are based on a shared instrument or risk. The standard also requires that the effect of credit risk does not dominate value changes caused by the economic relationship. Thirdly, the hedging degree of the hedge ratio shall be the same as the hedging degree based on the quantity of the item actually hedged by the entity and the quantity of the hedging instrument actually used by the entity to hedge the quantity of the hedged item in question. IFRS 9 requires the same hedging degree as the one actually used in risk management. These changes do not have any significant impact on the Group.

- IFRS 15 Revenue from Contracts with Customers

The standard will replace IAS 18 which covers contracts for goods and services and IAS 11 which covers construction contracts.

The new standard is based on the principle that revenue is recognised when control of a good or service transfers to a customer – so the notion of control replaces the existing notion of risks and rewards.

A new five-step process must be applied before revenue can be recognised:

- identify contracts with customers
- identify the separate performance obligation
- determine the transaction price of the contract
- allocate the transaction price to each of the separate performance obligations, and
- recognise the revenue as each performance obligation is satisfied.

The standard does not change the recognition of the revenue. Turnover of the Group mainly consists of electricity revenue, which will still be recognized based on delivery. Revenue on sales of the electricity is divided into variable and fixed charges, see General information on the Group, TVO's cost-price principle. As a result of the new standard, Group will disclose a new note concerning trade receivables starting from 2018 financial statements. The new note will divide trade receivables between nuclear power and coal-fired power and also between production of electricity and services. This standard has not been adopted in financial statements 2017.

- Annual Improvements 2014-2016: IFRS 12 Disclosure of Interests in Other Entities 1) and IAS 28 Investments in Associates and Joint Ventures 2)
- IFRS 4 (amendment) Insurance Contracts
- IFRS 2 (amendment) Share-based Payment Transactions 2)
- IFRIC 22 Foreign Currency Transactions and Advance Considerations 2)
- IAS 40 (amendment) Investment Property 2)

Management is assessing the impact of these changes on the financial statements of the Group.

1) The standard, interpretation or amendment to published standard or interpretation is still subject to endorsement by the European Union. Effective date will be 1 January 2017.

2) The standard, interpretation or amendment to published standard or interpretation is still subject to endorsement by the European Union. Effective date will be 1 January 2018.

The following new standards, interpretations and amendments to existing standards and interpretations issued already will be adopted by the Group in 2019 or later:

- IFRS 16 Leases

  The standard removes the current distinction between operating and financing leases and requires recognition of an asset (the right to use the leased item) and a financial liability to pay rentals for virtually all lease contracts. Under IFRS 16, a contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

  Based on initial assessment, the Group estimates that the new standard has no significant impact on the consolidated financial statements, since the remarkable lease agreements have been already recognized as a finance lease on the consolidated financial statements.

- IFRIC 23 Uncertainty over Income Tax Treatments 1)
- IFRS 9 (amendment) Financial Instruments 1)
- IAS 28 (amendment) Investments in Associates and Joint Ventures 1)
- Annual Improvements 2015-2017 1)
- IFRS 17 Insurance Contracts 2)

Management is assessing the impact of these changes on the financial statements of the Group.

1) The standard, interpretation or amendment to published standard or interpretation is still subject to endorsement by the European Union. Effective date will be 1 January 2019.
2) The standard, interpretation or amendment to published standard or interpretation is still subject to endorsement by the European Union. Effective date will be 1 January 2021.

## Companies included in the consolidated financial statement

**Subsidiaries**

The consolidated financial statements include Teollisuuden Voima Oyj (TVO) and its subsidiary TVO Nuclear Services Oy. Subsidiaries are companies in which the Group has control at the end of the financial period. Control exists if the Group holds more than a half of the voting rights or otherwise has control. Subsidiaries acquired are consolidated from the date on which control is transferred to the Group, and subsidiaries sold are no longer consolidated from the date that control ceases.

The purchase method of accounting is used to consolidate subsidiaries into the Group. The purchase price is determined as the aggregate of the acquisition date fair values of the assets given as consideration and liabilities incurred or assumed. Costs directly attributable to the acquisition are recognized in profit or loss.

In the consolidation, intercompany share ownership, intercompany transactions, receivables, liabilities, unrealized gains and internal distributions of profits are eliminated. Unrealized losses are not eliminated, if the losses are due to impairment of the asset being transferred. To ensure consistency, subsidiaries' accounting policies have, in all material respects, been changed to conform to the accounting policies adopted by the Group.

**Joint ventures**

The Group applies IFRS 11 to all joint arrangements. Under IFRS 11 investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations each investor.

TVO's joint venture is Posiva Oy, which main activities (A series) is final disposal of nuclear fuel of nuclear power plants. Both ventures are liable for its main activities in proportion to their own usage. Posiva Solutions Oy is a wholly-owned subsidiary of Posiva Oy (B series). Posiva Solutions Oy focuses on the sales of the know-how Posiva has accumulated from its design, research and development activities in the final disposal of spent nuclear fuel, as well as on associated consulting services. Posiva Group is accounted for by the equity method of accounting.

Under the equity method of accounting, interests in joint ventures are initially recognized at cost and adjusted thereafter to recognize the Group's share of the post-acquisition profits or losses and movements in other comprehensive income. When the Group's share of losses in a joint venture equals or exceeds its interests in the joint ventures, the Group does not recognize further losses, unless it has incurred obligations or made payments on behalf of the joint ventures.

Unrealized gains on transactions between the Group and its joint venture are eliminated to the extent of the Group's interest in the joint ventures. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Account policies of the joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

## Segment reporting

The Group has two reportable segments; nuclear power and coal power. The Board of Directors is the chief operation decision maker.

## Revenue recognition principles

TVO operates on a cost-price principle. Revenue is recognized based on the consideration received when electricity is delivered or services are rendered. Revenue is presented net of indirect sales taxes. Revenue is recognized as follows:

**Sales of electricity and other revenue**

Revenue on sales of electricity is divided into variable and fixed charge. Revenue on sales of electricity concerning variable charge is recognized based on delivery. The recognized income for shareholders is based on the quantities delivered. The variable charge is invoiced and recognized in turnover monthly. These variable costs are payed retrospectively in the 24th next month. The fixed costs are invoiced one month in advance and recognized advance payments received. The fixed charge is entered as income in the right month. According to TVO's Articles of Association the fixed costs must be paid monthly in advance and no later than the 24th day of the preceding month.

The revenue from services is recognized on an accrual basis on the accounting period when the services are rendered to the customer and when the control of the service transfers to a customer.

Revenue on long-term consulting services projects that spread over several accounting periods is recognized based on the proportion of costs incurred from work performed up to the balance sheet date and the estimated total expenses of the project. If it is probable that total contract costs will exceed total contract revenue, the expected loss is recognized as an expense immediately.

**Other income**

Revenue from activities outside the ordinary course of business is reported as other income. This includes joint ventures' revenue from services, rental income and non-recurring items, such as gains from sales of property, plant and equipment. Rental income is recognized on a straight line basis over the rental period and gains from sales of property, plant and equipment when the significant risks and rewards of ownership, interests and control have been transferred to the buyer.

## Government grants

Grants are recognized at their fair value, when the Group meets all the conditions attached to them and where there is a reasonable assurance that the grant will be received. Government grants relating to costs are deferred on the balance sheet and recognized in the income statement over the period in which their relevant costs are recorded. Government grants relating to the purchase of property, plant and equipment are deducted from the acquisition cost of the asset.

## Research and development costs

Research and development costs (except R&D costs related to nuclear waste management) of the Group are recognized as an expense as incurred and included in other expenses in the income statement. Development costs are capitalized if it is assured that they will generate future income, in which case they are capitalized as intangible assets and amortized over the period of the income streams. Currently the Group does not have any development costs that would qualify for capitalization.

Research costs that relate to nuclear waste management are discussed in paragraph Assets and provisions related to nuclear waste management obligations.

## Property, plant and equipment

Property, plant and equipment of the Group are stated on the consolidated balance sheet at historical cost less grants received, accumulated depreciation and impairment charges, if any. Historical cost includes expenditure that is directly attributable to the acquisition of an item.

In the historical costs of power plant projects and other significant investments (completion time more than a year) the financing costs incurred during the construction period will be included.

The historical costs of nuclear power plants include furthermore the estimated costs of dismantling and removing an item and restoring the site on which it is located (more information is included in paragraph Assets and provisions related to nuclear waste management obligations).

Land and water areas are not depreciated.

Other property, plant and equipment are depreciated using the straight-line method over their estimated useful lives.

Straight-line depreciation is based on the following estimated useful lives:

| | |
|---|---|
| OL1 and OL2 nuclear power plant units': | |
| - Basic investment | 61 years |
| - Investments made according to the modernization program | 21–35 years |
| - Automation investments associated with the modernization | 15 years |
| - Additional investments | 10 years |
| Buildings and structures | 10–40 years |
| TVO's share in the Meri-Pori coal-fired power plant: | |
| - Basic investment | 25 years |
| - Additional investments | 10 years |
| Wind power plant | 10 years |
| TVO's share in the Olkiluoto gas turbine power plant | 30 years |

The assets' residual values and useful lives are reviewed, and adjusted if appropriate to reflect the changes in expectations of economic benefits.

Costs of renewal of an item or a part of an item of property, plant and equipment are capitalized if the part is accounted for as a separate item. Otherwise, the subsequent expenditure is included in the carrying amount only when it is probable that future economic benefits associated with the expenditure will flow to the Group.

Annual repair and maintenance costs are recognized in profit or loss, when they occur. Investments connected with the modernization and maintenance of the power plant units are capitalized.

OL3 EPR is nuclear power plant unit under construction. All the realized costs on the OL3 EPR-project that meet recognication criteria are shown as incomplete plant investment. See note 12 Property, plant and Equipment.

## Intangible assets

Intangible assets are shown at historical cost less grants received, accumulated amortization and impairment losses if applicable. Historical cost includes costs directly attributable to the acquisition of the particular asset.

Other long-term expenditure included in intangible assets are amortized on a straight-line basis over their estimated useful lives. These include computer software and certain payments made for the use of assets.

The amortization periods of the intangible assets are as follows:

| | |
|---|---|
| - Computer software | 10 years |
| - Other intangible assets | 10 years |

The amortization period of an intangible asset is changed where necessary if the estimated useful life changes from that previously estimated.

Furthermore, intangible assets include carbon dioxide ($CO_2$) emission rights. Emission rights are recognized at historical cost, and are presented under emission rights. The current liability for returning emission rights is recognized at the carrying value of possessed emission rights. If there is a shortfall, a current liability is recognized to cover the acquisition of the missing emission rights. This current liability is valued at the current market value of the emission rights at the balance sheet date. The cost of the emission rights is recognized in the income statement under costs of materials and services. The gains from the sales of emission rights are refunded to the equity holders of the company.

## Impairment of property, plant and equipment and intangible assets

The Group assesses at each balance sheet date whether there are indications that the carrying amount of an asset may not be recoverable. If such indications exist, the recoverable amount of the asset in question will be measured. For the purposes of assessing impairment, assets are examined at the level of cash-generating units, that is, at the lowest level that is mainly independent of other units and for which there are separately identifiable cash flows and largely independent from those of corresponding units.

The recoverable amount is the higher of an asset's fair value less costs to sell or value in use. The value in use is determined by reference to discounted future cash flows expected to be generated by the asset. The discount rate used is pre-tax and reflects the time value of money and asset specific risks.

Impairment loss is recognized when the carrying amount of the asset is greater than its recoverable amount. Impairment loss is charged directly to the income statement. If a cash-generating unit is subject to an impairment loss, it is allocated first to decrease the goodwill and subsequently, to decrease the other assets of the unit. At recognition of the impairment loss, the useful life of the reamortized assets is reassessed. Impairment loss of other assets than goodwill is reversed in the case that a change has occurred in the estimates used in measuring the recoverable amount of the asset. The increased carrying amount must not, however, exceed the carrying amount that would have been determined had no impairment loss been recognized in prior years.

## Inventories

Inventories are measured at acquisition cost. The acquisition cost comprises raw materials, direct labor and other direct costs. The carrying amount of inventories is not reduced to a value that is less than its acquisition cost, as TVO operates at cost price, so the net realizable value of inventories always covers their acquisition cost. The cost of coal is determined by using the FIFO (first in, first out) method and the cost of supplies is determined by using the rolling weighted average cost formula. The use of nuclear fuel is recognized according to calculated consumption.

## Leases

**Finance leases**

Leases are classified as finance leases when all substantial risks and rewards incidental to ownership are transferred to the Group. Assets acquired under finance leases are recognized in the balance sheet at the commencement of the lease term at the fair value of the leased asset or, if lower, the present value of the minimum lease payments. Leased assets are depreciated over the shorter of the useful life of the asset and the lease term. Lease obligations are recognized under interest-bearing liabilities.

Lease payments are apportioned during the lease term between the finance charge and the reduction of the outstanding liability to produce a constant periodic rate of interest on the remaining balance of the liability.

**Other leases**

Lease payments under other leases are recognized in the income statement as an expense under the accrual principle on a straight-line basis over the lease term.

Lease payments received are recognized as income on a straight-line basis over the lease term and presented in the income statement under other income.

## Financial assets

The Group has classified its financial assets into four categories as following: derivative financial instruments at fair value through profit or loss, derivative financial instruments designated as cash flow and fair value hedges, loans and other receivables, and available-for-sale investments. The classification is based on the purpose of the acquisition of the assets, and the assets are classified at initial acquisition.

Transaction costs are included at original book value of financial assets, except for items that are measured at fair value through profit or loss. All purchases and sales of financial assets are recognized at fair value on the trading date.

Financial assets are derecognized when the contractual rights to the cash flows of the investment expire or have been transferred or the Group has substantially transferred all the risks and benefits of ownership.

**Derivative financial instruments at fair value through profit or loss**

Derivative financial instruments that do not meet the criteria for hedge accounting according to IAS 39 are booked at fair value to profit or loss. Gains and losses from changes in fair value are recognized in the income statement in the period in which they arise, except when they relate to the construction of OL3 EPR power plant and are capitalized as part of the cost of the asset.

**Derivative financial instruments designed as cash flow and fair value hedges**

Financial assets include derivative financial instruments (see Derivative financial instruments and hedge accounting).

**Loans and other receivables**

Loans and other receivables include non-current loans and other receivables as well as current trade and other receivables. Items that mature after 12 months are recognized in non-current assets. After initial recognition, all loans and other receivables are measured at amortized cost using the effective interest method. Trade receivables are recognized on the balance sheet at their original nominal value, which reflects their fair value.

**Available-for-sale investments**

Available-for-sale investments include investments in shares, which are recognized on the non-current assets in investments in shares and fund units, which are recognized on the non-current or current assets in fund units. Available-for-sale investments are measured at fair value, and the changes in fair value are recognized in other comprehensive items in the fair value reserve under equity. The changes in fair value are transferred from equity to the income statement when the investment is sold or when it is impaired so that an impairment loss needs to be recognized. Investments in unquoted shares whose fair value cannot be reliably determined are measured at acquisition cost.

**Cash and cash equivalents**

Cash and cash equivalents consist of cash on hand, demand deposits and other current, highly liquid investments. Assets classified as cash and cash equivalents have a maturity of three months or less from the date of acquisition.

**Impairment of financial assets**

At each closing date, the Group estimates whether there is any objective evidence that a financial asset or group of financial assets is impaired. If the fair value of equity investment is significantly below its acquisition cost at the closing date, this is evidence of the impairment of equities classified as available-for-sale. If any evidence exists of the impairment, any loss accumulated in the fair value reserve is transferred into profit or loss. Impairment losses on equity investments classified as available-for-sale are not reversed through profit or loss, whereas subsequent reversals of impairment losses on interest-bearing instruments are recognized in profit or loss. The Group recognizes an impairment loss on trade receivables when there is objective evidence that the receivable is not fully collectible.

Evidence of impairment may include indications that the counterparty is experiencing significant financial difficulty, default or delinquency in interest or principal payments, the probability that they will enter bankruptcy or other financial reorganisation, and where observable data indicate that there is a measurable decrease in the estimated future cash flows, such as changes in arrears or economic conditions that correlate with defaults.

## Financial liabilities

Financial liabilities are initially recognized at fair value including related transaction costs. After initial recognition, all financial liabilities are measured at amortized cost using the effective interest method. Financial liabilities include non-current and current liabilities, and they can be interest-bearing or non-interest-bearing. An item is included in current liabilities if it matures within 12 months from the closing date. Financial liabilities also include derivative financial instruments (see Derivative financial instruments and hedge accounting).

## Derivative financial instruments and hedge accounting

The Group uses derivative financial instruments as hedges of the currency risk relating to purchases of fuel and the currency and interest rate risk of loans. The derivative financial instruments are recognized at fair value on the date when the Group becomes a party to a derivative contract, and subsequently measured at fair value on closing date.

Hedge accounting referred to in IAS 39 is applied to instruments entered into for the purpose of hedging of the currency risk of the Group's commitments for purchases of uranium (forward foreign exchange contracts, currency swaps) and to part of the interest rate swaps entered into for the purpose of hedging against the fluctuations in the interest cash flows relating to the loan contracts of the Group.

Both at the inception of a hedge and thereafter, the Group documents its estimate on whether the derivative financial instruments used in the hedge transactions are highly effective. The derivative financial instruments to which hedge accounting is applied are classified as non-current and current assets and liabilities on the basis of the maturity. The Group applies both cash flow and fair value hedge accounting.

**Cash flow hedge**

The effective portion of the changes in the fair values of derivatives designated as and qualifying for cash flow hedges is recognized in other comprehensive items in the fair value reserve under equity. The gain or loss relating to the ineffective portion is recognized in profit or loss, except when they relate to the construction of OL3 EPR power plant and are capitalized as part of the cost of the asset. The fair value changes accumulated in equity are recognized in profit or loss in the same period when the hedged item affects profit or loss.

Gains and losses from hedges of the currency risk related to fuel purchases are transferred from equity to adjust the cost of the item of inventory in question. Gains and losses from hedges related to fuel purchases are recognized to adjust the fuel purchases under the Materials and services item in accordance with inventory recognition principles.

When a hedge no longer qualifies for hedge accounting, or the hedging instrument initially recognized as a cash flow hedge matures or is sold, the cumulative gains or losses currently included in equity are recognized in profit or loss during the lifetime of the hedging instrument in question. When an anticipated transaction is no longer expected to occur, the cumulative gain or loss included in equity is recognized in profit or loss.

When a hedge of the currency risk related to fuel purchases no longer qualifies for hedge accounting, or the hedging instrument initially recognized as a cash flow hedge matures or is sold, the cumulative gains or losses currently included in equity are recognized in inventory at the same moment as the purchase of the inventory. When an anticipated transaction is no longer expected to occur, the cumulative gain or loss included in equity is recognized in profit or loss.

**Fair value hedge**

The Group applies fair value hedge accounting for hedging fixed interest rate risk on publicly traded bonds. Changes in the fair value of derivative financial instruments that qualify as fair value hedges are recognized in the income statement under financial items, along with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk. The carrying amounts of hedged items and fair values of hedging instruments are included in interest-bearing liabilities and assets. If the hedge no longer meets the criteria for hedge accounting, the adjustment to the carrying amount of a hedged item, for which the effective interest method is used, is recognized to profit or loss over the period to maturity.

**Derivatives that do not qualify for hedge accounting**

The changes in the fair value of interest rate options, interest rate swaps and forward foreign exchange contracts that do not qualify for hedge accounting are presented under finance income and expenses, unless they relate to the construction of OL3 EPR power plant and are capitalized as part of the cost of the asset.

## Borrowing costs

Borrowing costs are recognized in profit or loss in the period when they have incurred, except when they relate to the construction of a power plant or any other significant investment, of which completion time exceeds one year. In that case, borrowing costs are capitalized as part of the cost of the asset.

## Foreign currency items

Transactions and financial items denominated in a foreign currency are recognized at the rates on the day when they occur. Receivables and liabilities denominated in a foreign currency are measured in the financial statements at the ECB's official exchange rate on the closing date. Exchange gains and losses from operating activities are included in the corresponding items above operating profit or loss. Exchange differences arising from financial items are recognized in finance income and expenses.

## Equity

**Share capital**

TVO has in its possession three series of shares, A, B and C. The A series entitles the shareholder to the electricity generated by the OL1 and OL2 nuclear power plant units. The B series entitles the shareholder to the electricity that will be generated by the OL3 unit. The C series entitles the shareholder to the electricity generated by the TVO share in the Meri-Pori coal-fired power plant.

Payments received from shares in connection with setting up the TVO and in the form of increases in share capital are recognized under share capital, statutory reserve and share premium reserve.

**Subordinated shareholder loans (hybrid equity)**

Subordinated shareholder loans (hybrid equity) are treated as equity. Subordinated shareholder loans (hybrid equity) are initially recognized at fair value including related transaction costs. There is no maturity date for the subordinated shareholder loans (hybrid equity), but the borrower is entitled to repay the loan in one or several installments. The Board of Directors of the borrower has the right to decide not to pay interest during any current interest period. Unpaid interest does not accumulate to the following interest periods.

The interest of the subordinated shareholder loans (hybrid equity) are recognized in liabilities when the obligation to pay interest is incurred. Interest expenses are recognized in the retained earnings and are not recognized in profit or loss.

## Earnings per share

The Group does not report earnings per share, as the parent company is operating at cost price. The shares of TVO are not traded on a public market.

## Provisions

The Group recognizes a provision for environmental restorations, asset retirement obligations, as well as legal and other claims, when the Group has a legal or constructive obligation and it is likely that an outflow of resources will be required to settle the obligation and the amount of the obligation can be reliably estimated. The provision is measured at the present value of the expenditure expected to be required to settle the obligation. The interest rate used in the measurement of provisions is the estimated long-term borrowing rate plus the ECP's inflation target and an estimated company-specific risk premium. The increase in the provision due to the passage of time is recognized as interest expense.

The most significant provision is that for the nuclear waste management obligation under the Nuclear Energy Act. The provision covers all future expenditure arising from nuclear waste management, including the decommissioning of nuclear power plants, the disposal of spent fuel and a risk marginal.

**Assets and provisions related to the nuclear waste management obligation**

The parent company's nuclear waste management obligation which is based on the Nuclear Energy Act is covered by payments made to the Finnish State Nuclear Waste Management Fund. The obligation covers all the future expenditures for nuclear waste management, including the decommissioning of nuclear power plants, the disposal of spent fuel, and a risk marginal. The amount of payments is determined by assuming that the decommissioning would start at the beginning of the year following the assessment year. The research relating to the disposal, as well as the actual disposal of TVO's spent fuel, are carried out by Posiva Oy, which charges from TVO the costs arising from these activities, including the acquisition cost of property, plant and equipment.

In the consolidated financial statements, TVO's share of the Finnish State Nuclear Waste Management Fund is shown as non-current assets. It is accounted for in accordance with IFRIC 5 Rights to Interests Arising from Decommissioning, Restoration and Environmental Rehabilitation Funds. It is stated that the fund assets are measured at the lower value or the value of the related liabilities since TVO does not have control or joint control over the Finnish State Nuclear Waste Management Fund.

The nuclear waste management obligation is shown as a provision under non-current liabilities. The fair value of the nuclear waste management provision has been determined by discounting the future cash flows which are based on plans about future activity and the estimated expenditure relating to it, taking into account actions already taken.

The present initial value of the provision for the decommissioning of a nuclear power plant (at the time of commissioning the nuclear power plant) has been capitalized as property, plant and equipment and will be adjusted later for possible changes in the plan. The amount recognized relating to decommissioning will be depreciated over the estimated operating time of the nuclear power plant.

The provision for spent fuel covers the future disposal costs of fuel used by the end of each accounting period. The costs for the disposal are expensed during the operating time of the plant, based on fuel usage. The impact of any changes to the plan will be recognized immediately in the income statement based on fuel used by the end of each accounting period.

The timing factor is taken into account by recognizing the interest expense related to discounting the nuclear waste management provision. The interest accruing on TVO's share in the Finnish State Nuclear Waste Management Fund is presented as finance income.

TVO's share in the Finnish State Nuclear Waste Management Fund is higher than the corresponding asset recognized in the balance sheet. The nuclear waste management obligation is covered by TVO's share in the Fund, as required by the Nuclear Energy Act. The obligation for nuclear waste management is not discounted. The amount of the annual payment to the Finnish State Nuclear Waste Management Fund is based on the change on the nuclear waste management obligation and funding obligation target, the share of the profit or loss of the Fund, and the changes resulting from actions taken.

## Taxes

The Group does not recognize deferred taxes, because TVO operates at cost price. According to this principle, TVO will not pay taxes on its operations, and therefore there is no taxable income. The tax recognized by the Group consists of tax relating to non-deductible expenses. It also includes any taxes for previous financial years.

## Employee benefits

The pension benefits for Group personnel have been arranged with external pension insurance companies. The insurance policies relating to earnings-based pensions, as well as some voluntary pension insurance policies, have been accounted for as defined contribution plans.

Payments made to defined contribution plans as to pensions are recognized on an accrual basis in the income statement.

## Critical accounting estimates and judgements

The preparation of financial statements requires estimates and assumptions concerning the future. Estimates and assumptions have an effect on the reported amounts of assets and liabilities, and expenses and income during the accounting period. The actual results may differ from these estimates.

**The provision for future obligations for the decommissioning of the nuclear power plant and for the disposal of spent fuel**

Estimates and assumptions have been used when estimating the assets, liabilities, expenses and income related to the future decommissioning of the nuclear power plant and the disposal of spent fuel. These are based on long-term cash-flow forecasts of estimated future costs.

The main assumptions relate to technical plans, time factor, cost estimates and the discount rate. The technical plans are approved by State authorities. Any changes in the assumed discount rate would change the provision. If the discount rate used were lowered, the provision would increase.

Any future increase in the provision would be offset by the recognition of an equal increase in TVO's share in the assets of the Finnish State Nuclear Waste Management Fund. According to IFRS, the carrying amount of the assets is limited to the value of the provision, as TVO does not have control in the Finnish State Nuclear Waste Management Fund (see note 24 Assets and provisions related to nuclear waste management obligation).

**Power plant construction in progress - OL3 EPR**

OL3 EPR is a power plant unit under construction that has been ordered under a turnkey principle. According to an announcement of the OL3 turnkey supplier, the delivery will be delayed from the original schedule according to which the power plant unit should have been in production as of 30 April 2009. In compliance with the supply contract the company is entitled to compensation in case the delay is due to the supplier. Additionally, because of the delay the company has incurred and will incur direct and indirect expenses for which the company on the basis of the supply contract has claimed for compensation. In its Financial Statement the company handles liquidated damages and compensation receivables and the supplier´s claims related to the plant supply as one entity. Claims between the parties will finally be settled in arbitration. Since the financial result of the arbitration procedure currently in progress cannot be reliably estimated, no receivables or liabilities, as required by IAS 37, have been booked.

No reserves have been booked for the supplier's claims and arbitration procedures. TVO considers its claims to be well-founded and has considered and found the claims of the Supplier to be without merit. In November 2016, July 2017 and November 2017 the ICC Tribunal made final and binding partial awards. The partial awards provides material confirmation for this position and reinforce TVO's view that the balance of the claims is in TVO's favor.

All the realized costs on the OL3 EPR-project that meet recognition criteria have been booked as acquisition costs of property, plant and equipment on the Group balance sheet.

**Impairment testing**

Impairment testing of non-current assets is performed when there are indications that the carrying amount of an asset may not be recoverable. In testing, future discounted cash flows which can be recovered by use of the asset and its possible sale are used as an indicator.

TVO operates on a cost-price principle. According to the company documents, the shareholders are obliged to pay all the expenses of the Company in electricity prices including amortization of property, plant and equipment. When assessing by means of recoverable amounts possible impairment of assets and subsequent need for recognition of impairment loss, the recoverable amounts always correspond, with some exceptions, to the carrying amount of the asset and thus, as a rule, no need for recognition of impairment loss arises.

# 3 Segment reporting

## Segment structure in TVO Group

The Group has two reportable segments; nuclear power and coal power.

The electricity of the nuclear power segment is produced at two nuclear power plant units, Olkiluoto 1 and Olkiluoto 2 (OL1 and OL2). A new unit, Olkiluoto 3 (OL3), is under construction at Olkiluoto. The subsidiary of TVO, TVO Nuclear Services Oy (TVONS), of which operation is related to nuclear power, is also included in the nuclear power segment.

The electricity of coal-fired power segment is produced by TVO share at the Meri-Pori coal-fired power plant.

## Segment calculation principles

TVO Group discloses in the segment information; turnover, depreciation and impairment charges, finance income and expenses, profit/loss for the year and assets, which the chief operation decision maker follows.

The chief operation decision maker follows reporting according to Finnish Accounting Standards (FAS). Adjustments made under IFRS accounting policies are reported in group level.

EUR 1 000

| **Turnover by segments** | **2017** | 2016 |
|---|---|---|
| Nuclear power | **307 561** | 315 076 |
| Coal-fired power | **13 367** | 28 322 |
| Total | **320 928** | 343 398 |

| **Depreciation and impairment charges by segments** | **2017** | 2016 |
|---|---|---|
| Nuclear power | **43 224** | 43 019 |
| Coal-fired power | **7 798** | 7 798 |
| Depreciation and impairment charges (FAS) | **51 022** | 50 817 |
| The impact of the nuclear waste management obligation | **3 335** | 3 990 |
| Other IFRS adjustments | **28** | 0 |
| Total (IFRS) | **54 385** | 54 807 |

| **Finance income and expenses by segments** | **2017** | 2016 |
|---|---|---|
| Nuclear power | **483** | 906 |
| Coal-fired power | **-78** | 202 |
| Finance income and expenses (FAS) | **405** | 1 108 |
| The impact of the nuclear waste management obligation | **31 381** | 13 561 |
| The impact of financial instruments | **-37** | 2 |
| Other IFRS adjustments | **-1 107** | -818 |
| Total (IFRS) | **30 642** | 13 853 |

| **Profit/loss for the financial year by segments** | **2017** | 2016 |
|---|---|---|
| Nuclear power | **10 597** | 5 927 |
| Coal-fired power | **-3 402** | -2 435 |
| Profit/loss before appropriations (FAS) | **7 195** | 3 492 |
| The impact of the nuclear waste management obligation | **-19 032** | -17 143 |
| The impact of financial instruments | **37** | -2 |
| Other IFRS adjustments | **1 079** | 819 |
| Share of the profit/loss of joint ventures | **1 290** | 2 301 |
| Total (IFRS) | **-9 431** | -10 533 |

| **Assets by segments** | **2017** | 2016 |
|---|---|---|
| Nuclear power | **6 286 732** | 6 769 274 |
| Coal-fired power | **5 744** | 24 240 |
| Total (FAS) | **6 292 476** | 6 793 514 |
| The impact of the nuclear waste management obligation | **1 029 849** | 1 050 376 |
| The impact of financial instruments | **12 348** | 66 204 |
| The impact of finance leases | **54 889** | 56 577 |
| Other IFRS adjustments | **-19 611** | -16 744 |
| Share of the profit/loss of joint ventures | **3 591** | 2 301 |
| Total (IFRS) | **7 373 542** | 7 952 228 |

## Group-wide disclosures

| **Turnover shared to production of electricity and services** | **2017** | 2016 |
|---|---|---|
| Production of electricity | **316 171** | 339 878 |
| Services | **4 757** | 3 520 |
| Total | **320 928** | 343 398 |

## Information about geographical areas

Teollisuuden Voima Oyj is company owned by Finnish industrial and power companies. TVO delivers electricity to its shareholders at cost price (so-called Mankala principle) , i.e. delivers the electricity produced to its shareholders in proportion to their shareholdings in each series.

The Group assets are located in Finland except part of inventories of nuclear fuel acquisition.

# 4 Work performed for own purpose

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Personnel expenses related to OL3 | **12 888** | 10 718 |
| Total | **12 888** | 10 718 |

# 5 Other income

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Rental income | **1 238** | 970 |
| Profits from sales of property, plant and equipment and shares | **259** | 101 |
| Sales of services | **9 509** | 9 346 |
| Other income | **839** | 738 |
| Total | **11 844** | 11 155 |

# 6 Materials and services

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Nuclear fuel | **64 604** | 61 251 |
| Coal | **207** | 5 557 |
| Materials and supplies | **4 652** | 4 443 |
| $CO_2$ emission rights | **677** | 2 662 |
| Nuclear waste management services 1) | **48 233** | 72 347 |
| Increase (-) or decrease (+) in inventories | **-8 249** | 833 |
| External services | **10 786** | 11 236 |
| Total | **120 911** | 158 329 |

1) See note 24 Assets and provision related to nuclear waste management obligation.

# 7 Personnel expenses

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| **Employee benefit costs** | | |
| Wages and salaries | **49 000** | 48 356 |
| Pension expenses - defined contribution plans | **6 686** | 8 207 |
| Other compulsory personnel expenses | **2 042** | 2 944 |
| Total | **57 728** | 59 507 |

## Employee bonus system

The Nomination and Remuneration Committee under the Board of Directors approves TVO's commitment and remuneration systems. All permanent and long-term temporary employees are included in the employee bonus system. Some of the personnel have deposited their bonuses in the Teollisuuden Voima Personnel Fund.

| **Average number of personnel during financial year** | **2017** | 2016 |
|---|---|---|
| Office personnel | **666** | 632 |
| Manual workers | **135** | 133 |
| Total | **801** | 765 |

| **Number of personnel on December 31** | | |
|---|---|---|
| Office personnel | **671** | 622 |
| Manual workers | **136** | 125 |
| Total | **807** | 747 |

# 8 Depreciation and impairment charges

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Intangible assets | | |
| Computer software | **414** | 379 |
| Other intangible assets | **841** | 842 |
| Total | **1 255** | 1 221 |
| Property, plant and equipment | | |
| Buildings and construction | **6 648** | 7 026 |
| Machinery and equipment | **40 481** | 39 718 |
| Other property, plant and equipment | **2 666** | 2 853 |
| Decommissioning | **3 335** | 3 989 |
| Total | **53 130** | 53 586 |
| | | |
| Total | **54 385** | 54 807 |

# 9 Other expenses

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Maintenance services | **21 024** | 16 509 |
| Regional maintenance and service | **9 329** | 8 235 |
| Research services | **4 300** | 4 504 |
| Other external services | **24 223** | 31 627 |
| Real estate tax | **4 828** | 6 067 |
| Rents | **1 204** | 1 092 |
| ICT expenses | **3 937** | 4 003 |
| Personnel related expenses | **4 267** | 3 927 |
| Corporate communication expenses | **810** | 767 |
| Other expenses | **18 795** | 14 877 |
| Total | **92 717** | 91 608 |

| **Auditors' fees and not audit-related services PricewaterhouseCoopers Oy** | **2017** | 2016 |
|---|---|---|
| Audit fees | **115** | 139 |
| Other services | **170** | 94 |
| Total | **285** | 233 |

# 10 Finance income and expenses

EUR 1 000

| Items included in the income statement | 2017 | 2016 |
|---|---|---|
| Interest income from loans and other receivables | | |
| Nuclear waste management loan receivables from equity holders of the company | **3 772** | 5 658 |
| Other | **76** | 125 |
| Hedge accounted derivatives | | |
| Ineffective portion of the change in fair value in cash flow hedge relationship | **3** | 16 |
| Ineffective portion of the change in fair value in fair value hedge relationship | **9** | 0 |
| Non-hedge accounted derivatives | | |
| Change in fair value | **167** | 41 |
| Interest income from assets related to nuclear waste management | **8 212** | 10 349 |
| Finance income, total | **12 239** | 16 189 |
| | | |
| Interest expenses and other finance expenses | | |
| To the Finnish State Nuclear Waste Management Fund | **3 772** | 5 658 |
| To others | **-637** | 377 |
| Hedge accounted derivatives | | |
| Ineffective portion of the change in fair value in cash flow hedge relationship | **5** | 2 |
| Interest rate swaps, fair value hedges | **-9 622** | 1 337 |
| Fair value adjustment of loan attributable to interest rate risk | **9 622** | -1 337 |
| Ineffective portion of the change in fair value in fair value hedge relationship | **5** | 39 |
| Non-hedge accounted derivatives | | |
| Change in fair value | **133** | 18 |
| Realised derivative expenses, net | **11** | 38 |
| Interest expenses of provision related to nuclear waste management | **39 592** | 23 910 |
| Finance expenses, total | **42 881** | 30 042 |
| | | |
| Total | **-30 642** | -13 853 |

**Other comprehensive items**

EUR 1 000

| Other comprehensive items related to derivative financial instruments: | 2017 | 2016 |
|---|---|---|
| Cash flow hedges | | |
| Changes in fair value of which the following items have transferred | **-17 507** | -13 967 |
| Transfers to the consolidated income statement | **-42** | -51 |
| Transfers to the inventories | **4 020** | 3 953 |
| Transfers to the nuclear power plant under construction | **-12 304** | -10 378 |
| Transferred items, total | **-8 326** | -6 477 |
| Cash flow hedges, total | **-9 181** | -7 490 |
| | | |
| Changes in fair values of the available-for-sale investments | **-14** | -371 |
| Total other comprehensive items | **-9 195** | -7 861 |

# 11 Income tax expense

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Taxes based on the taxable income of the financial year | **2** | -1 |
| Total | **2** | -1 |

TVO operates at cost price (so called Mankala principle, see note 1 General information on the Group), so TVO does not pay income tax during its operations. Taxes for the financial year consists of non-deductible expenses in taxation.

# 12 Property, plant and equipment

| **2017**<br>EUR 1 000 | Land and water areas | Buildings and construction | Machinery and equipment | Other property, plant and equipment | Construction in progress and advance payments | Decom-missioning | Total |
|---|---|---|---|---|---|---|---|
| Acquisition cost 1 Jan | 12 137 | 291 644 | 1 375 592 | 55 370 | 4 517 834 | 168 330 | 6 420 907 |
| Increase | 0 | 307 | 15 107 | 142 | 283 044 | 0 | 298 600 |
| Decrease | 0 | -345 | -7 125 | -27 | -7 869 | -15 697 | -31 063 |
| Transfer between categories | 0 | 2 611 | 59 894 | 0 | -62 505 | 0 | 0 |
| Acquisition cost 31 Dec | 12 137 | 294 217 | 1 443 468 | 55 485 | 4 730 504 | 152 633 | 6 688 444 |
| Accumulated depreciation and impairment charges according to plan 1 Jan | 0 | 237 938 | 1 026 850 | 43 269 | 0 | 72 584 | 1 380 641 |
| Accumulated depreciation from deduction | 0 | -112 | -7 054 | -27 | 0 | 0 | -7 193 |
| Depreciation for the period | 0 | 6 648 | 40 480 | 2 666 | 0 | 3 336 | 53 130 |
| Accumulated depreciation and impairment charges according to plan 31 Dec | 0 | 244 474 | 1 060 276 | 45 908 | 0 | 75 920 | 1 426 578 |
| **Book value 31 Dec 2017** | **12 137** | **49 743** | **383 192** | **9 577** | **4 730 504** | **76 713** | **5 261 866** |
| Book value 1 Jan 2017 | 12 137 | 53 706 | 348 742 | 12 101 | 4 517 834 | 95 746 | 5 040 266 |

| **2016**<br>EUR 1 000 | Land and water areas | Buildings and construction | Machinery and equipment | Other property, plant and equipment | Construction in progress and advance payments | Decom-missioning | Total |
|---|---|---|---|---|---|---|---|
| Acquisition cost 1 Jan | 12 173 | 291 077 | 1 368 709 | 54 891 | 4 276 909 | 181 483 | 6 185 242 |
| Increase | 0 | 567 | 9 847 | 125 | 251 797 | 0 | 262 336 |
| Decrease | -36 | 0 | -5 397 | -87 | -7 998 | -13 153 | -26 671 |
| Transfer between categories | 0 | 0 | 2 433 | 441 | -2 874 | 0 | 0 |
| Acquisition cost 31 Dec | 12 137 | 291 644 | 1 375 592 | 55 370 | 4 517 834 | 168 330 | 6 420 907 |
| Accumulated depreciation and impairment charges according to plan 1 Jan | 0 | 230 912 | 992 464 | 40 503 | 0 | 68 595 | 1 332 474 |
| Accumulated depreciation from deduction | 0 | 0 | -5 332 | -87 | 0 | 0 | -5 419 |
| Depreciation for the period | 0 | 7 026 | 39 718 | 2 853 | 0 | 3 989 | 53 586 |
| Accumulated depreciation and impairment charges according to plan 31 Dec | 0 | 237 938 | 1 026 850 | 43 269 | 0 | 72 584 | 1 380 641 |
| **Book value 31 Dec 2016** | **12 137** | **53 706** | **348 742** | **12 101** | **4 517 834** | **95 746** | **5 040 266** |
| Book value 1 Jan 2016 | 12 173 | 60 165 | 376 245 | 14 388 | 4 276 909 | 112 888 | 4 852 768 |

The costs for the new plant unit (OL3) under construction constituted EUR 4.7 billion of the advance payments in 2017 (EUR 4.4 billion in 2016).

## Property, plant and equipment included finance lease agreements:

| EUR 1 000 | Construction in progress |
|---|---|
| Book value 1 Jan 2017 | 72 669 |
| Increase | 46 |
| **Book value 31 Dec 2017** | **72 715** |

| EUR 1 000 | Construction in progress |
|---|---|
| Book value 1 Jan 2016 | 72 597 |
| Increase | 72 |
| **Book value 31 Dec 2016** | **72 669** |

The assets acquired through financial lease agreements are accumulated as costs for construction in progress so there is no accumulated depreciation.

# 13 Intangible assets

| **2017**<br>EUR 1 000 | $CO_2$ emission rights | Computer software | Other intangible assets | Advance payments | Total |
|---|---|---|---|---|---|
| Acquisition cost 1 Jan | 2 662 | 21 176 | 21 782 | 0 | 45 620 |
| Increase | 677 | 144 | 0 | 0 | 821 |
| Decrease | -2 662 | 0 | 0 | 0 | -2 662 |
| Acquisition cost 31 Dec | 677 | 21 320 | 21 782 | 0 | 43 779 |
| Accumulated depreciation and impairment charges according to plan 1 Jan | 0 | 18 768 | 19 094 | 0 | 37 862 |
| Depreciation for the period | 0 | 414 | 841 | 0 | 1 255 |
| Accumulated depreciation and impairment charges according to plan 31 Dec | 0 | 19 182 | 19 935 | 0 | 39 117 |
| **Book value 31 Dec 2017** | **677** | **2 138** | **1 847** | **0** | **4 662** |
| Book value 1 Jan 2017 | 2 662 | 2 408 | 2 688 | 0 | 7 758 |

| **2016**<br>EUR 1 000 | $CO_2$ emission rights | Computer software | Other intangible assets | Advance payments | Total |
|---|---|---|---|---|---|
| Acquisition cost 1 Jan | 1 187 | 20 491 | 21 782 | 1 534 | 44 994 |
| Increase | 2 662 | 1 910 | -1 897 | 363 | 3 038 |
| Decrease | -1 187 | -1 225 | 0 | 0 | -2 412 |
| Transfer between categories | 0 | 0 | 1 897 | -1 897 | 0 |
| Acquisition cost 31 Dec | 2 662 | 21 176 | 21 782 | 0 | 45 620 |
| Accumulated depreciation and impairment charges according to plan 1 Jan | 0 | 19 614 | 18 252 | 0 | 37 866 |
| Accumulated depreciation from deduction | 0 | -1 225 | 0 | 0 | -1 225 |
| Depreciation for the period | 0 | 379 | 842 | 0 | 1 221 |
| Accumulated depreciation and impairment charges according to plan 31 Dec | 0 | 18 768 | 19 094 | 0 | 37 862 |
| **Book value 31 Dec 2016** | **2 662** | **2 408** | **2 688** | **0** | **7 758** |
| Book value 1 Jan 2016 | 1 187 | 877 | 3 530 | 1 534 | 7 128 |

# Capitalized borrowing costs included in property, plant and equipment, and intangible assets

The borrowing costs of the power plant construction in progress, OL3 project have been capitalized. Realized financial income and expenses have been divided by committed capital. The average share of capitalized borrowing costs in 2017 was 99.6 % (99.1 % in 2016). The average interest rate on loans and derivatives on 31 December, see note 27.

| **2017**<br>**Capitalized interest costs during construction**<br>EUR 1 000 | Other intangible assets | Buildings and construction | Machinery and equipment | Other property, plant and equipment | Advance payments | Total |
|---|---|---|---|---|---|---|
| Acquisition cost 1 Jan | 3 530 | 31 133 | 112 781 | 2 609 | 1 156 144 | 1 306 197 |
| Increase | 0 | 0 | 0 | 0 | 102 180 | 102 180 |
| Decrease | 0 | 0 | 0 | 0 | -3 947 | -3 947 |
| Acquisition cost 31 Dec | 3 530 | 31 133 | 112 781 | 2 609 | 1 254 377 | 1 404 430 |
| Accumulated depreciation and impairment charges according to plan 1 Jan | 3 049 | 24 007 | 87 457 | 1 990 | 0 | 116 503 |
| Depreciation for the period | 106 | 444 | 1 692 | 34 | 0 | 2 276 |
| Accumulated depreciation and impairment charges according to plan 31 Dec | 3 155 | 24 451 | 89 149 | 2 024 | 0 | 118 779 |
| **Book value 31 Dec 2017** | **375** | **6 682** | **23 632** | **585** | **1 254 377** | **1 285 651** |
| Book value 1 Jan 2017 | 481 | 7 126 | 25 324 | 619 | 1 156 144 | 1 189 694 |

| **2016**<br>**Capitalized interest costs during construction**<br>EUR 1 000 | Other intangible assets | Buildings and construction | Machinery and equipment | Other property, plant and equipment | Advance payments | Total |
|---|---|---|---|---|---|---|
| Acquisition cost 1 Jan | 3 530 | 31 133 | 112 781 | 2 609 | 1 053 360 | 1 203 413 |
| Increase | 0 | 0 | 0 | 0 | 106 281 | 106 281 |
| Decrease | 0 | 0 | 0 | 0 | -3 497 | -3 497 |
| Acquisition cost 31 Dec | 3 530 | 31 133 | 112 781 | 2 609 | 1 156 144 | 1 306 197 |
| Accumulated depreciation and impairment charges according to plan 1 Jan | 2 942 | 23 564 | 85 765 | 1 956 | 0 | 114 227 |
| Depreciation for the period | 107 | 443 | 1 692 | 34 | 0 | 2 276 |
| Accumulated depreciation and impairment charges according to plan 31 Dec | 3 049 | 24 007 | 87 457 | 1 990 | 0 | 116 503 |
| **Book value 31 Dec 2016** | **481** | **7 126** | **25 324** | **619** | **1 156 144** | **1 189 694** |
| Book value 1 Jan 2016 | 588 | 7 569 | 27 016 | 653 | 1 053 360 | 1 089 186 |

# 14 Investments in joint ventures

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Posiva Group | **4 602** | 3 312 |
| 31 Dec | **4 602** | 3 312 |

## Nature of investment in joint ventures:

| Name of entity | Place of incorporation | Group share, % | Measurement method |
|---|---|---|---|
| Posiva Oy - A series | Eurajoki | 60 | Equity |
| Posiva Oy - B series | Eurajoki | 74 | Equity |

TVO has a 60 per cent shareholding in Posiva Oy. Posiva is responsible for the research and implementation of final disposal of spent nuclear fuel of its shareholders TVO and Fortum Power and Heat Oy (FPH).

TVO governs Posiva Oy jointly with FPH, based on Articles of Association and Shareholders Agreement. TVO is liable for approximately 74 per cent of Posiva's expenses. The duty of Posiva is to carry out all tasks related to the final disposal of spent nuclear fuel of its shareholder's nuclear power plants in Finland in order to fulfill their nuclear waste management obligation as specified in the Nuclear Energy Act. The company's operations also include research and construction related to the final disposal solution. Management of spent fuel is carried out according to the detailed plan examined by Finnish Centre for Radiation and Nuclear Safety and approved by The Ministry of Employment and the Economy.

Posiva Solutions Oy, a wholly-owned subsidiary of Posiva Oy, was founded on May 20, 2016. Posiva Solutions Oy focuses on the sales of the know-how Posiva has accumulated from its design, research and development activities in the final disposal of spent nuclear fuel, as well as on associated consulting services.

# Summarised financial information (FAS) for Posiva Group

Posiva Oy and Posiva Solutions Oy are private companies and there is no quoted market prices available for their shares. In the consolidated financial statements Posiva Group is accounted by the equity method of accounting.

| Summarised balance sheet | Posiva Group 2017 | Posiva Group 2016 |
|---|---|---|
| **Current** | | |
| Cash and cash equivalents | **14 664** | 14 160 |
| Other current assets (excluding cash) | **4 850** | 6 429 |
| Total current assets | **19 514** | 20 589 |
| Financial liabilities (excluding trade payables) | **-363** | -439 |
| Other current liabilities (including trade payables) | **-10 146** | -13 270 |
| Total current liabilities | **-10 509** | -13 709 |
| **Non-current** | | |
| Assets | **1 899** | 2 414 |
| Financial liabilities | **-4 342** | -4 483 |
| Total non-current liabilities | **-4 342** | -4 483 |
| **Net assets** | **6 562** | 4 811 |
| **Summarised statement of comprehensive income** | | |
| Turnover | **71 240** | 59 700 |
| Depreciation and impairment charges | **-47** | -128 |
| Interest income | **31** | 26 |
| Interest expense | **-49** | -56 |
| **Pre-tax profit from continuing operations** | **2 196** | 3 905 |
| Income tax expense | **-445** | -779 |
| **Post-tax profit from continuing operations** | **1 751** | 3 126 |
| **Reconciliation of summarised financial information** | | |
| **Operating net assets 1 Jan** | **4 811** | 1 682 |
| Profit/loss for the period | **1 751** | 3 126 |
| Share issue | **0** | 3 |
| **Closing net assets** | **6 562** | 4 811 |
| Interest in joint venture | **4 602** | 3 312 |
| **Carrying value** | **4 602** | 3 312 |

# 15 Book values of financial assets and liabilities by categories

| **2017**<br>EUR 1 000 | Derivative financial instruments at fair value through profit or loss | Derivative financial instruments designated as cash flow hedges | Derivative financial instruments designated as fair value hedges | Loans and other receivables | Available-for-sale investments | Financial liabilities measured at amortized cost | Book value total | Fair value total | Note |
|---|---|---|---|---|---|---|---|---|---|
| **Non-current assets** | | | | | | | | | |
| Loans and other receivables | | | | 658 678 | | | 658 678 | 658 678 | 16 |
| Investments in shares | | | | | 1 934 | | 1 934 | 1 934 | 17 |
| Derivative financial instruments | 7 497 | 8 639 | 19 155 | | | | 35 291 | 35 291 | 20 |
| **Current assets** | | | | | | | | | |
| Trade and other receivables | | | | 41 373 | | | 41 373 | 41 373 | 16 |
| Derivative financial instruments | 10 894 | 3 775 | | | | | 14 669 | 14 669 | 20 |
| Fund units | | | | | 0 | | 0 | 0 | 17 |
| **Total by category** | **18 391** | **12 414** | **19 155** | **700 051** | **1 934** | **0** | **751 946** | **751 946** | |
| **Non-current liabilities** | | | | | | | | | |
| Loan from the Finnish State Nuclear Waste Management Fund | | | | | | 655 518 | 655 518 | 655 518 | 22 |
| Other financial liabilities | | | | | | 3 469 831 | 3 469 831 | 3 581 560 | 22 |
| Derivative financial instruments | 10 093 | 12 703 | 1 565 | | | | 24 360 | 24 360 | 20 |
| **Current liabilities** | | | | | | | | | |
| Current financial liabilities | | | | | | 392 539 | 392 539 | 392 539 | 22 |
| Trade payables | | | | | | 6 160 | 6 160 | 6 160 | 23 |
| Other current liabilities | | | | | | 129 191 | 129 191 | 129 191 | 23 |
| Derivate financial instruments | 31 236 | 4 698 | | | | | 35 934 | 35 934 | 20 |
| **Total by category** | **41 329** | **17 401** | **1 565** | **0** | **0** | **4 653 239** | **4 713 533** | **4 825 262** | |

| **2016** EUR 1 000 | Derivative financial instruments at fair value through profit or loss | Derivative financial instruments designated as cash flow hedges | Derivative financial instruments designated as fair value hedges | Loans and other receivables | Available-for-sale investments | Financial liabilities measured at amortized cost | Book value total | Fair value total | Note |
|---|---|---|---|---|---|---|---|---|---|
| **Non-current assets** | | | | | | | | | |
| Loans and other receivables | | | | 1 030 307 | | | 1 030 307 | 1 030 307 | 16 |
| Investments in shares | | | | | 1 934 | | 1 934 | 1 934 | 17 |
| Derivative financial instruments | 39 352 | 26 953 | 29 490 | | | | 95 795 | 95 795 | 20 |
| **Current assets** | | | | | | | | | |
| Trade and other receivables | | | | 46 553 | | | 46 553 | 46 553 | 16 |
| Derivative financial instruments | 4 443 | 5 555 | | | | | 9 998 | 9 998 | 20 |
| Fund units | | | | | 200 014 | | 200 014 | 200 014 | 17 |
| **Total by category** | **43 795** | **32 508** | **29 490** | **1 076 860** | **201 948** | **0** | **1 384 601** | **1 384 601** | |
| **Non-current liablities** | | | | | | | | | |
| Loan from the Finnish State Nuclear Waste Management Fund | | | | | | 1 027 050 | 1 027 050 | 1 027 050 | 22 |
| Other financial liabilities | | | | | | 3 803 244 | 3 803 244 | 3 897 776 | 22 |
| Derivative financial instruments | 29 485 | 26 785 | 2 277 | | | | 58 547 | 58 547 | 20 |
| **Current liabilities** | | | | | | | | | |
| Current financial liabilities | | | | | | 309 394 | 309 394 | 309 394 | 22 |
| Trade payables | | | | | | 17 005 | 17 005 | 17 005 | 23 |
| Other current liabilities | | | | | | 143 754 | 143 754 | 143 754 | 23 |
| Derivative financial instruments | 6 599 | 1 143 | | | | | 7 742 | 7 742 | 20 |
| **Total by category** | **36 085** | **27 928** | **2 277** | **0** | **0** | **5 300 447** | **5 366 736** | **5 461 268** | |

## Fair values of long-term loans, have been estimated as follows:

The fair value of quoted bonds is based on the quoted market value as of 31 December (Level 1). The fair value of fixed rate and market-based floating rate loans is estimated using the expected future payments discounted at market interest rates (Level 2).

The carrying amounts of current financial assets and liabilities approximate their fair value, as the impact of discounting is not significant.

## Disclosure of fair value measurements by the level of fair value measurement hierarchy

| **2017**<br>EUR 1 000 | Level 1 | Level 2 | Level 3 |
|---|---|---|---|
| **Financial assets at fair value** | | | |
| Derivative financial instruments at fair value through profit or loss | | 18 391 | |
| Derivative financial instruments designated as cash flow hedges | | 12 414 | |
| Derivative financial instruments designated as fair value hedges | | 19 155 | |
| Available-for-sale investments | | | |
| Fund units | 0 | | |
| Investments in other stocks and shares | | | 0 |
| **Total** | **0** | **49 961** | **0** |
| | | | |
| **Financial liabilities at fair value** | | | |
| Derivative financial instruments at fair value through profit or loss | | 41 329 | |
| Derivative financial instruments designated as cash flow hedges | | 17 401 | |
| Derivative financial instruments designated as fair value hedges | | 1 565 | |
| **Total** | **0** | **60 294** | **0** |

| **2016**<br>EUR 1 000 | Level 1 | Level 2 | Level 3 |
|---|---|---|---|
| **Financial assets at fair value** | | | |
| Derivative financial instruments at fair value through profit or loss | | 43 795 | |
| Derivative financial instruments designated as cash flow hedges | | 32 508 | |
| Derivative financial instruments designated as fair value hedges | | 29 490 | |
| Available-for-sale investments | | | |
| Fund units | 200 014 | | |
| Investments in other stocks and shares | | | 0 |
| **Total** | **200 014** | **105 793** | **0** |
| | | | |
| **Financial liabilities at fair value** | | | |
| Derivative financial instruments at fair value through profit or loss | | 36 085 | |
| Derivative financial instruments designated as cash flow hedges | | 27 928 | |
| Derivative financial instruments designated as fair value hedges | | 2 277 | |
| **Total** | **0** | **66 289** | **0** |

TVO has also 31 December 2017 unquoted shares EUR 1.934 (1.934) thousand whose fair value cannot be reliably determined are measured at acquisition cost.

## Fair value estimation

Available-for-sale investments include investments in shares and fund units. Listed shares and fund units are measured at fair value, which is the market price at closing date (Level 1). TVO has not level 3 investments (assets that are not based on observable market data).

The derivative financial instruments are initially recognized at fair value on the date a derivative contract is entered into and are subsequently measured at fair value. The fair values are determined using a variety of methods and financial valuation techniques, and assumptions are based on market quotations at the balance sheet date (Level 2). The fair value of the interest rate swaps is the present value of the estimated future cash flows. The forward contracts are measured using the market quotes at the closing date. The fair value of the interest rate options is calculated using market quotes at the closing date and by using the Black and Scholes option valuation model. The changes in fair value of the interest rate swaps and forward contracts are recognized in equity or profit or loss, depending on whether they qualify for cash flow hedges or not. The changes in fair value of interest rate options that do not qualify for hedge accounting are presented in the income statement.

### Offsetting financial assets and liabilities

**2017**

| EUR 1 000 | Gross amounts | Related amounts not set off | Net amount |
|---|---|---|---|
| Derivative financial assets | 49 961 | -25 757 | 24 204 |
| Derivative financial liabilities | -60 294 | 25 757 | -34 537 |

**2016**

| EUR 1 000 | Gross amounts | Related amounts not set off | Net amount |
|---|---|---|---|
| Derivative financial assets | 105 793 | -43 159 | 62 634 |
| Derivative financial liabilities | -66 289 | 43 159 | -23 131 |

For the financial derivative assets and liabilities subject to enforceable master netting arrangements or similar arrangements above, each agreement between the Group and the counterparty allows for net settlement of the relevant financial derivative assets and liabilities when both elect to settle on a net basis. In the absence of such an election, financial assets and liabilities will be settled on a gross basis, however, each party to the master netting agreement or similar agreement will have the option to settle all such amounts on a net basis in the event of default of the other party. Per the terms of each agreement, an event of default includes failure by a party to make payment when due.

# 16 Loans and other receivables

## Loans and other receivables (non-current assets)

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Nuclear waste management loan receivables | **655 518** | 1 027 050 |
| Loan receivables | **3 161** | 3 257 |
| Total | **658 679** | 1 030 307 |

According to section 52 of the Nuclear Energy Act, TVO, in exchange for collateral payments, is entitled to receive fixed-term loans from the Finnish State Nuclear Waste Management Fund, the amount which cannot be larger than 75 per cent of the latest confirmed TVO's share in the Finnish State Nuclear Waste Management Fund. The nuclear waste management loan receivables formed by the amount loaned from the Finnish State Nuclear Waste Management Fund, has been further loaned (with the same terms and conditions) to the equity holders of the company and to Fortum Oyj.

## Nuclear waste management loan receivables are allocated as follows:

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| EPV Energia Oy | **70 205** | 67 305 |
| Fortum Oyj | **284 783** | 273 020 |
| Loiste Holding Oy | **750** | 719 |
| Kemira Oyj | **19 915** | 19 092 |
| Oy Mankala Ab | **83 580** | 83 580 |
| Pohjolan Voima Oy | **196 285** | 583 334 |
| Total | **655 518** | 1 027 050 |

In accordance with its Articles of Association, TVO delivers electricity to its shareholders at cost price (so-called Mankala principle), i.e. delivers the electricity produced or procured to its shareholders in proportion to their shareholdings in each series. Each of the shareholders of each series is liable for variable and fixed annual costs that are specified in detail in the Articles of Association.

The loan receivables constitute mainly the loan receivables of Posiva Oy EUR 2,655 (2,753) thousand.

## Trade and other receivables (current assets)

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Trade receivables | **33 709** | 38 122 |
| Loan receivables | **230** | 276 |
| Prepayments and accrued income | **7 153** | 8 025 |
| Other receivables | **281** | 130 |
| Total | **41 373** | 46 553 |

Prepayments and accrued income include prepaid interests, accrued interest income, other accrued income and other prepaid expenses.

The maximum credit loss risk of trade and other receivables corresponds to their book value. On 31 December 2017 the Group had EUR 27 (103) thousand overdue receivables of which EUR 3 (54) thousand was overdue more than six months. The overdue receivables are not expected to cause the Group credit losses or impairments.

# 17 Available for-sale investments

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Fund units | **0** | 200 014 |
| Investments in other stocks and shares | **1 934** | 1 934 |
| Total | **1 934** | 201 948 |

Fund units consist of fund units investments which are classified at fair value.

# 18 Cash and cash equivalents

Cash and cash equivalents consist of on-hand cash, demand deposits and other current, liquid investments.

# 19 Inventories

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Coal | | |
| Replacement cost | **12 613** | 16 983 |
| Book value | **8 674** | 11 838 |
| Difference | **3 939** | 5 145 |
| Raw uranium and natural uranium | | |
| Replacement cost | **60 130** | 53 544 |
| Book value | **73 952** | 67 828 |
| Difference | **-13 822** | -14 284 |
| Coal | **8 674** | 11 838 |
| Raw uranium and natural uranium | **73 952** | 67 828 |
| Nuclear fuel | **167 765** | 163 188 |
| Materials and supplies | **6 699** | 6 570 |
| Total | **257 090** | 249 424 |

# 20 Derivative financial instruments

**Nominal values of the derivative financial instruments** — Maturity structure

| **2017**<br>EUR 1 000 | < 1 year | 1-3 years | 3-5 years | 5-7 years | > 7 years | Total |
|---|---|---|---|---|---|---|
| Interest rate swaps | 318 446 | 891 955 | 839 117 | 150 000 | 300 000 | 2 499 518 |
| Forward foreign exchange contracts and swaps 1) | 25 335 | 49 736 | 35 168 | 21 489 | 10 981 | 142 709 |
| Cross-currency swaps | 316 929 | 269 349 | 56 117 | 0 | 0 | 642 395 |
| **Total** | **660 710** | **1 211 040** | **930 401** | **171 489** | **310 981** | **3 284 622** |

Maturity structure

| **2016**<br>EUR 1 000 | < 1 year | 1-3 years | 3-5 years | 5-7 years | > 7 years | Total |
|---|---|---|---|---|---|---|
| Interest rate swaps | 30 000 | 778 446 | 911 955 | 429 117 | 300 000 | 2 449 518 |
| Forward foreign exchange contracts and swaps 1) | 23 533 | 47 599 | 34 537 | 22 944 | 21 854 | 150 467 |
| Cross-currency swaps | 214 480 | 375 273 | 211 042 | 56 117 | 0 | 856 911 |
| **Total** | **268 013** | **1 201 319** | **1 157 534** | **508 177** | **321 854** | **3 456 897** |

[1] Forward contracts are mainly used for hedging fuel purchases against currency risk. The opposite forward contracts, which have been acquired to adjust these hedging amounts are netted in the table with each other, whereby the nominal describes the protected position.

**Fair values of the derivative financial instruments**

| **2017**<br>EUR 1 000 | Positive | Negative | Total |
|---|---|---|---|
| Interest rate swaps | | | |
| Cash flow hedges | 382 | -14 738 | -14 356 |
| Fair value hedges | 19 155 | -1 565 | 17 591 |
| Non-hedges | | | |
| Forward foreign exchange contracts and swaps | | | |
| Cash flow hedges | 12 033 | -2 663 | 9 370 |
| Non-hedges | 715 | -224 | 491 |
| Cross-currency swaps | | | |
| Non-hedges | 17 676 | -41 105 | -23 429 |
| **Total** | **49 961** | **-60 294** | **-10 333** |

**Fair values of the derivative financial instruments**

| **2016**<br>EUR 1 000 | Positive | Negative | Total |
|---|---|---|---|
| Interest rate swaps | | | |
| Cash flow hedges | | -26 821 | -26 821 |
| Fair value hedges | 29 490 | -2 277 | 27 213 |
| Non-hedges | | | |
| Forward foreign exchange contracts and swaps | | | |
| Cash flow hedges | 32 508 | -1 108 | 01 |
| Cross-currency swaps | | | |
| Non-hedges | 43 795 | -36 085 | 7 710 |
| **Total** | **105 793** | **-66 289** | **39 503** |

# 21 Equity

## Share capital

The registered share capital of the Company according to the Articles of Association was EUR 606,193 thousand on 31 December 2017. TVO does not have a maximum or minimum limit for the share capital. The number of the shares on 31 December 2017 was 1,394,283,730. The shares are divided into the three series of shares as follows: A series 680,000,000, B series 680,000,000 and C series 34,283,730 shares. The shares have no nominal price as is stipulated in the Finnish Limited Liability Companies Act.

According to the Articles of Association, TVO delivers electricity to its shareholders at cost price, i.e. it delivers the electricity produced or procured to its shareholders in proportion to their shareholding in each series. Each of the shareholders of each series is liable for the variable and fixed annual costs that are specified in detail in the Articles of Association. The Company prepares annually a balance sheet divided into series of shares. The balance sheet, which will be presented to the Shareholders' Meeting, specifies the assets, liabilities and equity of the different series of shares.

## Share number reconciliations:

| EUR 1 000 | Number of shares | Share capital | Share premium reserve and statutory reserve |
|---|---|---|---|
| 1 Jan 2016 | 1 394 283 730 | 606 193 | 242 383 |
| 31 Dec 2016 | 1 394 283 730 | 606 193 | 242 383 |
| **31 Dec 2017** | **1 394 283 730** | **606 193** | **242 383** |

The company has three registered share series: A, B and C.

| Share number | **31 Dec 2017** | 31 Dec 2016 |
|---|---|---|
| A series | **680 000 000** | 680 000 000 |
| B series | **680 000 000** | 680 000 000 |
| C series | **34 283 730** | 34 283 730 |
| Total | **1 394 283 730** | 1 394 283 730 |

## Share premium reserve

The share premium reserve contains the share premiums of the share issues, EUR 232,435 thousand.

## Statutory reserve

The statutory reserve consists of EUR 9,948 thousand paid by Imatran Voima Oy, the predecessor of Fortum Power and Heat Oy, in 1979 when it became an equity holder in the company.

## Fair value and other reserves

Profits and losses incurred by fair value changes of available-for-sale investments and derivatives used as cash flow hedges are entered in this reserve. The fair changes of derivatives are transferred to the profit/loss statement, when the cash flows they have been hedging have been realized. Fair value changes in available-for-sale investments are transferred to the income statement, when the investments are relinquished or their value diminishes.

## Subordinated shareholder loans (hybrid equity)

The carrying value of the interest-bearing subordinated shareholder loans in the balance sheet 31 December 2017 was EUR

579,300 thousand. There is no maturity date for the subordinated shareholder loans (hybrid equity), but the borrower is entitled to repay the loan in one or several installments. The Board of Directors of the borrower has the right to decide not to pay interest during any current interest period. Unpaid interest does not accumulate to the following interest periods.

Subordinated shareholder loans (hybrid equity) are unsecured and in a weaker preference position than promissory notes. Holders of a subordinated shareholder loans has no shareholder rights, nor does the bond dilute the ownership of the company's shareholders.

## Retained earnings

This item contains the earnings from previous financial periods and the profit/loss of the financial year.

# 22 Interest-bearing liabilities

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| **Non-current interest-bearing liabilities** | | |
| Loan from the Finnish State Nuclear Waste Management Fund | **655 518** | 1 027 050 |
| Bonds | **2 525 834** | 2 749 544 |
| Loans from financial institutions | **745 428** | 738 653 |
| Loans from others | **144 536** | 259 296 |
| Finance leasing liabilities | **54 033** | 55 750 |
| Derivative financial instruments | **24 360** | 58 547 |
| Total | **4 149 709** | 4 888 840 |
| **Current interest-bearing liabilities** | | |
| Current portion of long-term bonds | **203 211** | 212 325 |
| Current portion of loans from financial institutions | **94 413** | 44 413 |
| Current portion of Private Placements | **93 198** | 0 |
| Current portion of finance lease liabilities | **1 718** | 1 709 |
| Other interest-bearing liabilities (Commercial paper program) | **0** | 50 948 |
| Derivative financial instruments | **35 934** | 7 742 |
| Total | **428 474** | 317 137 |
| Total | **4 578 183** | 5 205 977 |

TVO has issued EUR-, USD-, GBP-, SEK- and NOK-denominated Private Placements amounting to EUR 978.4 million. The Placements in foreign currency are treated as EUR floating or fixed rate loans that are adjusted at the closing date with ECB fixing rate. The Private Placements have been swapped by using cross-currency swaps. In 2017, the effect of foreign exchange hedges was negative amounting to EUR 31.1 million and correspondingly, the effect of foreign currency denominated loans was positive amounting to EUR 31.1 million.

## Maturity period of finance lease liabilities

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Finance lease liabilities - minimum lease payments | | |
| No later than 1 year | **1 725** | 1 765 |
| Later than 1 year and no later than 5 years | **6 984** | 7 132 |
| Over 5 years | **47 090** | 48 989 |
| Total | **55 799** | 57 886 |
| Finance expenses to be accrued | **49** | 427 |
| Finance lease liabilities - current value of minimum rents | | |
| No later than 1 year | **1 718** | 1 709 |
| Later than 1 year and no later than 5 years | **6 957** | 6 922 |
| Over 5 years | **47 075** | 48 828 |
| Total | **55 750** | 57 459 |

The finance lease liabilities of the Group comprise the lease agreement of spare parts of the nuclear power plant.

# 23 Trade payables and other current liabilities

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Advances received | **40 178** | 41 609 |
| Trade payables | **6 160** | 17 005 |
| Accruals and deferred income and other liabilities | **129 191** | 143 754 |
| Total | **175 530** | 202 368 |

### Accruals and deferred income and other liabilities are allocated as follows:

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Finnish State Nuclear Waste Management Fund | **38 063** | 54 862 |
| Accrued interests | **53 276** | 51 013 |
| Accrued personnel expenses | **16 156** | 16 153 |
| Accruals related to CO2 emission rights | **677** | 2 661 |
| Others | **21 018** | 19 065 |
| **Total** | **129 191** | 143 754 |

# 24 Assets and provision related to nuclear waste management obligation

**Share in the Finnish State Nuclear Waste Management Fund**

Under the Nuclear Energy Act in Finland, TVO has a legal obligation to fully fund the legal liability for nuclear waste including the decommissioning of the power plant through the Finnish State Nuclear Waste Management Fund (=nuclear waste management obligation).

TVO contributes funds to the Finnish State Nuclear Waste Management Fund to cover future obligations based on the legal liability calculated according to the Nuclear Energy Act. The carrying value of the fund in TVO's balance sheet is calculated according to the interpretation in IFRIC 5 "Rights to Interests arising from Decommissioning, Restoration and Environmental Rehabilitation Funds".

**Provision related to the nuclear waste management obligation**

The provision is related to future obligations for decommissioning of the power plant, management of spent fuel and operating waste. The fair value of the provision is calculated according to IAS 37 based on discounted future cash flows which are based on estimated future expenses. The cost estimate is based on a nuclear waste management plan covering the management of spent nuclear fuel and operating waste and decommissioning of the nuclear power plant. The new total cost estimate based on a new nuclear waste management technical plan and schedule is updated every third year. The technical plans, timing and cost estimates are approved by governmental authorities.

The total cost estimate based on a new nuclear waste management technical plan and schedule was updated in June 2016. The updated cost estimate in June 2016 decreased the provision related to the nuclear waste management and finance expenses and increased the amount of materials and services. The provision on balance sheet compared to the value at the end of the previous year was decreased by EUR 23.3 million. The effect of revised cost estimate to the consolidated income statement compared to the previous estimate were EUR 28.1 million increase in materials and services and EUR 24.0 million decrease in finance expenses.

The overall effect on profit for the period in June 2016 was negative because the amount of the share in the Finnish State Nuclear Waste Management Fund and the provision related to nuclear waste management are equal and the difference is entered as an adjustment to materials and services.
Moreover, the costs for spent fuel disposal are expensed during the operating time of the plant, based on fuel usage, and the impact of any changes to the plan and schedules will be recognized immediately in the income statement based on fuel used by the end of each accounting period.

**At the end of the year, the balance sheet contains the following assets and liabilities concerning the nuclear waste management obligation:**

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| The carrying value of TVO´s share in the Finnish State Nuclear Waste Management Fund (non-current assets) | **953 136** | 954 631 |
| Provision related to nuclear waste management (non-current liabilities) | | |
| Beginning of the year | **954 631** | 971 241 |
| Increase/decrease in provision | **-11 360** | -16 416 |
| Used provision | **-29 728** | -24 104 |
| Changes due to discounting | **39 593** | 23 910 |
| End of the year | **953 136** | 954 631 |
| The discount rate, % | **5,5** | 5,5 |

### TVO's legal liability as stated in the Nuclear Energy Act and the Company's share in the Finnish State Nuclear Waste Management Fund

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Liability for nuclear waste management according to the Nuclear Energy Act | **1 481 600** | 1 450 100 |
| TVO´s funding target obligation 2018 (2017) to the Finnish State Nuclear Waste Management Fund | **1 470 800** | 1 428 400 |
| TVO´s share in the Finnish State Nuclear Waste Management Fund 31.12.2017 (31.12.2016) | **1 436 600** | 1 379 700 |
| Difference between the liability and TVO´s share of the fund 31.12.2017 (31.12.2016) | **45 000** | 70 400 |

The legal liability calculated according to the Nuclear Energy Act in Finland and decided by the supervising authority (Ministry of Employment and the Economy) is EUR 1,481.6 (1,450.1) million on 31 December 2017 (31 December 2016). The carrying value of the liability in the balance sheet calculated according to IAS 37 is EUR 953.1 (954.6) million on 31 December 2017. The main reason for the difference between the carrying value of the provision and the legal liability is the fact that the legal liability is not discounted to net present value. Since the future cash flow is spread over 100 years, the difference between non-discounted legal liability and the discounted provisions are remarkable.

TVO's share in the Finnish State Nuclear Waste Management Fund is EUR 1,436.6 (1,379.7) million on 31 December 2017. The carrying value of the TVO's share in the fund in the balance sheet is EUR 953.1 (954.6) million. The difference is due to the fact that IFRIC 5 limits the carrying amount of TVO's interest in the Finnish State Nuclear Waste Management Fund to the amount of the related liability since TVO does not have control over the Finnish State Nuclear Waste Management Fund. As long as the Fund is overfunded from an IFRS perspective, the effects to operating profit from this adjustment will be positive if the provision increase more than the Fund, and negative if actual value of the fund increases more than the provision.

The difference between the funding target and the share in the Finnish State Nuclear Waste Management Fund at the end of each year is due to the funding target being completed by paying the nuclear waste management fee only during the first quarter of the following year.

The Ministry of Employment and Economy (MEE) has adopted the procedure mentioned in the Nuclear Energy Act (section 40, subsection 3) and specified in the Government Decision 1339/1996 for a temporary reduction of the funding target when confirming Teollisuuden Voima Oyj's funding target obligation for 2018.

TVO has issued to the State the shareholders' guarantees as security for the unfunded legal liability. The security also covers unexpected events as determined in the Nuclear Energy Act. The guarantees are included in the nuclear waste management obligations, see note 25 Obligations and other commitments.

Finnish participants in the State Nuclear Waste Management Fund are allowed to borrow from the Fund according to defined rules. TVO utilizes the right to borrow funds back and has pledged the receivables from the shareholders as security for the loans. The loans are renewed yearly. The loans are included in the interest-bearing liabilities, see note 22 Interest-bearing liabilities.

# 25 Obligations and other commitments

## Operating leases

**Group as lessee**

Minimum rents to be paid based on non-cancellable lease agreements:

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| No later than 1 year | **327** | 120 |
| Later than 1 year and no later than 5 years | **509** | 109 |
| Total | **836** | 229 |

The rents recognized as expenses during the period are as follows:

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Rents | **169** | 276 |
| Total | **169** | 276 |

Non-cancellable lease agreements have been made for the office equipment and vehicles.

## Pledged promissory notes and financial guarantees

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Pledged promissory notes to the Finnish State Nuclear Waste Management Fund | **655 518** | 1 027 050 |
| Guarantees given by shareholders related to the nuclear waste management obligation | **187 500** | 144 530 |

The Company under the nuclear waste management obligation is entitled to borrow an amount equal to 75 per cent of its share in the Finnish State Nuclear Waste Management Fund. TVO has lent the funds borrowed from the fund to its shareholders and has pledged the receivables from the shareholders as collateral for the loan.

The absolute guarantees given by the equity holders of the company are given to cover the unfunded portion of the nuclear waste management obligation and unexpected events as determined in the Nuclear Energy Act.

## Commitments

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Contingent liabilities given on own behalf | | |
| Customs liabilities | **450** | 450 |

## Investment commitments

Agreement-based commitments regarding the acquisition of property, plant and equipment:

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| OL1 and OL2 | **95 000** | 129 000 |
| OL3 | **697 000** | 735 000 |
| Total | **792 000** | 864 000 |

## Pending Court Cases and Disputes

In 2012, TVO submitted a claim and defence in the International Chamber of Commerce (ICC) arbitration proceedings concerning the delay and the ensuing costs incurred at the Olkiluoto 3 EPR project. In July 2015, TVO updated its quantification estimate of its costs and losses to amount to approximately EUR 2.6 billion until December 2018, which, according to the schedule submitted by the OL3 Supplier in September 2014, was the estimated start of regular electricity production of OL3.

The proceedings were initiated in December 2008 by the OL3 Supplier. The Supplier’s monetary claim, as last updated in April 2017, is now approximately EUR 3.59 billion in total. The sum is based on the Supplier’s updated analysis of events that occurred through September 2014, with certain claims quantified to December 31, 2014. The sum includes penalty interest (calculated to June 30, 2017) and payments allegedly delayed by TVO under the plant contract amounting to a combined total of approximately EUR 1.58 billion, as well as approximately EUR 132 million in alleged loss of profit.

In November 2016, the ICC Tribunal made a final and binding partial award. In the partial award, the ICC Tribunal addressed the early period of the project (time schedule, licensing and licensability, and system design). This comprised many of the facts and matters that TVO relies upon in its main claims against the Supplier, as well as certain key matters that the Supplier relies upon in its claims against TVO. In doing so, the partial award finally resolved the great majority of these facts and matters in favor of TVO, and conversely rejected the great majority of the Supplier’s contentions in this regard. The partial award did not take a position on the claimed monetary amounts.

The ICC Tribunal made another final and binding partial award in July 2017. This partial award addressed the preparation, submittal, review, and approval of design and licensing documents on the project. This comprises the key facts and matters that the Supplier relies upon in its main claims against TVO, as well as certain matters that TVO relies upon in its claims against the Supplier. In doing so, the partial award has finally resolved the great majority of these facts and matters in favor of TVO. Conversely, it has also rejected the great majority of the Supplier’s contentions in this regard. Although the partial award did not take a position on the claimed monetary amounts, it has conclusively rejected the analytical method used by the Supplier to support its principal monetary claims against TVO.

The parties received a final and binding partial award also in November 2017. This partial award addresses the execution and construction works and the overall project management of the OL3 EPR project. This comprises many facts and matters that TVO relies upon in its main claim against the Supplier, as well as certain matters that the Supplier relies upon in its claims against TVO. The partial award finally resolves many of the facts and matters concerning the execution of the construction works in favor of TVO and notably defers many of the issues raised by TVO including the Supplier’s project management for determination in a subsequent award.

The arbitration proceeding is still going on and it now proceeds towards the final award where the Tribunal will declare liabilities to pay compensation.

TVO considers its claims to be well-founded and has considered and found the claims of the Supplier to be without merit. The three significant partial awards granted by the Tribunal provide further material confirmation of this position, and reinforce TVO’s view that the balance of the claims is in TVO’s favor.

In September 2016, TVO summoned Areva in an urgent interim proceeding before the President of the Commercial Court of Nanterre in order to obtain information about the restructuring of French nuclear industry and the potential consequences on the performance of the OL3 contract. Discussions between the parties enabled TVO to withdraw from this action in May 2017. The continuation of discussions is expected to favor completion of the OL3 EPR project and the start-up of the plant.

In January 2017, the EU Commission made a decision on the French state aid to the Areva Group. In September 2017, TVO filed an appeal to the General Court of the European Union of the Commission decision. TVO requires that the restructuring of the French nuclear industry will not compromise the completion of the OL3 EPR project within the Supplier's current schedule and that all liabilities of the plant contract are respected.

The supplier consortium companies (Areva GmbH, Areva NP SAS and Siemens AG) are jointly and severally liable for the plant contract obligations.

TVO has not recorded any receivables or provisions on the basis of claims presented in the arbitration proceedings.

## $CO_2$ emission rights

In principle TVO has, on 31 December, emission rights at least the same amount as the actual annual emissions are. If the actual emissions exceed the amount of the emission rights that TVO possesses, TVO has booked the expense for exceeding emission rights at the market value on 31 December.

| | **2017 t $CO_2$** | **EUR 1 000** | 2016 t $CO_2$ | EUR 1 000 |
|---|---|---|---|---|
| Total annual emissions from production facilities | **121 427** | | 472 190 | |
| Possessed emission rights | **122 437** | | 479 676 | |
| Emission rights and emission right reductions bought 1) | **109 000** | **677** | 471 000 | 2 662 |

TVO is responsible for the amount of emission rights corresponding to its share of the production of the plant.

1) The purchases of the emission rights and emission right reductions are included in materials and services. The emission rights that TVO possesses on 31 December are included in intangible assets on the balance sheet.

# 26 Related party

The Group's related parties include parent company Teollisuuden Voima Oyj and its subsidiary and joint ventures. The related parties also include the Board of Directors and the Executive Management including the President and CEO and Deputy CEO.

### Group's parent company and subsidiaries

| Company | Home country | Ownership, % | Share in voting rights, % |
|---|---|---|---|
| Teollisuuden Voima Oyj | Finland | | |
| TVO Nuclear Services Oy | Finland | 100 | 100 |

### Transactions with related parties are as follows

| **2017**<br>EUR 1 000 | Sales | Purchases | Receivables | Liabilities |
|---|---|---|---|---|
| Posiva Group | 10 225 | 48 687 | 3 654 | 9 |

| **2016**<br>EUR 1 000 | Sales | Purchases | Receivables | Liabilities |
|---|---|---|---|---|
| Posiva Group | 10 024 | 40 087 | 4 252 | 407 |

### Teollisuuden Voima Oyj's shareholders

According to IAS 24 -standard in addition the Group related parties are TVO's two biggest shareholders Pohjolan Voima Oy (PVO) and Fortum Power and Heat Oy (FPH) which have significant authority and PVO's biggest owner UPM-Kymmene Oyj (UPM) and FPH's owner Fortum Oyj.

### Transactions with related parties are as follows

| **2017**<br>EUR 1 000 | Sales | Purchases | Receivables | Liabilities |
|---|---|---|---|---|
| PVO, Fortum Oyj, Fortum Power and Heat Oy | 263 641 | 9 287 | 511 690 | 528 417 |

| **2016**<br>EUR 1 000 | Sales | Purchases | Receivables | Liabilities |
|---|---|---|---|---|
| PVO, Fortum Oyj, Fortum Power and Heat Oy | 283 083 | 10 461 | 892 740 | 457 081 |

### Senior management's employee benefits

The senior management of TVO comprises the Board of Directors and the Executive Management including President and CEO and Deputy CEO. The Group has no business transactions with senior management.

| EUR 1 000 | **2017**<br>**Senior management** | 2016<br>Senior management |
|---|---|---|
| Wages, salaries and other short-term benefits | **2 213** | 2 322 |
| Total | **2 213** | 2 322 |

# 27 Financial risk management

Financing and financial risks are centrally managed by the Treasury of TVO in accordance with the Finance Policy approved by the Board of Directors. TVO is exposed to a variety of financial risks: liquidity-, market- and credit risk. These do not include the receivables and obligations between the Company and its owners, as the Company operates at cost price (see note 1 General information on the Group).
TVO's guiding financial principles are to ensure access to adequate liquidity reserves and, secondly, to reduce volatility in cash flows deriving form short- and medium-term fluctuations in the financial markets.
In accordance with the Finance Policy of the Company, derivative instruments are entered into only with hedging purposes and they should qualify for hedge accounting under IFRS.

## Liquidity risk

Liquidity and refinancing risk is defined as the amount by which earnings and cash flows are affected as a result of the Company not being able to secure sufficient financing. In addition to sufficient liquid assets and committed credit lines TVO aims to diminish the refinancing risk by spreading the maturity dates of its loans and different financing sources as much as possible.
In accordance with the Finance Policy of TVO, the maturities and refinancing of long-term loans are planned so that no more than 25 per cent of the outstanding loans mature during the next rolling 12-month period. The loans borrowed from the Finnish State Nuclear Waste Management Fund, which have been lent further to the shareholders, form an exception.
TVO issues commercial papers under the Commercial Paper Program for short-term funding purposes. There shall always exist committed credit lines with a minimum duration of 12 months for an amount corresponding to the funding needs of the Company for the following 12 months.
In addition to long-term committed credit lines, the Company shall maintain liquid assets at an amount stated in the Finance Policy. In accordance with the Finance Policy, bank deposits, certificates of deposits, commercial papers, municipal papers, and treasury notes as well as money market funds are accepted as investments, and they are mostly for the short-term purposes with maximum duration of 12 months.

### Undiscounted cash flows of financial liabilities

| **2017**<br>EUR 1 000 | 2018 | 2019 | 2020 | 2021 | 2022- | Total |
|---|---|---|---|---|---|---|
| Loans from financial institutions 1) | 94 413 | 44 413 | 244 413 | 410 213 | 60 825 | 854 276 |
| Financing costs 2) | 15 268 | 12 779 | 9 663 | 4 975 | 1 408 | 44 093 |
| Loan from the Finnish State Nuclear Waste Management Fund 3) | | | | | 655 518 | 655 518 |
| Financing costs | 3 772 | 3 501 | 6 028 | 8 115 | 9 753 | 31 169 |
| Bonds 4) | 228 519 | 558 267 | 131 955 | 500 000 | 1 336 000 | 2 754 740 |
| Financing costs | 73 302 | 71 579 | 46 862 | 46 268 | 125 123 | 363 134 |
| Loans from others 4) | 88 446 | 0 | 79 114 | 0 | 56 117 | 223 677 |
| Financing costs | 3 412 | 2 300 | 2 313 | 879 | 882 | 9 786 |
| Finance lease liabilities | 1 718 | 1 726 | 1 735 | 1 744 | 48 828 | 55 750 |
| Other liabilities | 44 012 | | | | | 44 012 |
| Interest rate derivatives | 12 647 | 6 093 | 4 240 | 4 769 | 6 441 | 34 190 |
| **Total** | **565 510** | **700 657** | **526 322** | **976 962** | **2 300 895** | **5 070 346** |

| EUR 1 000 | 2018 | 2019 | 2020 | 2021 | 2022- | Total |
|---|---|---|---|---|---|---|
| Forward foreign exchange contracts | 1 307 | 178 | 464 | 497 | 565 | 3 010 |

1) Repayments in 2018 are included in current liabilities in the balance sheet.

2) In addition to interest costs, financing costs include commitment fees.

3) The loan is renewed yearly and connected interest payments are calculated for five years.

4) The placements in foreign currency have been swapped into EUR-floating or fixed cash flow using cross-currency swaps.

### Undiscounted cash flows of financial liabilities

| 2016<br>EUR 1 000 | 2017 | 2018 | 2019 | 2020 | 2021- | Total |
|---|---|---|---|---|---|---|
| Loans from financial institutions 1) | 44 413 | 94 413 | 144 413 | 419 413 | 96 038 | 798 689 |
| Financing costs 2) | 13 797 | 11 721 | 8 514 | 4 919 | 1 743 | 40 695 |
| Loan from the Finnish State Nuclear Waste Management Fund 3) | | | | | 1 027 050 | 1 027 050 |
| Financing costs | 5 659 | 3 980 | 5 366 | 7 418 | 10 213 | 32 636 |
| Bonds 4) | 214 481 | 228 519 | 558 267 | 131 955 | 1 836 000 | 2 969 221 |
| Financing costs | 66 582 | 73 012 | 71 229 | 46 789 | 171 540 | 429 152 |
| Loans from others 4) | | 88 446 | | 79 114 | 56 117 | 223 677 |
| Financing costs | 3 279 | 3 220 | 1 998 | 2 010 | 1 511 | 12 018 |
| Finance lease liabilities | 1 709 | 1 718 | 1 726 | 1 735 | 50 571 | 57 459 |
| Commercial papers | 50 948 | | | | | 50 948 |
| Other liabilities | 54 884 | | | | | 54 884 |
| Interest rate derivatives | 13 980 | 14 196 | 8 851 | 6 080 | 13 600 | 56 707 |
| **Total** | **469 732** | **519 225** | **800 363** | **699 433** | **3 264 383** | **5 753 136** |

| EUR 1 000 | 2017 | 2018 | 2019 | 2020 | 2021- | Total |
|---|---|---|---|---|---|---|
| Forward foreign exchange contracts | 890 | 100 | 72 | 53 | 0 | 1 115 |

1) Repayments in 2017 are included in current liabilities in the balance sheet.

2) In addition to interest costs financing costs include commitment fees.

3) The loan is renewed yearly and connected interest payments are calculated for five years.

4) The placements in foreign currency have been swapped into EUR-floating or fixed cash flow using cross-currency swaps.

## Market risk

### Currency risk

TVO is exposed to currency risk mainly in connection with its fuel purchases. The currency of purchases of raw uranium, enrichment and coal is frequently USD. Hedging of a currency denominated purchase is commenced when an agreement is entered into and the forecasted currency risk becomes highly probable. Both short-term and long-term loans are withdrawn mainly in euros. The loans denominated in other currencies than euros are hedged latest at the withdrawal date.
Currency swaps, forward contracts, and options can be used to hedge the currency exposure.

### Interest rate risk

Interest-bearing liabilities expose the Company to interest rate risk. The objective of the Company's interest rate risk management is to maintain the interest costs at as low level as possible and to diminish the volatility of interest costs. In accordance with the Finance Policy, the duration of the loan portfolio of the Company can vary between 30 and 42 months. At the closing date the duration was 31 months.
The average interest rate duration is managed with fixed interest rate loans, interest rate swaps, forward rate agreements as well as with interest rate caps and floors.
The average interest rate on loans and derivatives on 31 December 2017 was 2.15 % (2016: 2.23 %).
Borrowings issued at variable rates expose TVO to cash flow interest rate risk. Borrowings issued at fixed rates expose TVO to fair value interest rate risk. TVO shall apply hedge accounting as far as practical. Based on the various scenarios, TVO manages its cash flow interest rate risk by using floating-to-fixed interest rate swaps. Such interest rate swaps have the economic effect of converting borrowings from floating rates to fixed rates. TVO also enters into fixed-to-floating interest rate swaps to hedge the fair value interest rate risk.

### Expected cash flows from financial instruments under cash flow hedge accounting

| **2017**<br>EUR 1 000 | 2018 | 2019 | 2020 | 2021 | 2022- | Total |
|---|---|---|---|---|---|---|
| Interest rate swaps | | | | | | |
| Cash flows | -11 149 | -4 473 | -3 233 | -2 609 | -2 208 | -23 673 |

| **2016**<br>EUR 1 000 | 2017 | 2018 | 2019 | 2020 | 2021- | Total |
|---|---|---|---|---|---|---|
| Interest rate swaps | | | | | | |
| Cash flows | -12 404 | -12 359 | -6 393 | -4 290 | -5 475 | -40 922 |

### Sensitivity to market risks

Sensitivity to market risks arising from financial instruments as required by IFRS 7.

| EUR 1 000 | **2017**<br>**Income statement** | **Equity** | 2016<br>Income statement | Equity |
|---|---|---|---|---|
| + 10% change in EUR/USD exchange rate | | **-14 222** | | -14 973 |
| - 10% change in EUR/USD exchange rate | | **14 222** | | 14 973 |
| 1% upward parallel shift in interest rates | **-6 537** | **33 473** | -457 | 44 414 |
| 1% downward parallel shift in interest rates | **7 559** | **-32 057** | 802 | -42 994 |

Assumptions:
The change in EUR/USD exchange rate is assumed to be +/- 10 per cent.
The USD-denominated position includes the forward foreign exchange contracts which are designated as cash flow hedges and recognized in equity and the forward foreign exchange contracts not qualified as cash flow hedges, affecting the income statement.
The variation in interest rates is assumed to be 1 percentage point parallel shift in the interest rate curve.
The interest rate risk position includes the floating rate loan receivables, interest-bearing borrowing, the interest rate derivatives and cash equivalents.
The income statement is affected by the interest-bearing loan receivables, floating rate borrowings and the interest rate derivatives, excluding those interest rate derivatives that are designated as and qualifying for cash hedges, which are recognized in equity. The gain or loss is recognized in profit or loss, except when they relate to the construction of OL3 and are capitalized in the balance sheet.

# BONDS

## Euro Medium Term Note Programme EUR 4.000.000.000

| EUR 1 000<br>Currency | **2017**<br>Nominal amount | Carrying amount | 2016<br>Nominal amount | Carrying amount | Interest rate % | Maturity date |
|---|---|---|---|---|---|---|
| EUR | 500 000 | 500 000 | 500 000 | 500 000 | 4,625 | 4.2.2019 |
| EUR | 500 000 | 500 000 | 500 000 | 500 000 | 2,50 | 17.3.2021 |
| EUR | 30 000 | 30 000 | 30 000 | 30 000 | 3,88 | 9.5.2022 |
| EUR | 100 000 | 100 000 | 100 000 | 100 000 | Euribor 6M+1,58 | 12.9.2022 |
| EUR | 23 000 | 23 000 | 23 000 | 23 000 | 4,08 | 1.12.2022 |
| EUR | 20 000 | 20 000 | 20 000 | 20 000 | 2,80 | 8.5.2024 |
| EUR | 75 000 | 75 000 | 75 000 | 75 000 | 3,60 | 14.12.2027 |
| EUR | 23 000 | 23 000 | 23 000 | 23 000 | 3,50 | 3.5.2030 |
| EUR | 45 000 | 45 000 | 45 000 | 45 000 | 3,90 | 31.3.2032 |
| EUR | 20 000 | 20 000 | 20 000 | 20 000 | 3,875 | 8.11.2032 |
| EUR | 500 000 | 500 000 | 500 000 | 500 000 | 2,201 | 4.2.2025 |
| EUR | 500 000 | 500 000 | 500 000 | 500 000 | 2,723 | 13.1.2023 |
| NOK | 0 | 0 | 550 000 | 63 218 | 6,20 | 22.2.2017 |
| SEK | 0 | 0 | 650 000 | 63 601 | 5,30 | 28.3.2017 |
| SEK | 0 | 0 | 300 000 | 33 898 | 5,30 | 28.3.2017 |
| SEK | 0 | 0 | 500 000 | 53 763 | 4,50 | 8.11.2017 |
| SEK | 875 000 | 99 977 | 875 000 | 99 977 | 3,88 | 13.9.2018 |
| SEK | 1 125 000 | 128 542 | 1 125 000 | 128 542 | Stibor 3M+1,40 | 13.9.2018 |
| SEK | 600 000 | 58 267 | 600 000 | 58 267 | 5,30 | 30.10.2019 |
| SEK | 650 000 | 70 945 | 650 000 | 70 945 | Stibor 3M+1,09 | 17.3.2020 |
| SEK | 550 000 | 61 009 | 550 000 | 61 009 | 2,84 | 19.5.2020 |
| Total | | **2 754 740** | | 2 969 221 | | |

## TVO Group debt structure 31 December 2017

| EUR 1 000 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026- | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Loans from financial institutions | 94 413 | 44 413 | 244 413 | 410 213 | 30 413 | 30 413 | | | | 854 276 |
| Bonds | 228 519 | 558 267 | 131 955 | 500 000 | 153 000 | 500 000 | 20 000 | 500 000 | 163 000 | 2 754 740 |
| Loans from others | 88 446 | | 79 114 | | 56 117 | | | | | 223 677 |
| Finance lease liabilities | 1 718 | 1 726 | 1 735 | 1 744 | 1 752 | 1 761 | 1 770 | 43 544 | | 55 750 |
| **Total** | **413 096** | **604 406** | **457 216** | **911 957** | **241 281** | **532 174** | **21 770** | **543 544** | **163 000** | **3 888 444** |

## Maturity of TVO Group's credit commitments 31 December 2017

| EUR 1 000 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026- | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Syndicated revolving credit facility | | | | 300 000 | | 1 000 000 | | | | 1 300 000 |
| Bilateral revolving credit facility | | | 280 000 | | | | | | | 280 000 |
| Bilateral bank loan | | 100 000 | | | | | | | | 100 000 |
| **Total** | | **100 000** | **280 000** | **300 000** | | **1 000 000** | | | | **1 680 000** |

Both syndicated and bilateral facilities are undrawn.

On December 31, 2017, the Group's had undrawn credit facilities amounting to EUR 1,680 million (2016: EUR 1,500 million). In addition, the Group's had subordinated shareholder loan (hybrid equity) commitments totaling EUR 350 million (2016: EUR 300 million) and cash and cash equivalents amounting to EUR 140 million (2016: EUR 312 million).

**Credit risk**

Credit risk arises from the potential failure of a counterparty to meet its contractual payment obligations. Commercial trade receivables as well as receivables from financial institutions relating to investments, deposits and derivative transactions expose the Company to credit risk. In addition to money market funds, financial institutions that meet the credit rating requirements of the Group´s Financial Policy are accepted as counterparties. Furthermore TVO has in place a master agreement (ISDA) with all derivative contract counterparties.

**Fuel price risk**

The main fuels used for electricity production by the Group are uranium and coal.
TVO purchases the uranium fuel from the global markets. The purchasing process consists of four stages: purchase of uranium concentrate, conversion, enrichment and fuel fabrication. Purchasing Policy is used to guarantee the availability of fuel and to minimise price risk. This includes storage strategy and diversified long-term purchasing agreements with different suppliers.
TVO has not used commodity derivatives to hedge fuel price risk.

**Capital risk management**

TVO's objective is to secure sufficient equity and equity-like funding that guarantees diversified funding sources.
The equity ratio of the Company varies along investment cycles. The Group targets to have a minimum equity ratio (IFRS) of 25 per cent in the long-term. When calculating the equity ratio, the loan from the Finnish State Nuclear Waste Management Fund (lent further to the shareholders) and the provision related to nuclear waste management obligation are excluded. Additionally, subordinated loans or equivalent loans from the shareholders are regarded as equity.
According to the terms of some loan agreements, the Company is obliged to offer a repayment of the loan if TVO's equity ratio (IFRS) falls below 25 per cent. There are no other key ratio-related covenants in the loan contracts.

## The equity ratio monitored by TVO's management

| | **2017** | 2016 |
|---|---|---|
| Equity ratio, % (IFRS, Group) 1) | **28,9** | 26,6 |
| Equity ratio, % (Parent company) 2) | **28,9** | 26,4 |

$$\text{1) Equity ratio \%} = 100 \times \frac{\text{equity + loans from equity holders of the company}}{\text{balance sheet total - provision related to nuclear waste management - loan from the Finnish State Nuclear Waste Management Fund}}$$

$$\text{2) Equity ratio \%} = 100 \times \frac{\text{equity + appropriations + loans from equity holders of the company}}{\text{balance sheet total - loan from the Finnish State Nuclear Waste Management Fund}}$$

## Net debt reconciliation

| EUR 1 000 | 2017 |
|---|---|
| Cash and cash equivalents | **140 239** |
| Non-current interest-bearing liabilities (excluding loan from VYR) | **-3 469 831** |
| Current interest-bearing liabilities | **-392 540** |
| **Net debt** | **-3 722 132** |

| 2017<br>EUR 1 000 | Cash and cash equivalents | Fund units | Current finance lease liabilities | Non-current finance lease liabilities | Current financial liabilities | Non-current financial liabilities | Total |
|---|---|---|---|---|---|---|---|
| **Net debt 31 Dec 2016** | 312 236 | 200 014 | -1 709 | -55 750 | -307 685 | -3 747 494 | -3 600 388 |
| Cash and cash equivalents | -171 839 | -200 000 | 1 709 | 0 | 309 841 | -100 000 | -160 289 |
| Exchange rate adjustments | -158 | 0 | 0 | 0 | 0 | 0 | -158 |
| Other non-cash flow expenses | 0 | -14 | -1 718 | 1 718 | -392 978 | 431 695 | 38 703 |
| **Net debt 31 Dec 2017** | **140 239** | **0** | **-1 718** | **-54 032** | **-390 822** | **-3 415 799** | **-3 722 132** |

# 28 Events after the balance sheet date

In February 2018, Japan Credit Rating Agency (JCR) downgraded TVO's long term rating from AA- to A+. TVO's outlook JCR assessed as stable.

# Parent company's financial statements

## Parent company's income statement

| EUR 1 000 | Note | **1 Jan-31 Dec 2017** | 1 Jan-31 Dec 2016 |
|---|---|---|---|
| **Turnover** | 2 | **316 170** | 339 878 |
| Work performed for own purpose | 3 | **12 888** | 10 718 |
| Other income | 4 | **15 032** | 14 185 |
| Materials and services | 5 | **-135 956** | -158 735 |
| Personnel expenses | 6 | **-57 650** | -59 408 |
| Depreciation and impairment charges | 7 | **-51 022** | -50 817 |
| Other expenses | 8 | **-92 693** | -91 571 |
| **Operating profit/loss** | | **6 769** | 4 250 |
| Financial income and expenses | 9 | **-405** | -1 111 |
| **Profit/loss before appropriations and taxes** | | **6 364** | 3 139 |
| Appropriations | 10 | **-6 364** | -3 139 |
| **Profit/loss for the financial year** | | **0** | 0 |

# Parent company's balance sheet

| EUR 1 000 | Note | | **31 Dec 2017** | | 31 Dec 2016 |
|---|---|---|---|---|---|
| **Assets** | | | | | |
| **Non-current assets** | | | | | |
| Intangible assets | 11 | | **4 662** | | 7 759 |
| Tangible assets | 11 | | **5 164 346** | | 4 917 138 |
| Investments | | | | | |
| Holdings in group companies | 12 | 8 | | 8 | |
| Holdings in joint ventures | 12 | 1 011 | | 1 011 | |
| Other investments | 12 | 662 898 | **663 917** | 1 034 753 | 1 035 772 |
| **Total non-current assets** | | | **5 832 925** | | 5 960 669 |
| **Current assets** | | | | | |
| Inventories | 13 | | **257 090** | | 249 424 |
| Current receivables | 14 | | **62 577** | | 71 740 |
| Money market instruments | | | **0** | | 200 000 |
| Cash and cash equivalents | | | **139 620** | | 311 516 |
| **Total current assets** | | | **459 287** | | 832 680 |
| **Total assets** | | | **6 292 212** | | 6 793 349 |
| **Equity and liabilities** | | | | | |
| **Equity** | | | | | |
| Share capital | 15 | | **606 193** | | 606 193 |
| Share premium reserve | 15 | | **232 435** | | 232 435 |
| Statutory reserve | 15 | | **9 948** | | 9 948 |
| Retained earnings (loss) | 15,16 | | **14 460** | | 9 360 |
| Profit (loss) for the financial year | 15,16 | | **0** | | 0 |
| **Total equity** | | | **863 036** | | 857 936 |
| **Appropriations** | | | **185 418** | | 183 323 |
| **Liabilities** | | | | | |
| Non-current liabilities | 17, 18 | | **3 421 316** | | 3 732 694 |
| Shareholders' loans | 17 | | **579 300** | | 479 300 |
| Loan from the Finnish State Nuclear Waste Management Fund | 17 | | **655 518** | | 1 027 050 |
| Current liabilities | 19 | | **587 624** | | 513 046 |
| **Total liabilities** | | | **5 243 758** | | 5 752 090 |
| **Total equity and liabilities** | | | **6 292 212** | | 6 793 349 |

# Parent company's cash flow statement

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| **Operating activities** | | |
| Operating profit/loss | **6 769** | 4 250 |
| Adjustments to operating profit /loss 1) | **50 798** | 50 716 |
| Changes in working capital 2) | **-29 390** | 46 383 |
| Interest paid and other financial expenses | **-4 272** | -7 172 |
| Interest received | **5 734** | 8 180 |
| **Cash flow from operating activities** | **29 639** | 102 357 |
| **Investing activities** | | |
| Acquisition of shares | **-6** | -6 |
| Acquisition of non-current assets | **-292 745** | -345 555 |
| Investments in fund units 3) | **200 000** | -100 000 |
| Proceeds from sale of other investments | **486** | 0 |
| Proceeds from sale of intangible and tangible assets | **41** | 203 |
| Loan receivables granted | **-15 603** | -18 135 |
| Repayments of loans granted | **387 278** | 276 |
| **Cash flow from investing activities** | **279 451** | -463 217 |
| **Financing activities** | | |
| Withdrawals of long-term loans | **200 000** | 993 000 |
| Repayment of long-term loans | **-630 426** | -375 215 |
| Increase (-) or decrease (+) in interest-bearing receivables | **0** | 13 |
| Increase (+) or decrease (-) in short-term interest-bearing liabilities | **-50 948** | -65 444 |
| Group contribution received | **388** | 999 |
| **Cash flow from financing activities** | **-480 986** | 553 353 |
| **Change in cash and cash equivalents** | **-171 896** | 192 493 |
| Cash and cash equivalents 1 Jan | **311 516** | 119 023 |
| **Cash and cash equivalents 31 Dec** | **139 620** | 311 516 |

| 1) Adjustments to operating profit/loss | | |
|---|---|---|
| Depreciation and write-downs | **51 022** | 50 817 |
| Gain (-) or loss (+) from divestment of non-current assets | **-224** | -101 |
| Total | **50 798** | 50 716 |

| 2) Changes in working capital | | |
|---|---|---|
| Increase (-) or decrease (+) in inventories | **-7 666** | 996 |
| Increase (-) or decrease (+) in non-interest-bearing receivables | **4 870** | -18 584 |
| Increase (+) or decrease (-) in short-term non-interest-bearing liabilities | **-26 594** | 63 971 |
| Total | **-29 390** | 46 383 |

3) The presentation has been corrected compared to the 2016 financial statements. Investments in fund units have been transferred to the cash flow from investing activities.

# Notes to the parent company's financial statements

## 1 Accounting principles

### Valuation principles

**Non-current assets and their depreciation**

Non-current assets have been capitalized at direct acquisition cost including interest costs over the period of construction less planned depreciation and received allowances. Depreciation according to plan is calculated on a straight-line basis according to the estimated useful economic lives.

The depreciation periods are as follows:

| | |
|---|---|
| OL1 and OL2 nuclear power plant units: | |
| - Basic investment | 61 years |
| - Investments made according to the modernization program | 21–35 years |
| - Automation investments associated with the modernization | 15 years |
| - Additional investments | 10 years |
| Buildings and structures | 10–40 years |
| TVO's share in the Meri-Pori coal-fired power plant: | |
| - Basic investment | 25 years |
| - Additional investments | 10 years |
| Wind power plant | 10 years |
| TVO's share in the Olkiluoto gas turbine power plant | 30 years |

**Valuation of inventories**

Materials and supplies have been valued at direct acquisition cost, coal on the basis of the FIFO principle (first in, first out), nuclear fuel according to calculated fuel consumption, and supply stocks at average acquisition cost. If the replacement value of inventories on 31 December is lower than the original acquisition cost, the difference will not be entered in the books as an expense because the company operates at cost price.

**$CO_2$ emission rights**

Carbon dioxide ($CO_2$) emission rights are included in the intangible assets. Emission rights are recognized at historical cost. The current liability for returning emission rights is recognized at the carrying value of possessed emission rights. If there is a shortfall, a current liability is recognized to cover the acquisition of the missing emission rights. This current liability is valued at the current market value of the emission rights at the balance sheet date. The cost of the emission rights is recognized in the income statement under costs of materials and services. The gains from the sales of emission rights are refunded to the equity holders of the company.

**Research and development costs**

Research and development costs associated with production activity are entered as annual costs for the year in which they were incurred.

**Items denominated in foreign currency**

Transactions in foreign currency have been entered at the relevant exchange rate or at the transaction rate for purchase and sale of foreign currency. On the balance sheet date exchange rate differences on foreign currency accounts have been entered in the income statement under financial income and expenses.

**Money market instruments**

Money market instruments comprise shares in short-term money market funds and certificate of deposits. They are valued in the balance sheet at their original acquisition cost and are included in financing activities in the cash flow statements.

**Derivative financial instruments**

The Company applies hedge accounting. Derivative financial instruments have not been entered on the balance sheet. Their nominal values and fair values are presented in the notes to the financial statements.

Interest rate duration of floating rate loans has been managed with interest rate swaps, caps and floors. Interest costs of these instruments have been entered on accrual basis and shown in net amount under financial income and expenses. The premiums on interest rate options have been accrued over the period to maturity.

Payments of foreign currency denominated inventory acquisitions have been hedged with currency derivatives. The realized exchange rate differences of derivative financial instruments have been entered to adjust the acquisition cost of inventories. Cross currency swaps have been used to hedge foreign currency denominated long term loans.

## Items related to nuclear waste management liability

Nuclear waste management obligation is provided for in the Nuclear Energy Act. The obligation covers all future costs from nuclear waste handling including decommissioning of nuclear power plant units, costs for final disposal of spent nuclear fuel and the risk margin, decommissioning being assumed to start at the end of the year in question.

The Ministry of Employment and the Economy confirms annually at the end of the calendar year the liability for nuclear waste management for the current year and the target reserve for the next year. The company liable for nuclear waste management shall pay its contribution to the Finnish State Nuclear Waste Management Fund so that the company's share in the Fund on 31 March is equal to the company funding obligation target confirmed for the calendar year in question.

The annual contribution to the Finnish State Nuclear Waste Management Fund and costs from nuclear waste management and services are entered as annual expenses. The nuclear waste management fee is based on the Company's proposal. If the nuclear waste management fee set by the Finnish State Nuclear Waste Management Fund differs from the amount proposed by the Company, the difference is entered in the accounts for the following financial year. Nuclear waste management liability and the TVO's funding target obligation to the Finnish State Nuclear Waste Management Fund are presented in the Notes to the financial statements.

The Company must supply the Ministry with guarantees to cover for the difference between the legal nuclear waste management liability and the Company´s share in the Finnish State Nuclear Waste Management Fund as well as for unforeseen expenses in nuclear waste management. Guarantees are presented in the Notes to the financial statements.

A company, liable for nuclear waste management, or its shareholder, is entitled to a loan from the Finnish State Nuclear Waste Management Fund corresponding to 75 per cent of the company's share in the Fund. TVO uses the right to borrow funds back and lends them further to its shareholders.

# 2 Turnover

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Olkiluoto 1 and Olkiluoto 2 | **302 803** | 311 556 |
| Meri-Pori | **13 367** | 28 322 |
| Total | **316 170** | 339 878 |

| **Electricity delivered to equity holders of the company (GWh)** | | |
|---|---|---|
| Olkiluoto 1 | **7 144** | 7 035 |
| Olkiluoto 2 | **6 241** | 7 288 |
| Total Olkiluoto 1) | **13 385** | 14 323 |
| Meri-Pori | **131** | 563 |
| Total | **13 516** | 14 886 |

1) Includes wind energy 0.6 (1.3 in 2016) GWh and energy produced by gas turbine 0.1 (0.4) GWh.

# 3 Work performed for own purpose

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Personnel expenses related to OL3 | **12 888** | 10 718 |

# 4 Other income

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Rental income | **1 246** | 987 |
| Sales profit of tangible assets and shares | **259** | 101 |
| Sales of services | **12 689** | 12 359 |
| Other income | **838** | 738 |
| Total | **15 032** | 14 185 |

# 5 Materials and services

| EUR 1 000 | **2017** | 2016 |
| --- | --- | --- |
| Purchases, accrual basis | | |
| Nuclear fuel | **64 604** | 61 251 |
| Coal | **207** | 5 557 |
| Materials and supplies | **4 652** | 4 443 |
| Increase (-) or decrease (+) in inventories | **-8 249** | 833 |
| Total | **61 214** | 72 084 |
| | | |
| $CO_2$ emission rights | **677** | 2 662 |
| | | |
| Nuclear waste management | | |
| Contribution to the Finnish State Nuclear Waste Management Fund 1) | **34 189** | 48 651 |
| Nuclear waste management services | **29 728** | 24 104 |
| Total | **63 917** | 72 755 |
| | | |
| External services | **10 148** | 11 234 |
| Total | **135 956** | 158 735 |

1) Based on TVO's proposal. If the contribution confirmed by the Finnish State Nuclear Waste Management Fund for the year differs from the proposal, the difference will be booked in the following financial year.

| Consumption | | |
| --- | --- | --- |
| Nuclear fuel | **53 904** | 54 393 |
| Coal | **3 371** | 14 129 |
| Materials and supplies | **3 939** | 3 562 |
| Total | **61 214** | 72 084 |

# 6 Notes concerning personnel and members of administrative bodies

| | 2017 | 2016 |
|---|---|---|
| Average number of personnel | | |
| Office personnel | **665** | 631 |
| Manual workers | **135** | 133 |
| Total | **800** | 764 |

| | | |
|---|---|---|
| Number of employees 31 Dec | | |
| Office personnel | **670** | 621 |
| Manual workers | **136** | 125 |
| Total | **806** | 746 |

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Personnel expenses | | |
| Wages and salaries | **48 920** | 48 280 |
| Pension expenses | **6 684** | 8 188 |
| Other compulsory personnel expenses | **2 046** | 2 940 |
| Total | **57 650** | 59 408 |

| | | |
|---|---|---|
| Salaries and fees paid to management | | |
| President and CEO deputy and members of the Board of Directors | **895** | 995 |

# 7 Depreciation and impairment charges

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Depreciation according to plan | | |
| Other capitalised long-term expenses | **1 255** | 1 232 |
| Buildings and construction | **6 648** | 7 026 |
| Machinery and equipment | **40 453** | 39 718 |
| Other tangible assets | **2 666** | 2 841 |
| Total | **51 022** | 50 817 |

# 8 Other expenses

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| Maintenance services | **21 024** | 16 508 |
| Regional maintenance and service | **9 329** | 8 235 |
| Research services | **4 300** | 4 504 |
| Other external services | **24 227** | 31 621 |
| Real estate tax | **4 828** | 6 067 |
| Rents | **1 204** | 1 091 |
| ICT expenses | **3 936** | 4 003 |
| Personnel related expenses | **4 265** | 3 922 |
| Corporate communication expenses | **807** | 756 |
| Other expenses | **18 773** | 14 864 |
| Total | **92 693** | 91 571 |

| | | |
|---|---|---|
| **Auditors' fees and not audit-related services** | | |
| **PricewaterhouseCoopers Oy** | | |
| Audit fees | **113** | 137 |
| Other services | **170** | 94 |
| Total | **283** | 231 |

# 9 Financial income and expenses

| EUR 1 000 | 2017 | 2016 |
|---|---|---|
| **Interest income on long-term investments** | | |
| From joint ventures | **26** | 30 |
| From others | **3 773** | 5 658 |
| Total | **3 799** | 5 688 |
| **Other interest and financial income** | | |
| From others | **49** | 92 |
| Total | **49** | 92 |
| **Interest income on long-term investments and other interest and financial income, total** | **3 848** | 5 780 |
| **Interest expenses and other financial expenses** | | |
| To the Finnish State Nuclear Waste Management Fund | **3 772** | 5 659 |
| To others | **105 062** | 108 758 |
| Capitalised interest costs | **-104 581** | -107 526 |
| Total | **4 253** | 6 891 |
| Total financial income (+) and expenses (-) | **-405** | -1 111 |
| Financial income and expenses include exchange rate gains (+) and losses (-) (net) | **-158** | -30 |

# 10 Appropriations

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Group contribution | **831** | 353 |
| The difference between depreciation according to plan and tax depreciation, increase (-) or decrease (+) | **-7 195** | -3 492 |
| Total | **-6 364** | -3 139 |

# 11 Non-current assets

| EUR 1 000 | Formation expenses | Intangible rights | Other capitalised long-term expenses | Advance payments | Total |
|---|---|---|---|---|---|
| **Intangible assets** | | | | | |
| Acquisition cost 1 Jan 2017 | 57 961 | 2 662 | 43 650 | 0 | 104 273 |
| Increase | 0 | 677 | 144 | 0 | 821 |
| Decrease | 0 | -2 662 | -27 | 0 | -2 689 |
| Acquisition cost 31 Dec 2017 | 57 961 | 677 | 43 767 | 0 | 102 405 |
| Accumulated depreciation according to plan 1 Jan | 57 961 | 0 | 38 553 | 0 | 96 514 |
| Accumulated depreciation from deduction | 0 | 0 | -26 | 0 | -26 |
| Depreciation according to plan | 0 | 0 | 1 255 | 0 | 1 255 |
| **Book value 31 Dec 2017** | **0** | **677** | **3 985** | **0** | **4 662** |
| Accumulated depreciation difference 1 Jan | 0 | 0 | 2 748 | 0 | 2 748 |
| Change in depreciation difference | 0 | 0 | -702 | 0 | -702 |
| Accumulated depreciation difference 31 Dec | 0 | 0 | 2 046 | 0 | 2 046 |
| Undepreciated acquisition cost in taxation 31 Dec 2017 | 0 | 677 | 1 939 | 0 | 2 616 |

| EUR 1 000 | Land and water areas | Buildings and construction | Machinery and equipment | Other tangible assets | Construction in progress and advance payments | Total |
|---|---|---|---|---|---|---|
| **Tangible assets** | | | | | | |
| Acquisition cost 1 Jan 2017 | 12 137 | 289 132 | 1 375 592 | 54 679 | 4 492 963 | 6 224 503 |
| Increase | 0 | 301 | 15 107 | 142 | 281 495 | 297 045 |
| Decrease | 0 | -112 | -7 125 | 0 | 0 | -7 237 |
| Transfer between categories | 0 | 2 611 | 58 692 | 0 | -61 303 | 0 |
| Acquisition cost 31 Dec 2017 | 12 137 | 291 932 | 1 442 266 | 54 821 | 4 713 155 | 6 514 311 |
| Accumulated depreciation according to plan 1 Jan | 0 | 237 937 | 1 026 850 | 42 578 | 0 | 1 307 365 |
| Accumulated depreciation from deduction | 0 | -113 | -7 054 | 0 | 0 | -7 167 |
| Depreciation according to plan | 0 | 6 649 | 40 452 | 2 666 | 0 | 49 767 |
| **Book value 31 Dec 2017** | **12 137** | **47 459** | **382 018** | **9 577** | **4 713 155** | **5 164 346** |
| Accumulated depreciation difference 1 Jan | 0 | -7 262 | 185 388 | 2 449 | 0 | 180 576 |
| Correction of accumulated depreciation difference 1) | 0 | 0 | -5 100 | 0 | 0 | -5 100 |
| Change in depreciation difference | 0 | -1 964 | 9 675 | 186 | 0 | 7 897 |
| Accumulated depreciation difference 31 Dec | 0 | -9 226 | 189 963 | 2 635 | 0 | 183 372 |
| Undepreciated acquisition cost in taxation 31 Dec 2017 | 12 137 | 56 685 | 192 055 | 6 942 | 4 713 155 | 4 980 974 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Share of machinery and equipment from book value 31 Dec 2017 | | | 369 573 | | | |
| Share of machinery and equipment from book value 31 Dec 2016 | | | 333 963 | | | |

1) During the accounting period 2017, accumulated depreciation difference have been corrected to be similar to accumulated depreciation difference in taxation. The effect of the correction have been EUR 5,100 thousand.

### Capitalised borrowing costs included in non-current assets

| EUR 1 000 | Formation expenses | Other capitalised long-term expenses | Buildings and construction | Machinery and equipment | Other tangible assets | Construction in progress | Total |
|---|---|---|---|---|---|---|---|
| **Interest during construction period** | | | | | | | |
| Acquisition cost 1 Jan 2017 | 11 601 | 3 530 | 31 133 | 112 781 | 2 609 | 1 186 882 | 1 348 536 |
| Increase | 0 | 0 | 0 | 0 | 0 | 103 916 | 103 916 |
| Acquisition cost 31 Dec 2017 | 11 601 | 3 530 | 31 133 | 112 781 | 2 609 | 1 290 798 | 1 452 452 |
| Accumulated depreciation according to plan 1 Jan | 11 601 | 3 049 | 24 007 | 87 456 | 1 990 | 0 | 128 103 |
| Depreciation according to plan | 0 | 107 | 444 | 1 693 | 33 | 0 | 2 277 |
| **Book value 31 Dec 2017** | **0** | **374** | **6 682** | **23 632** | **586** | **1 290 798** | **1 322 072** |
| Accumulated depreciation difference 1 Jan | 0 | 482 | 7 126 | 25 324 | 619 | 0 | 33 551 |
| Change in depreciation difference | 0 | -108 | -444 | -1 692 | -33 | 0 | -2 277 |
| Accumulated depreciation difference 31 Dec | 0 | 374 | 6 682 | 23 632 | 585 | 0 | 31 273 |
| Undepreciated acquisition cost in taxation 31 Dec 2017 | 0 | 0 | 0 | 0 | 0 | 1 290 798 | 1 290 798 |

# 12 Investments

| EUR 1 000 | Holdings in group companies | Holdings in joint ventures | Other stocks and shares | Loan receivables, joint ventures | Loan receivables, others | Total |
|---|---|---|---|---|---|---|
| Acquisition cost 1 Jan 2017 | 8 | 1 011 | 4 445 | 2 753 | 1 027 555 | 1 035 772 |
| Increase | 0 | 0 | 6 | 133 | 15 517 | 15 656 |
| Decrease | 0 | 0 | -232 | -230 | -387 049 | -387 511 |
| Acquisition cost 31 Dec 2017 | 8 | 1 011 | 4 219 | 2 656 | 656 023 | 663 917 |
| **Book value 31 Dec 2017** | **8** | **1 011** | **4 219** | **2 656** | **656 023** | **663 917** |
| **Loan from the Finnish State Nuclear Waste Management Fund lent further to the equity holders of the company** | | | | | **655 518** | **655 518** |

| Group companies | Group share, % |
|---|---|
| TVO Nuclear Services Oy, Eurajoki | 100 |

| Joint ventures | Holding of the parent company, % |
|---|---|
| Posiva Oy, Eurajoki, A series | 60 |
| Posiva Oy, Eurajoki, B series | 74 |

# 13 Inventories

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| **Coal** | | |
| Replacement cost | **12 612** | 16 983 |
| Book value | **8 674** | 11 838 |
| Difference | **3 938** | 5 145 |
| **Raw uranium and natural uranium** | | |
| Replacement cost | **60 131** | 53 544 |
| Book value | **73 952** | 67 828 |
| Difference | **-13 821** | -14 284 |
| Coal | **8 674** | 11 838 |
| Raw uranium and natural uranium | **73 952** | 67 828 |
| Nuclear fuel | **167 765** | 163 189 |
| Supplies | **6 699** | 6 569 |
| Total | **257 090** | 249 424 |

# 14 Current receivables

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| **Receivables from group companies** | | |
| Accrued income | **1 313** | 836 |
| Total | **1 313** | 836 |
| **Receivables from joint ventures** | | |
| Loan receivables | **230** | 276 |
| Prepayments and accrued income | **1 281** | 1 205 |
| Total | **1 511** | 1 481 |
| **Receivables from others** | | |
| Trade receivables | **33 385** | 38 013 |
| Other receivables | **163** | 105 |
| Total | **33 548** | 38 118 |
| **Prepayments and accrued income** | | |
| Prepaid interests | **20 858** | 23 661 |
| Accrued interest income | **3 772** | 5 659 |
| Other accrued income | **1 535** | 1 946 |
| Other prepaid expenses | **40** | 39 |
| Total | **26 205** | 31 305 |
| Total | **62 577** | 71 740 |

# 15 Equity

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Share capital 1 Jan 2017 | **606 193** | 606 193 |
| Share capital 31 Dec 2017 | **606 193** | 606 193 |
| Share premium reserve 1 Jan 2017 | **232 435** | 232 435 |
| Share premium reserve 31 Dec 2017 | **232 435** | 232 435 |
| Statutory reserve 1 Jan 2017 | **9 948** | 9 948 |
| Statutory reserve 31 Dec 2017 | **9 948** | 9 948 |
| Retained earnings/loss 1 Jan 2017 | **9 360** | 9 360 |
| Change 1) | **5 100** | 0 |
| Retained earnings/loss 31 Dec 2017 | **14 460** | 9 360 |
| Profit/loss for the financial year | **0** | 0 |
| Total | **863 036** | 857 936 |

[1] During the accounting period 2017, accumulated depreciation difference have been corrected to be similar to accumulated depreciation difference in taxation. The effect of the correction have been EUR 5,100 thousand between appropriations and retained earnings/loss.

# 16 Distributable equity

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Retained earnings | **14 460** | 9 360 |
| Profit/loss for the financial year | **0** | 0 |
| Total | **14 460** | 9 360 |

# 17 Non-current liabilities

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Bonds | **2 526 221** | 2 754 741 |
| Loans from financial institutions | **755 064** | 749 476 |
| Other loans | **140 031** | 228 477 |
| Shareholders' loans 1) | **579 300** | 479 300 |
| Loan from the Finnish State Nuclear Waste Management Fund 2) | **655 518** | 1 027 050 |
| Total | **4 656 134** | 5 239 044 |

[1] Subordinated loans.

[2] Lent further to the shareholders.

## BONDS

### Euro Medium Term Note Programme EUR 4.000.000.000

| Currency | Capital | Maturity date | EUR 1 000 **2017** | EUR 1 000 2016 |
|---|---|---|---|---|
| EUR | 500 000 | 4 Feb 2019 | **500 000** | 500 000 |
| EUR | 500 000 | 17 Mar 2021 | **500 000** | 500 000 |
| EUR | 30 000 | 9 May 2022 | **30 000** | 30 000 |
| EUR | 100 000 | 12 Sep 2022 | **100 000** | 100 000 |
| EUR | 23 000 | 1 Dec 2022 | **23 000** | 23 000 |
| EUR | 75 000 | 14 Dec 2027 | **75 000** | 75 000 |
| EUR | 20 000 | 8 Nov 2032 | **20 000** | 20 000 |
| EUR | 23 000 | 3 May 2030 | **23 000** | 23 000 |
| EUR | 20 000 | 8 May 2024 | **20 000** | 20 000 |
| EUR | 45 000 | 31 Mar 2032 | **45 000** | 45 000 |
| EUR | 500 000 | 4 Feb 2025 | **500 000** | 500 000 |
| EUR | 500 000 | 13 Jan 2023 | **500 000** | 500 000 |
| NOK | 550 000 | 22 Feb 2017 1) | **0** | 63 218 |
| SEK | 650 000 | 28 Mar 2017 1) | **0** | 63 601 |
| SEK | 300 000 | 28 Mar 2017 1) | **0** | 33 898 |
| SEK | 500 000 | 8 Nov 2017 1) | **0** | 53 763 |
| SEK | 875 000 | 13 Sep 2018 1) | **99 977** | 99 977 |
| SEK | 1 125 000 | 13 Sep 2018 1) | **128 542** | 128 542 |
| SEK | 600 000 | 30 Oct 2019 | **58 267** | 58 267 |
| SEK | 650 000 | 17 Mar 2020 | **70 945** | 70 945 |
| SEK | 550 000 | 19 May 2020 | **61 009** | 61 009 |
| Total | | | **2 754 740** | 2 969 221 |

1) Current portion of long-term bond EUR 228,519 (214,480) thousand.

## OTHER LOANS

### US Private Placements

| Currency | Capital | Maturity date | EUR 1 000 **2017** | EUR 1 000 2016 |
|---|---|---|---|---|
| USD | 55 000 | 19 Aug 2018 1) | **53 111** | 53 111 |
| GBP | 42 000 | 19 Aug 2018 1) | **35 336** | 35 336 |
| USD | 50 000 | 26 Aug 2020 | **39 557** | 39 557 |
| USD | 50 000 | 26 Aug 2020 | **39 557** | 39 557 |
| GBP | 50 000 | 15 Nov 2022 | **56 116** | 56 116 |
| Total | | | **223 677** | 223 677 |
| Collateral received | | | **4 800** | 4 800 |
| Total | | | **228 477** | 228 477 |

1) Current portion of other loans EUR 88,446 (0) thousand.

# 18 Debts due in more than five years

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Debts due in more than 5 years | **1 792 713** | 1 932 242 |

# 19 Current liabilities

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| **Liabilities from joint ventures** | | |
| Accruals | **9** | 407 |
| Total | **9** | 407 |
| **Liabilities from others** | | |
| Advances received | **40 178** | 41 609 |
| Trade payables | **7 228** | 18 099 |
| Total | **47 406** | 59 708 |
| **Interest-bearing liabilities** | | |
| Bonds | **228 519** | 214 480 |
| Loans from financial institutions | **94 413** | 44 413 |
| Commercial paper program | **0** | 50 948 |
| Private Placements | **88 446** | 0 |
| Total | **411 378** | 309 841 |
| **Accruals and deferred income** | | |
| Finnish State Nuclear Waste Management Fund | **34 291** | 49 203 |
| Accrued interests | **57 049** | 51 895 |
| Accrued personnel expenses | **16 013** | 16 109 |
| Accruals related to $CO_2$ emission rights | **677** | 2 662 |
| Other accruals and deferred income | **20 801** | 23 221 |
| Total | **128 831** | 143 090 |
| | | |
| Total | **587 624** | 513 046 |

# 20 Commitments

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| Leasing liabilities | | |
| Leasing liabilities falling due in less than a year | **2 052** | 1 886 |
| Leasing liabilities falling due later | **54 584** | 56 230 |
| Total | **56 636** | 58 116 |

TVO has the right to redeem the lease object for EUR 42.7 million in 2025.

| Contingent liabilities given on own behalf | | |
|---|---|---|
| Customs liabilities | **450** | 450 |

| Nuclear waste management | | |
|---|---|---|
| Liability for nuclear waste management according to the Nuclear Energy Act 1) | **1 481 600** | 1 450 100 |
| TVO's funding target obligation 2018 (2017) to the Finnish State Nuclear Waste Management Fund | **1 470 800** | 1 428 400 |
| Collateral for nuclear waste management contingencies | **187 500** | 144 530 |
| Nuclear waste management loan receivables pledged to the Finnish State Nuclear Waste Management Fund | **655 518** | 1 027 050 |

1) Based on the nuclear waste management programme and proposal for the liability made by the Company and which is to be confirmed by the Ministry of Employment and the Economy at the end of the year.

### Pending Court Cases and Disputes

See note 25 Obligations and other commitments in the consolidated financial statements.

## 21 Derivative financial instruments

| EUR 1 000 | **2017** | 2016 |
|---|---|---|
| **Interest rate derivatives** | | |
| Interest rate swaps (nominal value) | **2 499 518** | 2 449 518 |
| Fair value | **3 234** | 392 |
| **Forward foreign exchange contracts** | | |
| Forward foreign exchange contracts (nominal value) | **142 709** | 150 467 |
| Fair value | **9 862** | 31 401 |
| **Cross-currency swaps** | | |
| Cross-currency swaps (nominal value) | **642 395** | 856 911 |
| Fair value | **23 429** | 7 710 |

Risk management principles, principles for the recognition of derivatives as well as details of derivatives are described in the Notes to the IFRS consolidated financial statements. Hedging relationships are effective i.e. the hedged risk and hedging instrument will perfectly match with each other. In documents regarding these hedging relationships, the hedged risks and hedging instruments are extensively described and the effectiveness between them is demonstrated.

# 22 Series of shares

| Share capital and series of shares | Number 2017 | 2016 | EUR 1 000 2017 | 2016 |
|---|---|---|---|---|
| A-series - OL1 and OL2 | | | | |
| 1 Jan | **680 000 000** | 680 000 000 | **115 600** | 115 600 |
| Change | **0** | 0 | **0** | 0 |
| 31 Dec | **680 000 000** | 680 000 000 | **115 600** | 115 600 |
| B-series - OL3 | | | | |
| 1 Jan | **680 000 000** | 680 000 000 | **484 765** | 484 765 |
| Change | **0** | 0 | **0** | 0 |
| 31 Dec | **680 000 000** | 680 000 000 | **484 765** | 484 765 |
| C-series - TVO's share in the Meri-Pori coal-fired power plant | | | | |
| 1 Jan | **34 283 730** | 34 283 730 | **5 828** | 5 828 |
| Change | **0** | 0 | **0** | 0 |
| 31 Dec | **34 283 730** | 34 283 730 | **5 828** | 5 828 |
| Total | **1 394 283 730** | 1 394 283 730 | **606 193** | 606 193 |

According to the Articles of Association, TVO delivers electricity to its shareholders on the so-called Mankala principle, i.e. it delivers the electricity produced or procured to its shareholders in proportion to their shareholding in each series. Each of the shareholders of each series is liable for the variable and fixed annual costs that are specified in detail in the Articles of Association. The Company prepares annually a balance sheet divided into series of shares. The balance sheet, which will be presented to the Shareholders' Meeting, specifies the assets, liabilities and equity of the different series of shares.

# 23 Carbon dioxide emission rights

In principle TVO has, on 31 December, emission rights at least the same amount as the actual annual emissions are. If the actual emissions exceed the amount of the emission rights that company possesses, the company has booked the expense for exceeding emission rights at the market value on 31 December.

| | **2017 t $CO_2$** | **EUR 1 000** | 2016 t $CO_2$ | EUR 1 000 |
|---|---|---|---|---|
| Total annual emissions from production facilities | **121 427** | | 472 190 | |
| Possessed emission rights | **122 437** | | 479 696 | |
| Emission rights and emission right reductions bought 1) | **109 000** | **677** | 471 000 | 2 662 |

TVO is responsible for the amount of emission rights corresponding to its share of the production of the plant.

1) The purchases of the emission rights and emission right reductions are included in materials and services. The emission rights that company possesses on 31 December are included in intangible rights on the balance sheet and emission right reductions.

# Proposals to the Annual General Meeting

Teollisuuden Voima Oyj's distributable equity as of December 31, 2017 amounted to EUR 14,460,000. The Board of Directors proposes to the Annual General Meeting that no dividend shall be paid.

# Signatures for the report of the Board of Directors and financial statements

Helsinki, February 28, 2018

| | |
|---|---|
| Lauri Virkkunen | Matti Ruotsala |
| Esa Kaikkonen | Tapio Korpeinen |
| Pekka Manninen | Markus Mannström |
| Markus Rauramo | Anders Renvall |
| Tiina Tuomela | Rami Vuola |

Jarmo Tanhua
President and CEO

## The Auditor's Note

Our auditor's report has been issued today.

Helsinki, February 28, 2018

PricewaterhouseCoopers Oy
Authorised Public Accountants

Jouko Malinen
Authorised Public Accountant

# Auditor's report

*(Translation of the Finnish Original)*

To the Annual General Meeting of Teollisuuden Voima Oyj

## Report on the Audit of the Financial Statements

### Opinion

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position and financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of the financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report to the Audit Committee.

**What we have audited**

We have audited the financial statements of Teollisuuden Voima Oyj (business identity code 0196656-0) for the year ended 31 December 2017. The financial statements comprise:

- the consolidated balance sheet, income statement, statement of comprehensive income, statement of changes in equity, statement of cash flows and notes, including a summary of significant accounting policies
- the parent company's balance sheet, income statement, statement of cash flows and notes.

### Basis for Opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

**Independence**

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, the non-audit services that we have provided to the parent company and to the group companies are in accordance with the applicable law and regulations in Finland and we have not provided non-audit services that are prohibited under Article 5(1) of Regulation (EU) No 537/2014. The non-audit services that we have provided are disclosed in note 9 to the Financial Statements.

*Our Audit Approach*

**Overview**


- Overall group materiality: € 25 million, which represents approximately 0,3 % of balance sheet total

- Group audit scope: We audited the consolidated financial statements and the financial statements of the parent company Teollisuuden Voima Oyj.

- Pending court cases and disputes
- Olkiluoto 3 power plant construction in progress
- Assets and provisions related to the nuclear waste management obligation

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where management made subjective judgements; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain.

### Materiality

The scope of our audit was influenced by our application of materiality. An audit is designed to obtain reasonable assurance whether the financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Based on our professional judgement, we determined certain quantitative thresholds for materiality, including the overall group materiality for the consolidated financial statements as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements on the financial statements as a whole.

| | |
|---|---|
| *Overall group materiality* | € 25 million |
| *How we determined it* | 0,3 % of balance sheet total |
| *Rationale for the materiality benchmark applied* | We chose balance sheet total as the benchmark because the company's operations are very capital intensive and because, in our view, this is the benchmark against which the performance of the Group is commonly measured by users. |

### How we tailored our group audit scope

We tailored the scope of our audit, taking into account the structure of the group, the accounting processes and controls, and the industry in which the group operates.

All group companies and the joint venture as well as its subsidiary were audited.

## Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

| Key audit matter in the audit of the group | How our audit addressed the key audit matter |
|---|---|
| ***Pending court cases and disputes***<br>*Refer to Accounting principles, Critical accounting estimates and judgements. Note No. 25*<br><br>An arbitration process initiated by the OL3 supplier related to completion of OL3 commenced in December 2008.<br><br>The OL3 supplier updated their claim subject to the arbitration proceedings concerning completion delay of OL3 in April 2017. The supplier's monetary claim now totals € 3.59 billion.<br><br>In 2012 the company submitted a claim and defence in the arbitration proceedings subject to the rules of the International Chamber of Commerce (ICC) concerning completion delay of OL3 and ensuing costs incurred. The quantification estimate submitted by TVO in July 2015 of the company's costs and losses amounts to approximately € 2.6 billion.<br><br>TVO has not recorded any receivables or provisions on the basis of claims presented.<br><br>We paid special attention to this matter because it constitutes a very significant item in the company's financial statements, which is subject to inherent management judgement. | We reviewed the documentation the management had prepared on accounting principles for the financial statements and verified that the documentation was based on documentation and statements held by the company. We also interviewed top management and general counsel of the company as well as other people in charge in order to assess the estimates used for appropriateness and their foundation.<br><br>We followed progress of the arbitration proceedings and reviewed the partial awards already obtained as well as summaries on them prepared by external lawyers, in order to assess their presentation in the financial statements for appropriateness.<br><br>We reviewed summaries and statements prepared by both external lawyers and the general counsel of the company on which the management estimate on presentation in the financial statements is based. We also asked for a lawyer's confirmation from the general counsel of the company.<br><br>We reviewed the information presented in the notes to the financial statements regarding pending court cases and disputes. |

***Olkiluoto 3 power plant construction in progress***

*Refer to note 12 Property, plant and equipment, Construction in progress and advance payments and 13 Capitalized borrowing costs included in property, plant and equipment, and intangible assets as well as accounting principles: TVO's cost-price principle and Power plant construction in progress - OL3 EPR*

OL3 is a power plant in construction, which has been ordered under a turnkey principle. Delivery of the plant has been significantly delayed from the original schedule.

During the OL3 project € 4.7 billion have been capitalized in balance sheet item Property, plant and equipment, Construction in progress and advance payments.

Under the Articles of Association, each of the shareholders of each series bears their share of the variable and fixed annual costs as specified in detail in the Articles of Association.

Our audit focused especially on this item because of the significant monetary amount capitalized in the balance sheet and because completion of the project has been delayed from the original schedule. In addition, a significant amount of financing expenses have been capitalised on this item.

We audited the internal controls of the company relating to approval of expenses capitalized on the OL3 project. In addition, we reviewed company management measures, records and other documentation regarding monitoring of progress of the project.

We tested, on a sample basis, purchase invoices and company's own expenses relating to the project to ascertain the costs capitalised against the power plant construction in progress meet the recognition criteria.

During our audit we reviewed whether the borrowing costs were capitalised in accordance with the accounting principles applied, and whether recognition to the project was performed consistently under the same principles as in previous financial statements.

In our audit of the amount capitalised in the balance sheet we considered the provisions regarding shareholder responsibilities incorporated in the Articles of Association.

***Assets and provisions related to the nuclear waste management obligation***

*Refer accounting principle "Assets and provisions related to the nuclear waste management obligation" and "Critical accounting estimates and judgements', "The provision for future obligations for the decommissioning of the nuclear power plant and for the disposal of spent fuel". Note 12 Property, plant and equipment, Decommissioning and note 24 Assets and provisions related to the nuclear waste management obligation.*

The nuclear waste management obligation totalling € 953 million is shown as a provision under non-current liabilities. The fair value of the nuclear waste management provision has been determined by discounting the future cash flows, which are based on plans about future activity and the estimated expenditure relating to it, taking into account actions already taken.

The present initial value of the provision for the decommissioning of a nuclear power plant (at the time of commissioning the nuclear power plant) has been capitalized as property, plant and equipment and will be adjusted later for possible changes in the plan. The amount recognized relating to decommissioning will be depreciated over the estimated operating time of the nuclear power plant.

The provision for spent fuel covers the future disposal costs of fuel used by the end of each accounting period. The costs for the disposal are expensed during the operating time of the plant, based on fuel usage. The impact of any changes to the plan will be recognized immediately in the income statement based on fuel used by the end of each accounting period.

The assets and provisions related to the nuclear waste management obligation involve inherent judgement, since the estimates made extend far into the future, and subsequently these items on the income statement and balance sheet were subject to special scrutiny.

We reviewed long-term cash-flow forecasts and related documentation and interviewed preparers of these calculations to assess foundations of the estimates and assumptions used, and whether the cash-flow forecasts are prepared consistently based on the best knowledge available at the time. The most significant estimates relate to the amount and time of realization of the future costs.

We also examined whether changes to the estimates are appropriately documented and approved by management.

We tested whether the calculations are technically prepared under the same principles from one accounting period to another.

We assessed whether the discount rate and inflation ratio used in the calculation are appropriately determined, and whether the criteria for the used interest rate and inflation ratio are appropriately documented and approved.

Division of cash-flows into costs related to decommissioning of a nuclear power plant and those related to disposal of spent fuel affects the outcome of the calculation. We tested whether the division described above is made according to the documented fundamentals and whether the division as a rule remains the same from one accounting period to another.

We have no key audit matters to report with respect to our audit of the parent company financial statements.

There are no significant risks of material misstatement referred to in Article 10 (2c) of Regulation (EU) No 537/2014 with respect to the consolidated financial statements or the parent company financial statements.

## Responsibilities of the Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the parent company's and the group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or to cease operations, or there is no realistic alternative but to do so.

## Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within

the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

## Other Reporting Requirements

### Appointment

Teollisuuden Voima Oyj became a public interest entity in June 2009. We have been the auditors of Teollisuuden Voima Oyj all that time it has been a public interest entity.

### Other Information

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises the report of the Board of Directors and the information included in the Annual Report, but does not include the financial statements and our auditor's report thereon. We have obtained the report of the Board of Directors and Annual Report prior to the date of this auditor's report.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to the report of the Board of Directors, our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion

- the information in the report of the Board of Directors is consistent with the information in the financial statements.
- the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

## Other statements

We support that the financial statements of the parent company and the consolidated financial statements should be adopted. The proposal by the Board of Directors regarding the result of the accounting period is in compliance with the Companies Act. We support that the members of the Board of Directors and the Managing Director of the parent company should be discharged from liability for the period audited by us.

Helsinki 28 February 2018

**PricewaterhouseCoopers Oy**
Authorised Public Accountants

Jouko Malinen
Authorised Public Accountant

# Financial information in 2018

**In 2018, Teollisuuden Voima Oyj will publish the interim reports as follows**:

Interim Report for January–March 2018 on April 23, 2018

Interim Report for January–June 2018 on July 18, 2018

Interim Report for January–September 2018 on October 22, 2018