ANNUAL REPORT 2019

KRŠKO NUCLEAR POWER PLANT

Contents

KRŠKO
NUCLEAR
POWER PLANT

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ISSN 1854-5688

Address by the Management Board

Dear business partners, owners and colleagues,

Before you are our new results on creating sustainable energy, while implementing high standards, ethical behaviour and transparent and legal work. Year 2019 can be considered as another winning year. Our accomplishments were in various areas: exceptional operating stability, high level of nuclear and radiation safety, responsible and sensitive attitude to the environment, exceeded planned output of electrical energy, excellently executed outage, significant progress in the implementing of the Safety Upgrade Program, positive business results, the highest grade by international assessment conducted by the World Association of Nuclear Operators, golden rating certificate of excellency confirming above-average reliability and successful operations of NPP and last, but not least, impressive level of team work.

In 2019, we were able yet again to realize and exceed the production goal - we generated 5 533 billion kilowatt hours of electric energy. With increasing import dependency, this is an important share of electrical energy which is also low-carbon, predictable and reliable, while also providing solutions to critical environmental-climate situation.

Among achievements, to be specially remembered in this year, is the very demanding outage which was completed in an exceptional 28 days. The outage in 2019 was the shortest ever since the power plant has been operating in the 18-months fuel cycle. With support from the external contractors we were able to complete thousands of tasks and realised plans for refuelling, preventive maintenance and equipment tests, as well as ten major technological upgrades. With more than a hundred surveillance tests, we checked systems, structures and components. The extremely hard work was required to complete the outage in 28 days. It was again shown that we cannot expect the results and the correct support of the contractors without our own good, committed and motivated staff and our own expertise.

Projects which are a condition for long-term operation were carried out with exceptional intensity in 2019, which is in itself a significant success, as extreme focus is required when endeavouring to coordinate two important issues: ensuring stable operation without deviations throughout the year and concurrent execution of all demanding investments. We proved that we were able to manage both.

We are satisfied for having completed more than 60 percent of projects under the Safety Upgrade Program which, in essence, represents the additional safety measures in the event of extreme external events for which the power plant was originally not designed. The Program, based on professional know-how and regulatory requirements, is also a condition for our long-term operation. During the outage, we ensured the complete functionality of the Emergency Control Room as an alternative location for safe shutdown and cooling of the plant in the event of the main control room not being available.

In accordance with the plans, the construction of reinforced Bunkered Building 2 took place. Additional cooling water reservoirs and additional safety systems for water injection into the reactor cooling system and steam generators will be installed in the Bunkered Building, to be used in the event of existing systems not functioning.

Responsible management and professional ethics impose to constantly implement the policy of continuous development and to upgrade processes and equipment. In doing so, we follow internationally confirmed and recognised practice, including those for Spent Fuel Dry Storage for which the processes were intensively carried out in 2019. These were needed for the construction of a building into which a part of the spent fuel, currently stored in the spent fuel pool, will be moved. Although the provisions, stipulated in the operating permit, environmental permit and water permit, at the time of introducing dry storage, will remain unchanged and in force to be implemented also in the future, the currently valid spatial planning act - the NPP Urban Design Plan has to be amended to reflect the Spent Fuel Dry Storage at the NPP location. Dry storage will be one of those upgrades which bring positive effects also to the wider community.

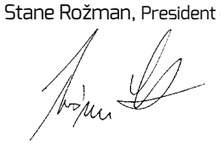
In 2019, the 12th and 13th Inter-State committee session took place where the decommissioning revision program was assessed as suitable. On that occasion it was established that there were no conditions for joint construction of the low- and intermediate level radioactive waste disposal facility. Both States undertook to resolve the issue of the permanent disposal of such waste separately. Until the collection and removal from the NPP location, the waste shall be managed according to the plant's internal measures.

Everything achieved expresses our dedication to operating the nuclear facility which has become an indispensable part of the electrical energy system in both States. It is daily proven that the operation of the power plant is vital for a high level of energy self-supply, clean energy in the future as well as for the welfare of both Slovenia and Croatia. It is not negligible that the path to low carbon society is paved through a reasonable price of electrical energy, which is of exceptional importance to household and industrial users. It is anticipated that this will also be reflected in the documents in which both States will shape their energy future.

We would like to thank everyone who contributed to these exceptional operating results. Among our highest achievements and a joint success, of which we are very proud, is that we were classified among the 60 best nuclear power plants from 447 that operate around the world.

We can continue building and keeping our reputable place in the world map on well performed work, broad professional experience and knowledge we have accumulated in our decades-long operation. This is the best possible starting point on which Slovenia and Croatia can build and strengthen their energy independence in the long-term, and therefore also for future generations. This is a great motive and great responsibility. We believe we can do it.

Stane Rožman, President of the Management Board



Saša Medaković, Member of the Management Board

Summary Report and Challenges for 2020

In 2019, the Krško Nuclear Power Plant reconfirmed its high reliability and operating expectancy by having exceeded the planned production of electrical energy, operated without unplanned shutdowns and completed the regular outage in 28 days. These are very important achievements for both shareholders as well as for the Slovenian and Croatian electricity system. Another outstanding achievement by NPP is that it has been placed among the highest positions of operating European nuclear power plants following an extensive safety review that was carried out by the World Association of Nuclear Operators (WANO).

In 2019, NPP reached the output of 5.53 terawatt hours (TWh) which is more than the planned 5.43 TWh. A demanding outage, which took place between 1st and 29th October, was the shortest since shifting to 18-month fuel cycle. In just over 28 days 10 modifications were completed. Among the most important were: the installation of pipelines, valves and pumps within the project for alternative cooling of the Reactor Cooling System and the reactor building, the replacement of T3 transformer and the voltage regulator, and the installation of a connecting pipeline between the high-pressure turbine and moisture separator reheaters. Regarding the receiving of permits for the construction of Spent Fuel Dry Storage at the NPP location, activities were carried out to amend and supplement the NPP Urban Design Plan, which will be the basis for obtaining the integral building permit. Amendments to the Urban Design Plan were carried out in accordance with the Spatial Planning Act. As this is a spatial project of both national and local importance, the procedure was conducted by the Krško Municipality on the basis of an agreement with the Ministry of the Environment and Spatial Planning.

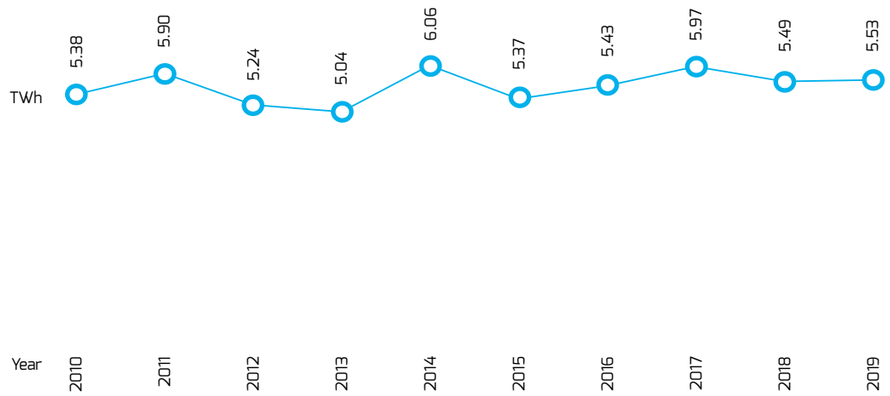
Many drills for the emergency preparedness were carried out as well as two exercises under the Protection and Rescue Plan (NZIR) where we checked the readiness for beyond-design basis accidents, by using the Severe Accident Management Guidelines (SAMG), and readiness for the use of mobile equipment.

Expert review by a WANO mission took place in January and March in NPP under slightly amended methodology and scope. The expert team examined in detail 16 areas and compared these to the highest standards and practices in the nuclear industry. The expert assessment was based on reviewing documents, conducting interviews and observations, and assessing the implementation. On the basis of the assessment results under the WANO principles, NPP was again classified into the highest position among the operating power plants.

The external certification organisation successfully completed their control assessment of the Environmental Management System in accordance with ISO 14001:2015 standard as well as of the Occupational Health and Safety Management System in accordance with BS OHSAS 18001:2007 standard. Reviewers noted a number of good practices and detected no discrepancies.

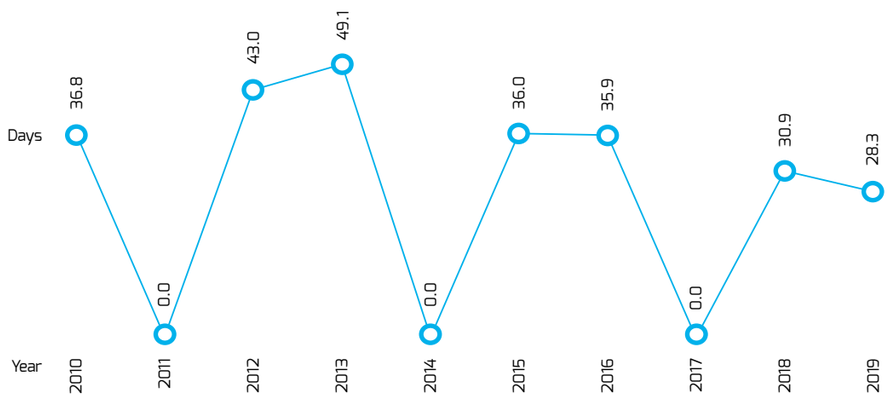
Diagram of output by years

Total: 180.59 TWh
(output since the start of commercial operation)
NEK target for 2019: ≥ 5.43 TWh

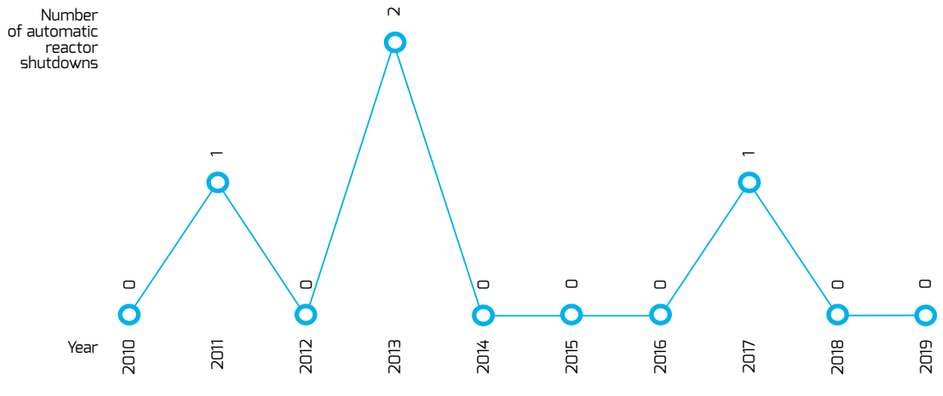


NPP's operations in 2019 were stable; the production was approximately 0.1 TWh higher than planned. During the whole cycle all operating limitations and conditions as well as environmental restrictions as specified in the water and environmental permit were applied.

Outage duration



Unplanned automatic shutdowns

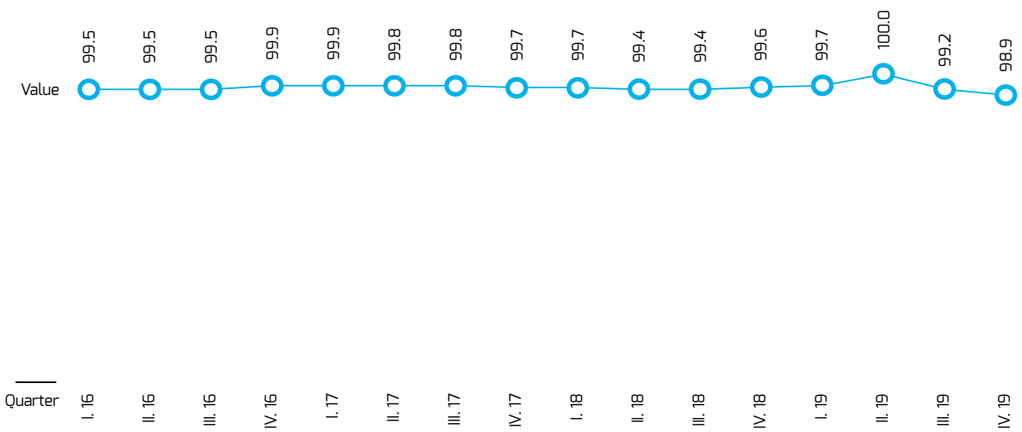


The operational efficiency is supported by the high value of the performance indicator index which was introduced by WANO to facilitate efficiency monitoring and data comparison between power plants.

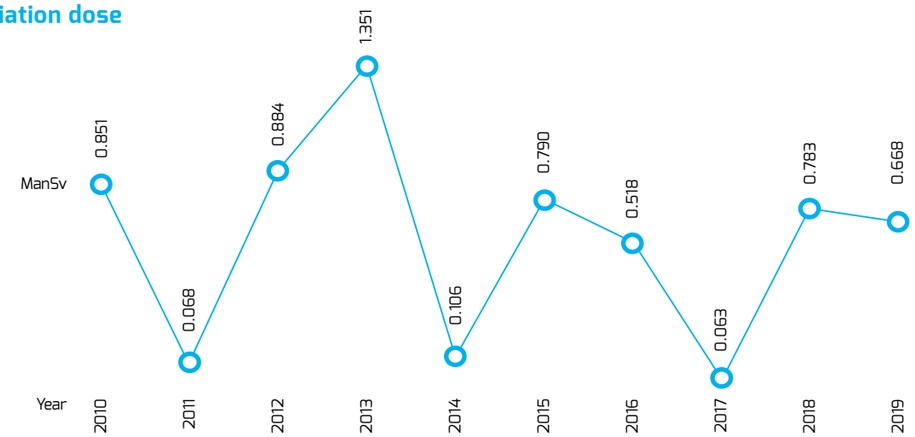
It is calculated by weighted values of individual indicators, with the scale from 0 to 100. In 2019, the operating efficiency indicator value was between 98.9 and 100.

Performance indicator index

NEK target for 2019: ≥ 95



Total collective radiation dose



The total exposure to radiation (collective dose) was slightly below the planned figure.

Challenges for 2020

When assessing the previous year and trying to identify the challenges for the future, there are two aspects that must be emphasised above all: high efficiency and reliability of the operations of the Krško Nuclear Power Plant (NPP). The output above the planned one, operations without unplanned outages and a regular outage completed within the set time-frame reconfirmed the plant's high reliability and predictability of its operations. These two factors are of extreme significance for the two owners and for the Slovenian and Croatian electricity system. In an era, when Europe and the world globally endeavour to shape the energy strategy while facing climate changes, this type of results supports the view that nuclear energy is of strategic importance in transition to a low-carbon society which will maintain the countries' energy independence, enable their competitive economy and maintain electric power availability.

NPP is committed to their openness and transparency of operations. At the end of the year, we published our 360th monthly report about the plant's operations, while at the beginning of the year it was 30 years since our up-to date data about the plant's operations had been published on the local cable system. We opened our door to 5,400 visitors in 2019. All the time we have been upgrading and improving the transparency of the plant's operations and have been taking part in projects which increase the understanding of its technology. Public acceptance remains our challenge in the future.

Based on exceptionally good results, and in order to repeat them and fulfil our vision – to be a model of nuclear safety and excellence at a global level – we set ambitious targets for the future year although there will be no outage. Our plan is to achieve an output of 5,955 GWh, which means stable operation every day. In order to meet regulatory requirements and ensure long-term operations, it is vital to continue and complete projects of the Safety Upgrade Program (SUP), which is to bring NPP, as for safety criteria, up to the level of new plants. Careful planning of costs remains our permanent pursuit, putting before us a challenge to preserve economic effectiveness while simultaneously maintaining a high level of nuclear safety, operations efficiency and carrying our demanding projects. As high targets can only be achieved with expert, enthusiastic staff and dedicated team work, a comprehensive development and integrated work of all employees focused on joint targets remain among our priorities.

In NPP, it has always been our priority to focus on stable and reliable operation of the plant; all tasks and work processes are adapted to these two targets; therefore, all activities are included in our carefully designed and long-term plans. Consequently, preparatory activities for our next refuelling to take place in spring 2021 started at the end of this business year. Careful planning and focusing on operations are particularly vital in the period when a part of the new equipment and systems under SUP are being tested and put into operation and maintenance. At the same time, there are still construction areas within the plant as the equipment of the comprehensive operational support system is being installed and the construction of the reinforced bunkered buildings is undergoing to house additional reservoirs of cooling water and additional safety systems for water injection into the reactor cooling system and both stream generators in the event of the failure of present systems. Currently, activities are undergoing for obtaining the building permit as provided for under relevant legislation for the construction of a dry spent fuel storage building and consequent moving the spent fuel elements from the pool to resistible tightly closed casks. Its complexity is coupled with a time-demanding aspect and uncertainty of this project, which requires broad expertise and involvement of all individuals concerned.

After the outbreak of coronavirus and its spread in European countries, we were faced with new challenges. Conservatively we concurrently implemented measures as necessary to ensure safe operations and power generation in new circumstances. Following the epidemic declaration at the level of the whole country, we suspended work on all construction sites and projects, ensuring only those functions to warrant safe and stable electric power generation.

As this report was being prepared, we found ourselves in the middle of one of the biggest challenges of the present generation. In these extraordinary circumstances, the employees in NPP as well as in the entire electricity system are exercising exceptional efforts backed up by high professionalism; together with medical staff and other staff of the critical infrastructure we are in the front line in ensuring living and working conditions of the wider population, social systems and the economy. It is our firm belief that we will successfully overcome these challenges. We must succeed!

01

Responsible Attitude Towards the Environment

Environmental protection is included in all work processes of the plant. The measurement results demonstrate that all effects on the environment are far below the administrative limits. Authorised organisations prepare a special annual report on radiation surveillance in the surroundings of the plant. The adequacy of our environmental management was again confirmed by another review of complying with the requirements of the new environmental standard ISO 14001:2015.

The objective of radiation monitoring is to monitor the plant's operations and assess the effects on the environment and on the population. This ensures that prescribed limits are respected.

NPP carries out radioactive measurements of the wastewater releases into the Sava River and emissions from the ventilation system into the air. Independently, external authorised organisations measure samples in the surroundings, in particular in the area around NPP, within a distance of 12 kilometres. In addition, there are 13 automatic radiation measuring stations located in the vicinity of the plant which can detect changes in the natural level of radiation due to precipitations as well as potential changes due to the nuclear facility. The Sava River is monitored downstream for 30 kilometres from the plant by independent authorised organisations.

The effects of the NPP on the local population are so low that they are practically immeasurable. However, they can be calculated by models for the most exposed group of the population and the annual dose can be compared with the dose received due to natural radiation sources.

The assessment of a dose received by an individual in a critical reference group (an adult receiving the highest doses and whose food originates exclusively from locally grown food and fish) shows that the annual dose of such an individual is less than 1 microsievert. The annual dose for NPP is limited to 50 microsieverts per individual due to all emissions from all possible transition channels (at a distance of 500 m from the reactor or more). The natural radiation and minor effects of general radioactive pollution in the environment represent 2300 microsieverts per year. In 2019 the radioactive effects generated by the NPP onto the local population were assessed to be less than 0.11 microsievert, which is 0.22 percent of the limit (50 μSv). The results of environment measurements taken and the model assessment are dealt with in detail in the special report for 2019, prepared for NPP by the Jožef Stefan Institute together with the Institute for Occupational Safety, MEIS and the Ruđer Bošković Institute.

Liquid radioactive discharges

Wastewater may contain fission and activation products. The activity of fission and activation products (excluding tritium H-3, carbon C-14 and alpha particle emitters) amounted to 0.025 percent of the additional annual limit of activity for liquid discharges. The activity of discharged tritium was approximately 30.2 percent of the prescribed annual limit. Tritium is a hydrogen isotope found in water; because of low radiotoxicity it is less important despite higher activities when compared to other contaminants.

The plant observed administrative and technical regulations which require the concentration of radioactivity in the discharge channel wastewater not to exceed the prescribed limits.

Data on liquid radiactive discharges in 2019

Radioactive substances	Annual limit	Percentage of the limit
Fission and activation products	100 GBq	0.025
Tritium (H-3)	45 TBq	30.2

Radioactive releases into the air

The annual dose limit of 50 microsieverts for releases into the air and water are checked monthly. The dose calculated for the air at a 500-metre distance from the reactor is calculated as the dose that could have been received by an individual at such distance in one year from external and internal radiation. The least favourable monthly average atmosphere dispersion values and the ground releases for the particular wind directions are presumed in the calculation. The result for 2019 was 0.53 microsieverts (1.06 percent of the annual limit). More detailed data is given in the table below.

Data on radioactive releases into the air in 2019

Radioactive substances	Total annual limit	Dose	Percentage of the limit
Fission and activation gases (total)		4.52E-02 µSv	
Iodines (I-131 and others)		1.14E-04 µSv	
Dust particles (Cobalt, Caesium, etc.)		2.20E-07 µSv	
Tritium (H-3)		3.93E-01 µSv	
Carbon (C-14)		9.30E-02 µSv	
	50 µSv	Total 0.53 µSv	1.06

Technical regulations were taken into account to limit the radioactive concentrations in the air, e.g. the dose rate within a 500-metre distance from the reactor, to the prescribed value.

Measurements of radioactive release and environmental samples

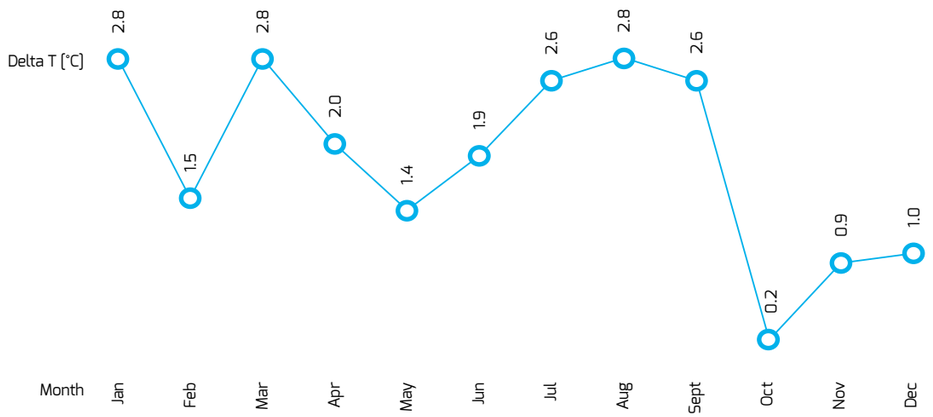
The NPP laboratory for radioactive protection regularly checks air and environmental samples by an accredited method, thus having fulfilled conditions set by the standard SIST EN ISO/IEC 17025; the adherence to the standard is controlled by a Slovenian accreditation body. The accredited measurements of radioactivity of periodically inspected samples of liquid releases are carried out by the NPP laboratory for radio-chemistry.

Measurements of the Sava River and groundwater parameters

In accordance with the Environmental Permit (EP) on water emissions and the Water Permit, we measured the Sava River temperature and its flow rate, monitored the river level and the underground flow rates, and took monthly measurements of biological and chemical oxygen consumption.

The highest permitted temperature of the Sava River (3 °C) was reached a few times during summer months.

Average increase of water temperature in the Sava River in 2019



Groundwater is regularly inspected by the plant and authorised organisations. The ground water level and temperature in three boreholes and at two locations on the Sava River are measured constantly and weekly in ten boreholes in the Krško-Brežice fields. The level of groundwater in the boreholes observed in the vicinity of the watercourse increased for about 2 m when compared to the past year due to the accumulation of the Brežice hydro power plant and is similar to the levels of 2018.

Data on radioactive waste and spent nuclear fuel

In 2019, 287 new packages of low- and intermediate-level radioactive waste (NSRAO) were stored, with a total volume of 60.9 cubic meters (m^3). The total volume of inventory stored in the NSRAO NPP storage on 31 December 2019 was 4,039 packages with a total 2342.4 m^3 and the total activity of 15.3 TBq.

The spent fuel storage pool contains 1,320 spent fuel elements from 30 fuel cycles. The overall mass of spent fuel material is 512.9 tonnes.

Environmental management and municipal waste

Since the end of 2008, the standard ISO 14001 on the environmental management has been in place in NPP. Since the certificate was granted, the system has been checked regularly, on an annual basis, by an external certification organisation. The regular assessment was conducted; this time according to the standard ISO 14001:2015. It was established that NPP adequately respects the environmental management system requirements.

A special waste water treatment plant is used for communal waste water. Measurements of pH, temperature, non-soluble substances, chemical and biological use of oxygen, and efficiency of treatment at the outlet are taken by an external organisation, which is in line with the Environmental Permit (EP) requirements. Monitoring results show adequate operation of the treatment plant since all values were in accordance with regulations.

02

High Level of Nuclear Safety

Nuclear safety always has a priority at NPP. A high level of nuclear safety of our plant is achieved by independent verifications and critical self-assessments of the results, the on-going improvement of human performance and the safety culture, equipment and processes upgrading, learning from own operating experience and international practices, and by comparing with the best facilities in the world.

NPP has paid special consideration to ensuring and verifying the implementation of legal regulations and standards related to nuclear technology as well as other modern technologies in the project designs (equipment modernisation), operational and maintenance activities, procurement and other activities which all contribute to safe plant operations and the safety of the wider population. We are committed to ongoing progress, professional work and personal growth. Our mission is achieved through independent verification, continual improvements of human performance and safety culture, critical self-assessment of results achieved, permanent comparison with best comparable facilities in the world, operating experience at home and abroad, and continual assessment of safety and stability of plant's operations.

Due to its specific nature, NPP had its attitude towards the environment implanted in its very initial project (extensive research prior to site selection, strict respect of standards during building). During the start-up and later operations, independent supervision of the effects on the environment was established (radioactive substance release into water and air, measuring of radioactivity in the environment, management of spent nuclear fuel, radioactive and hazardous waste). The Protection and Rescue Plan of NPP (NZIR NPP) has been prepared, defining organisation, measures and means to be followed in the case of emergency events with potential radioactive effects on the environment. The attitude towards the environment is part of the business policy within which we give priority to safe and stable operations. The environment treatment practice in NPP is in accordance with ISO 14001-2005, internationally the most widely recognised standard concerning environmental issues.

One of the vital elements to be considered in maintaining nuclear safety and its improvements lie in the operating experience. On the basis of the experiences arising from industrial and regulatory requirements, upon the request of the Regulatory Body, the Safety Upgrade Program (SUP) of NPP was constituted representing the plant's long-term upgrade plan and preparations for the extended lifespan.

The Program includes a list of projects for upgrading certain safety systems, electrical safety supply systems, radioactive release monitoring, flood safety and spent nuclear fuel storage.

In 2019, we continued with activities on projects of the third phase of SUP, which includes the construction of Bunkered Building BB2, the installation of alternative system for steam generator feedwater system and the system for alternative safety water injection, and the construction of Spent Fuel Dry Storage. The projects of this phase are planned to be completed by the end of 2021. The exception is only the Spent Fuel Dry Storage for which the process for amending and supplementing the NPP Urban Design Plan are underway which is the condition for obtaining the integral building permit. This means that the first phase of Spent Fuel Dry Storage, involving moving the first 592 spent fuel elements into dry storage, is planned to take place in 2023.

In May and November, NPP carried out regular, annual theoretical and practical drills for an emergency situation. The drill was attended by: on-duty security staff, reserve shift simulator operators and equipment operators, technical and operational support centre, external emergency operations facility, the Slovenian Nuclear Safety Administration, the Disaster Information Centre of the Republic of Slovenia and the regional Brežice Information Centre.

During the drill, we tested the activation of staff and call centres for disaster management, informing competent authorities of the event, testing the prescribed operational measures and intervention repairs, on-site protective measures, including evacuation from the plant's area. We also checked strategies for managing beyond-design basis situations with the use of SAMG guidelines and mobile equipment. We achieved the objectives and the targets of the drills.

Between 6th and 22nd March 2019, the World Association of Nuclear Operators (WANO) carried out a thorough expert review of NPP's operation. The expert review by WANO was carried out by a 26-member team, constituting experts from individual areas of WANO and representatives of nuclear plants from ten countries. A novelty of this expert review was the crew performance observation on the simulator, which was carried out by a 3-member team already in January, as a preparation for the mission.

The review in 2019 was the fifth such review carried out in NPP. It included reviews of the performance of processes and human behaviour as well as the management approach. The reviewers compared the following areas against the highest world standards in the nuclear industry: safety culture and human performance, organisation and administration, improvements of effectiveness, operating experience, operations, maintenance, chemistry, management of work processes, engineering, configuration control, effectiveness of nuclear fuel, reliability of equipment, radiological protection, training and qualifications, fire protection, health and safety at work, and the measures for emergency events. Expert review also included the review on implementing WANO SOER recommendations (Significant Operating Experience Report).

After their review, WANO gave the power plant the highest grade. It pointed out good practices that will serve as an example to other nuclear organisations around the world. These include integrated computer support to work process users, the simulation of beyond-design basis accidents in real time, a virtual panoramic view of the plant and comprehensive feedback information to operations crews. Despite good assessment, the association pointed out a few areas for improvement.

Laws and international standards require that plants carry out a periodic safety review every ten years and report the results to a relevant regulatory body. A periodic safety review, as a supplementary tool to a regular safety review, checks comprehensively the level of plant's nuclear safety and confirms that the plant is able to operate safely in the next 10-year period. NPP carried out a second periodic safety review (PSR2) which was, at the end of May 2014, confirmed by SNSA together with the implementation action plan. By the end of 2019, 220 out of 225 PSR2 issues, included in the Corrective Action Program (CAP), were resolved. NPP must complete the remaining 5 issues by the end of 2021.

This is one of the key reviews through which we ensure NPP's long-term operability.

In the second half of 2018, we completed the fourth self-assessment of safety culture. With periodic self-assessment of safety culture, we try to determine compliance of safety culture in NPP with international guidelines and standards in this area. The findings of the team for self-assessment of safety culture are the basis for preparing action plans. In 2018 and 2019, action plans in individual departments were prepared and implemented by management staff of individual departments because of their specific nature.

Our developmental tasks and work priorities are part of the document entitled Commitments and Goals. They are set according to the management board's expectations and established polices as well as our priority areas. In 2019, we directed our attention to improving three areas: exemplarity in the preparation and execution of work, exemplarity in the implementation of the SUP (Safety Upgrade Program) with team work, and exemplarity in human relations.

In December, NPP's external certification organisation conducted a control assessment of the Environmental Management System in accordance with ISO 14001:2015 as well as of the Occupational Health and Safety Management System in accordance with BS OHSAS 18001:2007.

Audits

A part of the NPP operation are specific risks due to enormous stored energy in the reactor, residual heat and radioactive material in the reactor core. The NPP's formally defined management system lays down fundamental premises and processes for ensuring adequate control of radioactivity and consequential nuclear safety, and ensures adequate operation, maintenance, project changes and control of radioactive releases, etc. We consider safety in all areas of our work as our priority. By encouraging and respecting the principle of safety culture at all levels, each NPP's employee, within their individual expertise, responsibility and competence, takes part in ensuring nuclear safety, and the safety of employees, population and environment.

The principles of our operations are manifested in the efficiency of inter-dependant processes within NPP and which support the overall facility's operations.

The adequacy of NPP's programs and the efficiency of processes are assessed by periodic internal audits. We assess the efficiency of activities with a direct impact on structures, systems and components by assessing their effects on safe and reliable plant operation. We plan audits regularly in accordance with the Quality Assurance Program. These are carried out by qualified staff without direct responsibilities for areas being assessed. A written report is drawn up for every assessment and its results. The report is sent to individuals responsible for the relevant process together with harmonised corrective measures and deadlines for their completion. NPP's management is informed of the audit conclusions at the management review meeting.

In 2019, the QA engineers, together with other departments in NPP, conducted ten internal audits in the following areas:

- organisation and administration: assessing compliance of the environmental management system with SIST EN ISO 14001 standard and the occupational health and safety management system with BS OHSAS 18001;
- radiological protection, including checking the compliance of accredited laboratories with the standard ISO 17025;
- chemistry department and radioactive waste management, including the checks of compliance of the accredited laboratory with ISO 17025;
- fire protection;
- production;
- safety culture, human performance and self-assessment;
- engineering - operating permits and documentation control;
- Corrective Action Program and operating experience;
- maintenance and warehouse operation;
- security.

The conclusions of internal audits confirm that the plant systems function in accordance with the standards' requirements and comply with policies and objectives set. Discrepancies found are recorded in the Corrective Action Program with recognised owners and deadlines for implementing the corrective measures. Corrective measures, determined on the basis of discrepancies detected in previous audits, have been successfully completed.

Observations and coaching

Coaching while observing is one of the most important tools for preventing human error at work, enabling high quality of work processes and the strengthening of safety culture. Coaching while observing consists of observing an individual's behaviour at work and emphasising the desired behaviour, followed by an immediate correction of the behaviour which is not in line with expectations. The main objective of observing is to give assistance at work.

At the start of 2019, a group for monitoring the effectiveness of observation programs started to operate. Its objective is to analyse trends and to assess the quality of observers' records and recommendations.

The group presented its work results in records for three-month periods and in the annual report, highlighted the areas of good practices and discrepancies, and gave recommendations for improvements.

The results in the reports were drawn up on the basis of 954 observations that took place in 2019. The observations included all disciplines and work groups in different departments.

03

Technological Modernisation and Safety Upgrade Program

In 2019, we continued with technological modernisation and upgrading of NPP which were carried out during the outage as well as during the operation. We carried out modifications and technological improvements having direct impact on improved nuclear safety and operational reliability.

Works of the second and third phase of the Safety Upgrade Program were also intensive. Building of reinforced Bunkered Building (BB2) commenced, where the systems for mitigating the consequences of unlikely accidents are to be installed. Pipelines with accompanying valves and supporting elements to connect these systems with the NPP's system were also installed.

During the outage we carried out ten planned technological modifications which included the replacement of the unit transformer T3 and a very challenging build-up welding of internal surfaces of the turbine cross-under pipeline.

Investments into technological upgrades in 2019 were related to the execution of projects of the SUP second phase, in particular the alternative cooling of the reactor core and the spent fuel pool, and the SUP third phase which included the beginning of the BB2 construction and the installation of the pipeline in the reactor building for the future system for the Reactor Coolant System and Steam Generator Feedwater System.

Activities were carried out needed to obtain the building permit for the Spent Fuel Dry Storage associated with the amended and supplemented NPP's Urban Design Plan (SD UN NEK) which is of national and local importance. On the basis of an agreement with the Ministry of the Environment and Spatial Planning, the activities concerning the SD UN NEK are carried out by Krško Municipality Local Council.

Among the projects completed or commenced in 2019, we present some of the most important ones:

Ensuring operational safety and reliability

Among most important upgrades are the projects which ensure our compliance with environmental legislation requirements, the projects which assure stable operations of the plant, and the upgrades which will continue to ensure safe and reliable operations of NPP in the future.

T3 transformer and T3 voltage regulator replacement

Transformer T3 provides power supply for plant's own consumption from 110 kV network when the external 400 kV is not available. Transformer T3, with the accompanying voltage regulator, was the last of large energy transformers that was functioning from the time the plant was first put into operation. The old transformer will be refurbished and will be used as a spare for a vital plant component.

By replacing the transformer and the voltage regulator and by refurbishing the old transformer, the reliability of plant's operations has increased and vulnerability in the event of a component failure, due to unavailability of the external supply sources for plant's self-consumption (400 kV network), has been reduced.

Build-up welding of turbine cross under pipeline

The 42-inch pipeline 'Turbine Cross Under' is a connecting pipeline between the high-pressure turbine and the moisture separator and the reheater. The carbon-steel pipeline is disposed to the erosion process, e.i. material erasure, which is detected by regular ultrasound measurements of the pipeline wall thickness. During the 2007 and 2009 outages, 30 metres of the pipeline were reconditioned. The last phase includes the reconditioning of the remaining 90 metres of the pipeline applying the TIG-welding method. During the 2019 outage, a 70% of this very demanding activity was completed. It involved the most critical locations (pipe bends, verticals) which are most susceptible to degradation effects.

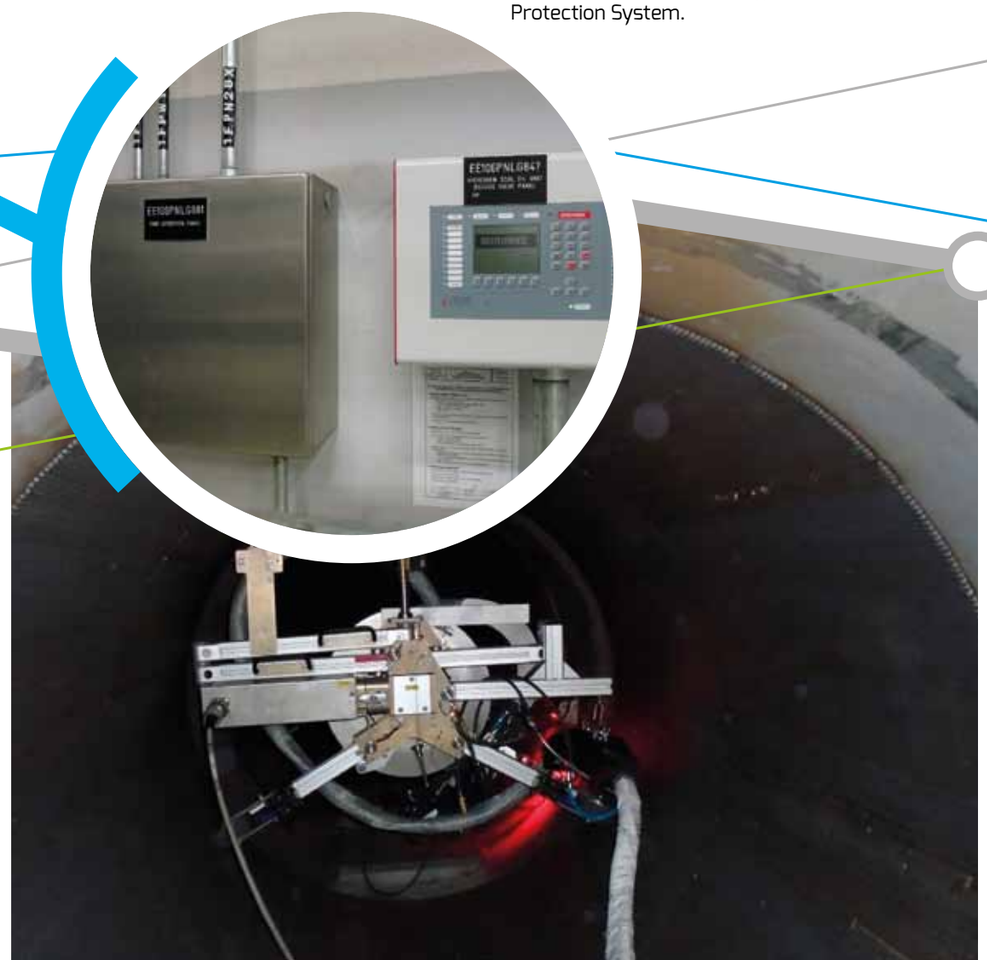
With this upgrade, the plant's operating reliability has increased as the most critical parts of the pipeline were repaired. Otherwise, it would require immediate action in the case of further degradation requiring a plant shutdown and the pipeline cooldown.

Replacing Fire Protection System control cabinets

Upgrades included replacing 11 control cabinets of the plant's Fire Protection System which were installed at various locations around the plant. The old cabinets, which operated in relay logic, were replaced with 14 new cabinets, equipped with micro-processor units.

Some cabinets were needed due to the separation of the new T3 transformer fire protection system from the system of other transformers and due to the separation of the fire protection systems per individual A and B safety trains for the charcoal filters of the reactor building, annulus and the Spent Fuel Pool building.

The upgrades improve the controlling features and the functioning of the Fire Protection System.



Safety Upgrade Program 2013–2021

The Safety Upgrade Program (SUP) is based on the decision for the plant's long-term operation and has been supplemented with experience gained following the nuclear accident in Japan. The program was confirmed by SNSA. It comprises the construction of additional safety systems to provide the cooling of the reactor core and spent fuel and it represents an even higher level of resistance of the plant in the event of emergency natural and other unlikely events such as extreme earthquake, flood, and aircraft crash. Additional safety systems enable the integrity of the containment and assure a minimum release into the environment in the event of unlikely extreme events.

Implementing Safety Upgrade Program in 2019

Works under the second phase of the Safety Upgrade Program (SUP) continued and included:

- the fourth phase of building the Emergency Control Room;
- assuring habitability in the Emergency Control Room and in the Technical Support Centre;
- alternative cooling of the nuclear Spent Fuel Pool; and
- alternative cooling of the core and the containment.

In 2019, certain third-phase safety upgrade projects were started, including:

- upgrading crane in the spent fuel building as a part of the Spent Fuel Dry Storage project;
- building the reinforced Bunkered Building (BB2);
- alternative Steam Generator Feedwater System; and
- alternative Safety Injection.

Building the Emergency Control Room

The Emergency Control Room was completed, so the safe shutdown and the cooling of the plant are now possible from this emergency location. During the outage in 2019, the operating of additional equipment was enabled from the Emergency Control Room, which represents a better and more central control as well as the reduced number of steps previously required for local control of the equipment.

During the fourth phase - before and during the outage 2019, the wiring of the remaining components for a safe shutdown from the emergency location was completed, nuclear instruments installed in the previous outage were upgraded, support works were also carried out (penetration sealing, removal of all disconnected cables, equipment labelling).

The project will be completed after the fifth phase which includes, prior to the outage in 2021, the replacement of instruments for the control of radiological discharges from the containment through the Passive Containment Filtered Vent System (PCFVS).

Providing habitability in the Emergency Control Room and in the Technical Support Centre

The upgrades include the installation of new heating, cooling, ventilation and protection systems in the Emergency Control Room and the Technical Support Centre in the Bunkered Building BB1, to ensure habitability in these premises during normal operations. In the event of radioactive release, the equipment will provide adequate protection and safe habitability for operators and staff of the Technical Support Centre for at least 30 days, to ensure that dose limits are not exceeded. This will enable to control and manage the plant conditions even in the event of severe accidents.

Alternative cooling of the nuclear Spent Fuel Pool

In 2019, upgrades of the Spent Fuel Pool cooling continued which is a part of the second phase of NPP safety upgrades. It is intended to prevent or mitigate consequences of a serious accident in the fuel handling building and involves three independent project changes, namely:

- installing the spray system for filling up the Spent Fuel Pool in the event of water loss;
- installing the mobile heat exchanger to be used in the event of a failure of all existing systems for Spent Fuel Pool cooling; and
- installing the pressure relief flap in the Fuel Handling Building (FHB) for building depressurization in the event of pressure increase due to the Spent Fuel Pool water evaporation.

All works for connecting the mobile heat exchanger to the newly installed piping system which ensures water extraction from the pool and the return of cooled water back into the pool were completed. The Fuel Handling Building depressurization flap was installed and tested.

Alternative cooling of the core and the containment

The main objective of the upgrade is the installation of an independent alternative system for Residual Heat Removal from the primary system and the containment in the event of Design Extension Condition (DEC).

The newly installed equipment, which can be controlled from the Main Control Room (MCR) and from the Emergency Control Room (ECR), will allow the removal of residual heat from the primary system with the existing exchangers or with the newly installed alternative heat exchanges. Residual heat removal from the reactor coolant will also be possible in the event of the reactor coolant system pipe break and, consequently, a Loss of Coolant Accident or unavailability of existing residual heat removal equipment.

The upgrade that is to be taken in a number of phases, was started during the 2018 outage. The year after, the pipeline and equipment were installed without connection to the existing systems. The upgrade will be completed during the 2021 outage, when the new alternative system will be connected to the existing NPP systems.

After project completion, the plant's safety will be higher, even in the most extreme beyond-design basis events (extreme earthquake, floods, other extreme natural calamities).

Crane upgrading in the spent fuel building

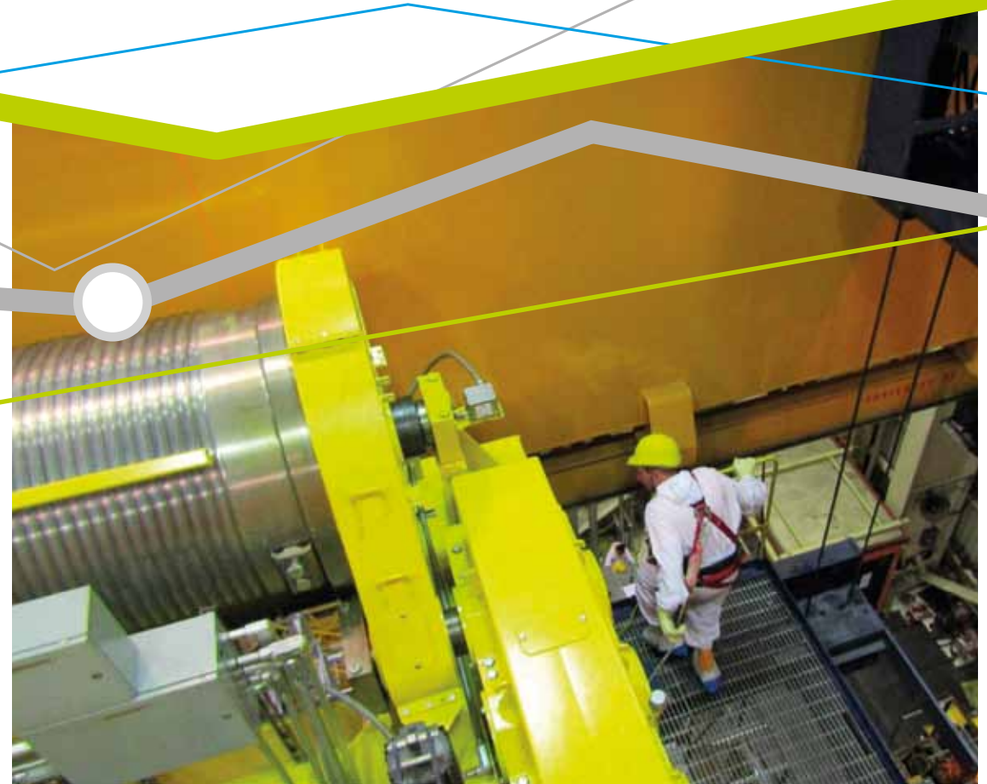
The upgrade of the crane in the spent fuel building falls among modifications that are related to the project of the spent nuclear fuel dry storage construction. The modification involves upgrading of the single failure proof crane in accordance with the requirements applicable for the assuring the safe and reliable nuclear fuel handling. The crane will be used for moving casks with spent fuel onto the transporting trolley which then transfers the cask into the fuel handling building.

By upgrading the crane, we met one of the preconditions for future moving the spent fuel from the pool into the dry storage location.

Construction of reinforced Bunkered Building (BB2)

The upgrade involves the construction of new reinforced building 2 (Bunkered Building 2 - BB2), with auxiliary systems and connections of different new systems inside the new building to the existing systems, buildings and components of NPP.

The BB2 building was designed to contain the alternative safety injection system (ASI), the alternative Auxiliary Feedwater System (AAF) and the BB2 safety power supply. In addition to the BB2, the project includes a well for pumping groundwater for additional supply to the alternative systems for safety injection and power supply for the cooling water system, for the beyond-design basis events.



The upgrade is planned in three phases:

- during the first phase in 2019, an excavation pit was made and supporting wall with anchors was completed to reinforce the ground and protect the neighbouring facility;
- the second phase, which was started in 2019, will continue in 2020, including the construction of the new bunkered building;
- in the third phase, to commence after the completion of the BB2 by the end of 2020 and to be finished during the 2021 outage, the alternative emergency systems will be installed in the BB2 building.

Alternative Auxiliary Feedwater System (AAF)

This upgrade is included in the third phase of the Safety Upgrade Program and includes installation of an additional pump for the Steam Generator Feedwater System including all pipelines and valves which will enable the connection of the new system to the existing Steam Generator Feedwater System. The new Alternative Auxiliary Feedwater System will ensure the alternative source of coolant water for one or both steam generators, in the case that, under the design extension conditions (DEC), the existing Auxiliary Feedwater System is not available, therefore enabling the heat removal from the Reactor Coolant System and reactor core cooling.

The modification comprises three phases:

- in the first phase which took place in 2019, all new piping systems with supporting valves were installed in the reactor building;
- in the second phase, piping outside the containment to the new Bunkered Building BB2 will be installed and connected to a new alternative auxiliary feedwater pump;
- in the third, final phase, which is to take place during the 2021 outage, the alternative Auxiliary Feedwater System will be connected to the existing Auxiliary Feedwater System.

Alternative Safety Injection (ASI)

This upgrade, which is also one of the safety upgrade projects, phase three, includes the installation of the alternative Safety Injection System for injection of borated water into the Reactor Coolant System. The system includes a reservoir for 1600 m^3 of borated water, a high-pressure pump and the main motor operated valve, all of which will be installed in the new reinforced Bunkered Building (BB2). It also includes the accompanying pipeline connected to the existing Safety Injection System and the equipment to support system operation and control.

In 2019, part of the system, which includes pipelines, supports and relevant isolation valves were installed in the containment. The installation work will continue in 2020 and will be completed in 2021 when the new alternative Safety Injection System is to be, after the completion of the BB2 construction and equipment installation, connected to the existing Safety Injection System.

Technological upgrades due to Brežice hydropower plant

Drilling wells and monitoring groundwater due to the construction of Brežice hydropower plant

Drilling wells and monitoring groundwater are the last two modifications due to the construction of Brežice hydropower plant.

Drilling permanent wells for lowering groundwater in the area of the NPP technological buildings is required due to a higher level of groundwater, resulting from the rise of the Sava River level and the erection of sealing curtains along the river bed, which restricts the groundwater drainage.

In 2019, we started to drill three groundwater pumping stations - wells. Well pumps and pumped water regulation equipment will be connected to the existing control system and the raw water pool in the water pre-treatment building. Pumped water will be used for technological water preparation in the water pre-treatment building (PB).

In 2019, boreholes were drilled at three well locations and the well pipes were installed. A pump test was conducted at each location to confirm the functionality and the capacity of each well. Two of the three well trenches were constructed, as well as the majority of trenches for electrical installations, which will enable the connection of the pumps to the process water system and to the control system.

These works are planned to be completed in 2020.

04

Major Maintenance Activities and Inspection of Pressure Boundaries

Appropriate inspection, maintenance and upgrading ensure the operational readiness of the equipment. Maintenance is divided into the categories of preventive maintenance carried out at specific intervals defined in programs, predictive maintenance which is used for establishing the status of equipment (diagnostics), and corrective maintenance aimed at re-establishing the state of the equipment to ensure its designed functionality.

During the corrective activities on the equipment included in the preventive maintenance program, we conduct a detailed sample analysis and revise the program as needed.

The most important maintenance activities are carried out during the outage, while the others are performed during the plant operation. The most of them are in accordance with the preventive maintenance plans and the aging management plans for the equipment and components.

The 2019 outage included the following regular outage activities: overhauls, reviews and testing of high-voltage and low-voltage motors, circuit breakers and other electrical equipment, instrumentation calibration, inspection of equipment degradation caused during operation, by non-destructive methods, the overhaul of the valves, ventilation system and other mechanical equipment, the overhaul of diesel generator set, various secondary system pumps, etc.

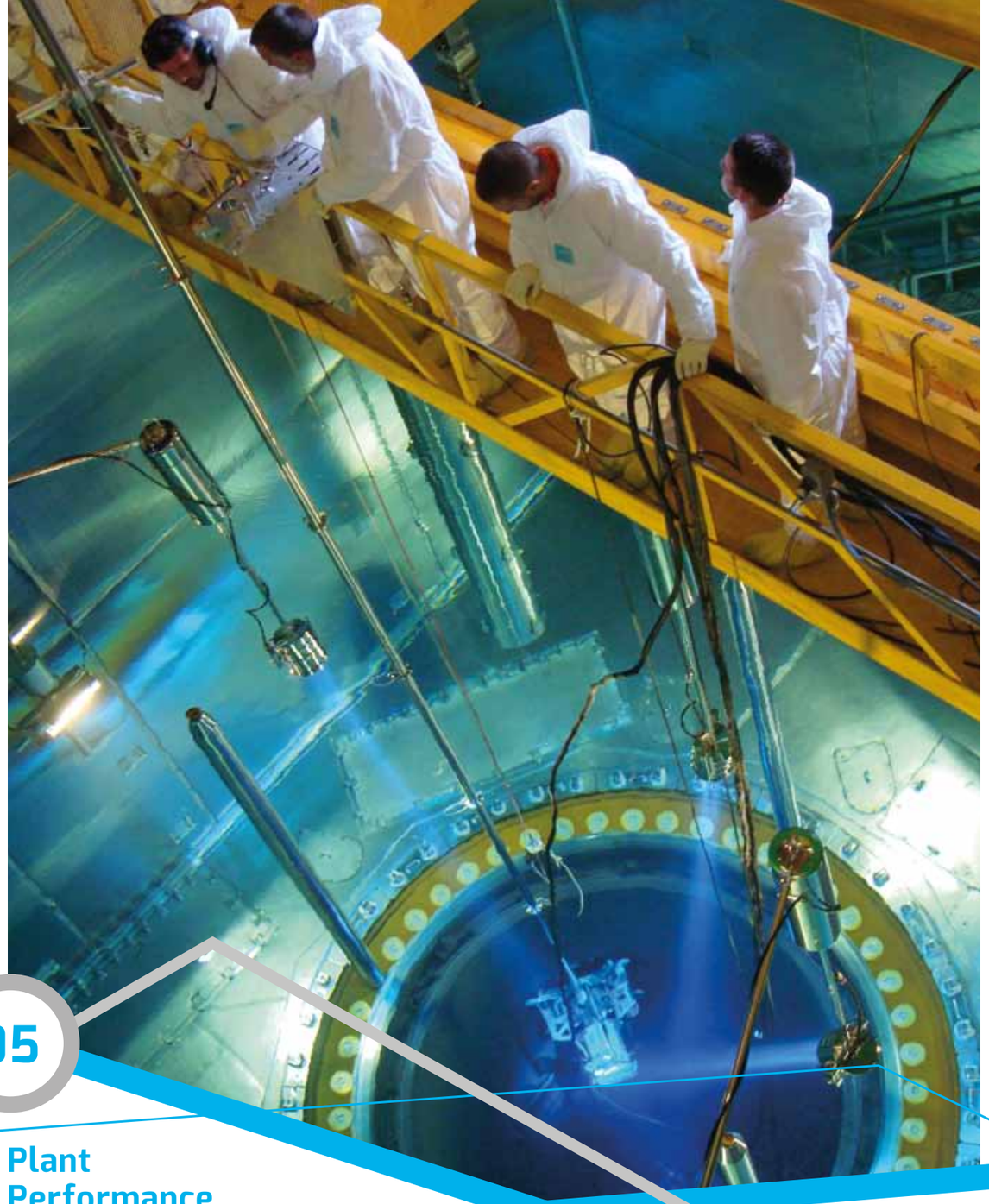
Major activities were: repair of reactor flange surface, replacement of 125-volt safety batteries for the safety train B, testing fission cell guides with an eddy-current method, replacement of 6.3 kV breakers on the electrical bus, 7-year inspection of main feedwater pums 1 and 2 pumping water into the steam generators, inspection and overhaul works of both main control feedwater valves, inspection of residual heat removal pump of safety train A, overhaul of turbine valves, inspection of pipes in selected heat exchangers with an eddy-current method and various other tasks according to the equipment ageing management program.

Predictive maintenance included the determining of the equipment conditions by using various techniques which are not part of the primary maintenance: thermographic monitoring, vibration monitoring of the major rotating components, monitoring of lubricant quality and monitoring rotors during the operation of more powerful electrical engines.

According to the program, checking of the integrity of the components that are essential for ensuring the primary system pressure boundary was carried out as planned by using non-destructive methods. There were no discrepancies observed.

In accordance with the secondary systems component inspection program for erosion and corrosion effects, there were no conditions detected which would necessitate any important corrective measures.

Other maintenance works were carried out during the plant operation in line with the program. There was no major corrective work done which would essentially affect the plant safety and/or availability.



05

Plant Performance

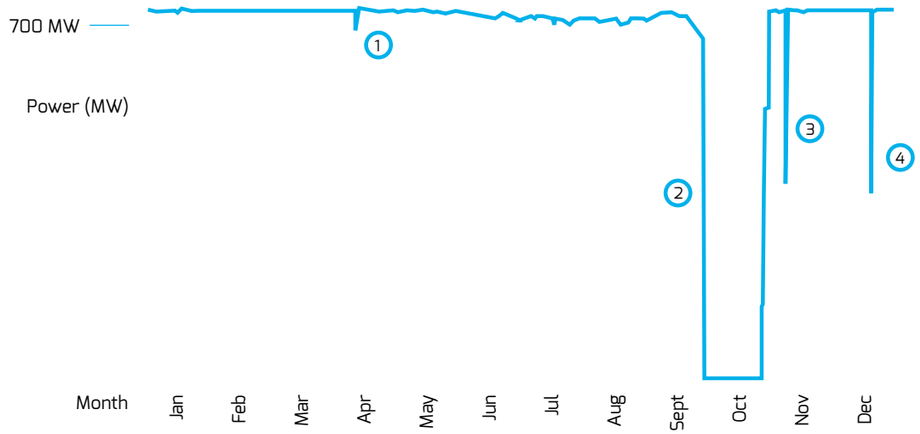
Performance indicators, used to monitor the achievement of targets, efficiency and improvements in a certain area of the plant operations, facilitate the setting of new goals after relevant improvements have been made, the adjustment of priorities and the provision of means to ensure successful operation of the plant. These indicators allow for a comparison with other nuclear power plants as well.

In 2019, the NPP's total output at the generator outlet was 5,821,257.04 MWh of gross electricity, representing 5,532,981.20 MWh of net electricity. The annual output was higher than planned, amounting to 5,430,000.00 MWh. The time availability factor was 92.24 percent while the unit capability factor was 91.72 percent.

Production diagram for 2019

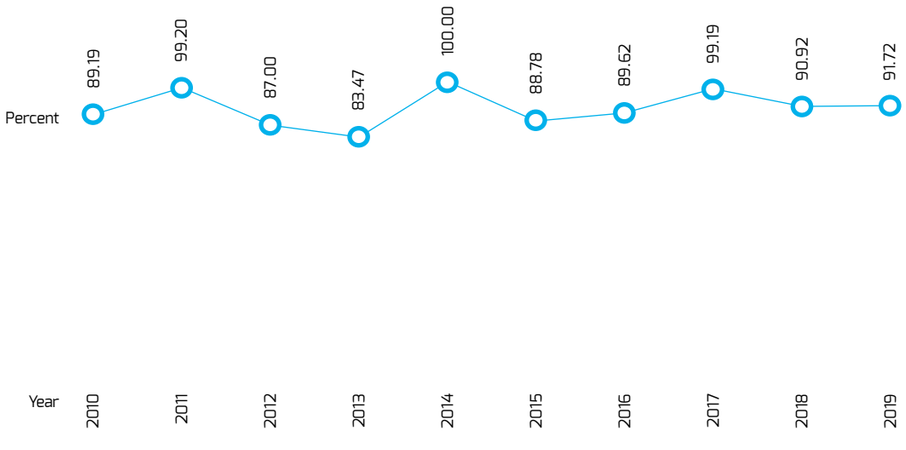
Gross energy produced: 5,821,257.04 MWh
Net energy produced: 5,532,981.20 MWh
Availability factor: 92.24%
Capability factor: 91.72%

1. Test of turbine valves
2. 2019 Outage
3. Post-maintenance test of Feedwater Pump 1A
4. Post-maintenance test of Feedwater Pump 1A and repair of condenser leak

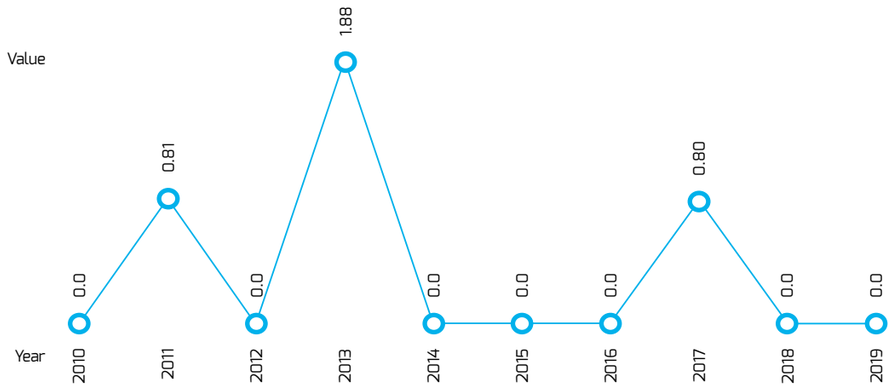


Unit capability factor

NEK target for 2019: ≥ 90%



Unplanned automatic scrams, normalised at 7000 hours critical



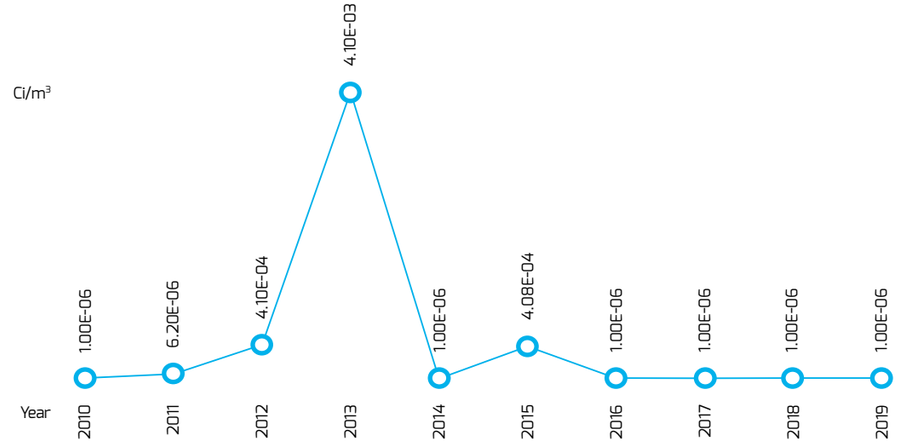
Nuclear fuel and secondary chemistry

Specific activities of the primary coolant and its contamination in 2019 (during fuel cycles 30 and 31) were far below the limits prescribed by law. In the fuel cycles 30 and 31 until the end of 2019, there were no damages to the nuclear fuel or deterioration of its integrity. The nuclear fuel reliability indicator in 2019 met targets set by NPP and INPO (Institute for Nuclear Power Operations), which proves the reactor core operational reliability without nuclear fuel leakage.

Chemical and radiochemical parameters in the cooling water media systems were maintained in accordance with the technical and chemical specifications. The ingress of aggressive chemical contaminants into the primary cycle remains low. This applies also to the radiation source inventory, resulting from corrosion products in the reactor coolant.

Fuel reliability factor

NEK target for 2019: ≤ 1E-4 Ci/m³



In the secondary cycle, small ingress and discharge of chemical contaminants were occasionally detected, especially in the second half of the year. WANO performance indicators for the secondary cycle chemistry did not reach optimal values. The source of ingress was successfully identified and remedied by the end of 2019. The detection of small ingress, which we faced, was a special challenge for the chemistry staff since the concentration of aggressive contaminants slightly exceed the detection levels of analytical methods.

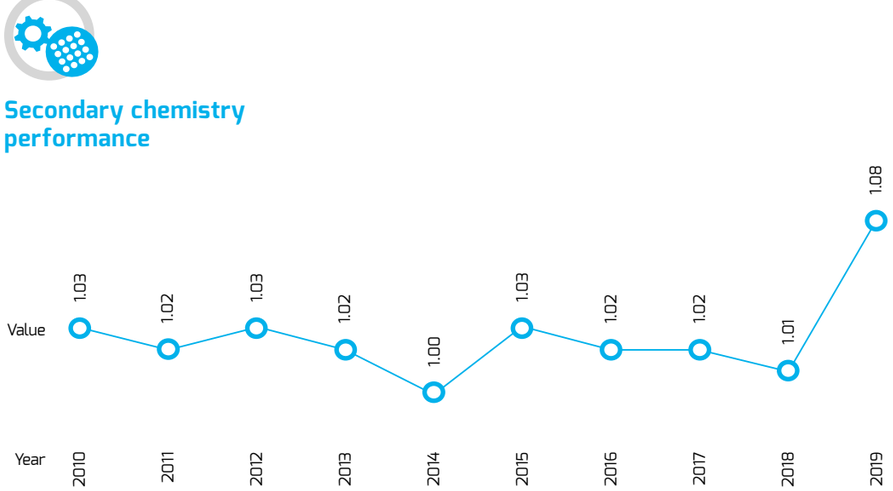
There were no significant effects of degradation mechanisms of installed material. Release of iron particles and iron oxides due to erosion and erosion corrosion in the secondary cycle was the lowest among the past years.

The chemistry of other water media in the closed cooling cycles was also adequately maintained.

The monitoring of key chemical parameters was effective as well as the cleaning systems which contributed to the effective chemistry program. Since 2018, NPP has been monitoring biological activities in certain systems, especially those where conditions exist for occurrence and growth of microorganisms that could have an effect on degradation processes and heat exchange. Values measured in this area were within the expected parameters and do not require any special measures.

By chemical processes of water media systems, NPP continues to ensure long-term plant system availability and importantly contributes to the integrity of both nuclear fuel and reactor coolant as well as to keeping doses within limits.

Secondary chemistry performance

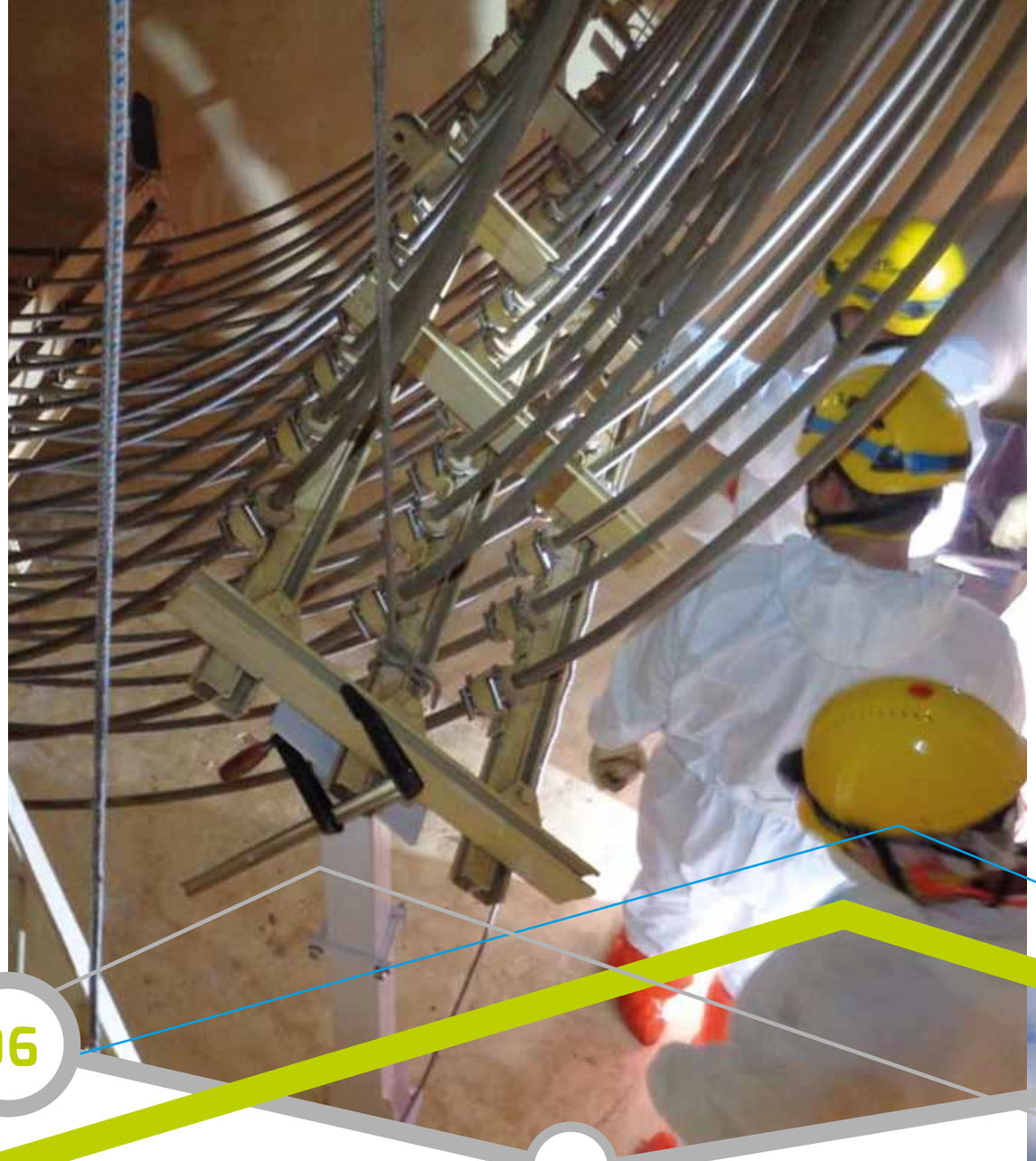


Service and equipment procuring

We continued procuring services and equipment for the outage in 2019 and started procuring for the 2021 outage and SUP. Applying relevant laws, internal NPP procedures and authorised resources, all the remaining purchasing processes were carried out.

We published 146 public procurement tenders on the Public Procurement Portal of which 40 were also published on the Official Journal of the EU and, on the basis of these publications, we received 96 offers from various providers. In accordance with legislative changes on public procurement we introduced a new application for electronic submission of offers. As a technique and instrument for electronic public procurements, we introduced a dynamic purchasing system.

Cooperation with suppliers on the local market was mostly successful. On the external market, difficulties with American suppliers are becoming greater as they are abandoning support for the nuclear industry or are involved in larger projects and therefore not interested in a relatively small supply to European business partners. An additional obstacle for them is public procurement and e-commerce.



06

International Cooperation

NPP has joined numerous international professional organisations, which enables our employees to remain up-to-date with and to co-create the best practices, exchange knowledge and experience and transfer them into the domestic work environment. Our active role in these organisations and international inspection of the plant significantly contribute to improving work processes and achieving good safety and operational results.

Our participation in 2019

Two NPP's employees temporarily worked at WANO. At the end of February 2019, one of the NPP's employees ended the assignment at the London Centre as a senior adviser in the operating experience team and after six years of his temporary work at WANO returned to NPP. At the end of December 2019, the second employee ended his 3-year assignment at the Paris Centre working in expert review missions of WANO member plants and returned to NPP. In November 2019, a third worker succeeded in obtaining temporary work as a reviewer of operating experiences in the WANO's Paris Centre and commenced the assignment at the start of 2020.

In January, the first international WANO Crew Performance Observation was conducted during simulator exercises. The results became a component part of the overall assessment of the March fifth international expert review of plant's operations (WANO Peer Review Mission) and the implementation of recommendations contained in the WANO Significant Operating Experience Report (WANO SOER). The review disclosed two good practices which WANO will communicate to other plants as examples, while eight areas need improvements. During the review of the compliance with SOER recommendations, advancement was established as 91 percent of recommendations had already been implemented.

NPP has been active in WANO and INPO for years. Our experts have taken part in 54 of their missions worldwide. In 2019, three of our representatives took an active part in international expert reviews of plant operations at Cruaz and Nougent plants in France, and Oskarshamn in Sweden.

Through the Technical Assistance Program our plant has received over 34 such missions in the past years, with topics which cover various areas of the plant's activities.

The NPP's representatives take part in professional training organised by various expert organisations. Good results of our plant are becoming a model practice for other nuclear facilities and a source of good practices in various fields of work. There were 41 expert benchmarking visits in NPP. In 2019, we received experts from the Spanish plant Centrales Nucleares Almaraz-Trillo (CNAT) and from the Belgium plant Doel.

Through WANO, NPP informed the industry of eight operating experiences in our plant.

Together with NUPIC, representatives of NPP took part in seven assessments of safety equipment suppliers in the USA and Europe.

NPP takes an active part in some of the important areas of the EPRI activities, including:

- equipment maintenance of nuclear facilities (NMAC);
- equipment upgrading, purchasing and qualification (PSE);
- non-destructive testing and research (NDE);
- exchange of experience in applying accident analysis programs (MAAP);
- exchange of experience concerning erosion/corrosion issues (CHUG).

Our plant has participated in the PWROG annual conferences, organised separately for nuclear facilities from Europe.

We actively participate in conferences of nuclear expert associations of Slovenia and Croatia.

Membership and cooperation in international organisations

At NPP, we are aware of the importance to participate in international organisations and in the international monitoring of our operation. Only this way can we attain international comparable operation and safety results. For this purpose, NPP is a member of many organisations listed below:

WANO

All nuclear power plants in the world are members of World Association of Nuclear Operators (WANO). NPP has been a member of this organisation since its establishment in 1989. Its aim is to promote the highest standards of operational safety, availability and excellence of nuclear power plants. WANO runs programs for sharing operational experience, reviews plants' operations, assists member plants in their operational improvement programs, encourages communication, and promotes benchmarking and copying best practices.

EPRI

EPRI (Electrical Power Research Institute) is a non-profit and independent organisation for research in the area of electricity production and environment protection. It was established in 1973 in support of the development of the electrical industry. The Institute currently covers all aspects of production, transmission and use of electricity.

PWROG

PWROG (Pressurized Water Reactor Owners Group) is an association of all the pressurized water reactor (PWR) operators and Westinghouse. The organisation offers various programs related to improved equipment, optimisation of technical specifications, reduced number of unplanned shutdowns, increased power of the plant, simplification of the plant systems, the manufacture and use of nuclear fuel, analyses by contemporary programs and analytical methods, etc.

FORATOM

FORATOM – European Atomic Forum is a trading association for nuclear energy in Brussels. NPP cooperates with the expert team for optimising and improving support change of nuclear suppliers. The group develops methodology and prepares a report on the use of high-quality industrial equipment and spare parts in nuclear plants.

EC – JRC

EC – JRC (European Commission Joint Research Centre) is a joint research centre, providing scientific and technical support to EU policy in a number of areas. NPP participates in drawing up reports on challenges and possible solutions on issues with nuclear suppliers.

ENISS

As a member of ENISS group (European Nuclear Industry Safety Standards), Krško NPP took part in the preparation of the EU nuclear industry position in drafting amendments to legislation in this industry. The work group acts within FORATOM, an EU nuclear industry organisation.

NUPIC

NUPIC (Nuclear Procurement Issues Committee) is a committee of American and other nuclear facilities for joint evaluation of safety class equipment suppliers. The aim of this organisation is to improve the process of locating the suppliers of high quality standards.

IAEA

The International Atomic Energy Agency (IAEA) is an independent intergovernmental organisation which operates within the United Nations Organisation. Its primary objective is to help members in planning and using nuclear technology for various peaceful purposes. This includes production of electricity and transfer of technology and knowledge in this area. IAEA develops safety standards that support the realisation of high level of safety in using nuclear energy and on protecting the public against ionising radiation. The organisation operates on the basis of various programs such as control over nuclear material, nuclear technology application, nuclear energy, nuclear safety and technical cooperation. It organises OSART (Operational Safety Review Team) missions which involve visiting power plants in order to inspect and assess their operational safety.

NRC

NRC (Nuclear Regulatory Commission) is an USA independent nuclear regulatory commission to ensure safety and protection of people from radioactive nuclear material, reactors and nuclear waste reprocessing plants. Through SNSA and IJS, NPP has become a member in several programs which gives access to information and literature in various areas.

07

Professionalism and Enthusiasm of Staff as the Basis of Success

Through systematic staff training and the system for managing staff knowledge we ensure high level of professionalism and enthusiasm. The comprehensive development of staff is one of the fundamental values which are the basis for our activities and with the assistance of which we realise our vision and mission.

The fundamental values which are part of our work processes and relationships include safety culture, excellence in relationships and integral personal development. At the same time, these values are the reference line of our actions and the basis of our vision and mission.

Comprehensive development of staff

In NPP, we provide preconditions for long-term safe and stable operations through long-term planning of human resources, timely staff recruitment and systematic development of all employees. We are aware that only professional, well qualified and competent individuals are prerequisites for work processes to be performed safely, efficiently and at a high quality level as well as for constant improvements in all work areas.

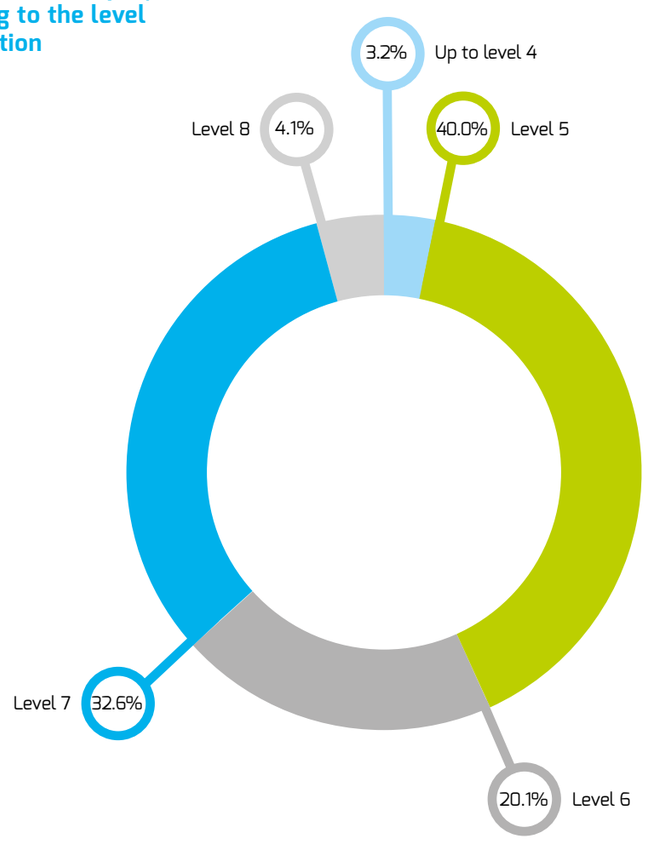
The established professional training programs are intended to acquire and reinforce professional knowledge and skills which ensure successful completion of all work tasks at a high professional level and in accordance with international standards. Reinforcement of knowledge and transfer of skills from highly experienced staff onto younger generations are provided through on-the-job training programs and mentorship. In 2019, 418 courses for almost 23,000 staff were carried out, averaging 55 attendees per course. At the same time, we take steps to bring up and develop the next generation for key positions in the plant. In the area of human resources, special attention has been paid to monitoring staff enthusiasm and management processes, such as annual development discussions.

Staff with expertise and skill, while possessing essential virtues, are of strategic importance and one of the key factors of nuclear safety, long-term stability, competitiveness and success.

In the area of human resources, the 2019 was a year where the gradual replacement of generations that has been in progress in the past decade was expressed in a milder form since we hired only 5 employees for existing and future needs. In accordance with expectations, employee retirement process continued for those who had met the conditions for old-age retirement. The annual staff turnover was 1.59 percent, expressing a stable human resources culture.

At the end of the year, there were 628 employees at NPP of which 45.5 percent hold high professional and university education. The employee structure included 10 doctors of science and 16 masters of science. The share of female staff was 14.2 percent. At the end of the year, 18 students were receiving our scholarship for the Bologna first or second degree university study program.

Distribution of employees according to the level of education



Training of operating staff

In NPP, we organise initial licensed staff training and provide a continuous licensed staff training and professional training of equipment operators.

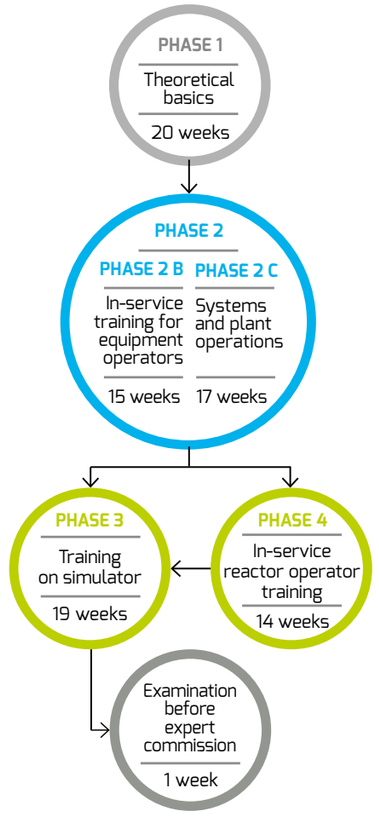
Initial licensed staff training for reactor operators was conducted in accordance with national legislative requirements and practices in the nuclear industry. The 85-week training course is structured in four phases of different forms of training, aimed at preparing the candidates for independent work in the Main Control Room. In 2019, we did not have participants in the program for initial licenced staff training.

Continuing professional training of licensed staff was conducted in accordance with the approved program and NPP internal procedures. The training was conducted through lectures and simulator scenarios, during four weekly segments, attended by all operating crews and other licensed personnel.

Final exams before an expert commission appointed by SNSA were successfully passed by all 16 candidates: three candidates were awarded their first Senior Reactor Operator licence, eight candidates successfully renewed their Senior Operator licences, four renewed their Reactor Operator licences and one of them his/her shift engineer licence.

The continuing professional training for equipment operators was conducted in parallel with the training for licensed staff, which was conducted in four weekly training segments. The program focused on technical expertise and hands-on training by using System Operating Procedures in the technological building or with the full-scope simulator. Other training was aimed at refreshing and upgrading existing knowledge and skills which equipment operators need in their day-to-day work.

The initial licensed staff training



A group of 17 production staff attended a four-day hands-on training, which included handling of refuelling equipment at Westinghouse in the United States of America. Training was aimed at preparing the participants for safe and good performance of this important refuelling activity.

The operational staff underwent training on the full-scope simulator prior to performing important activities in the facility.

Staff training for maintenance and other support functions

The professional training of technical personnel included courses whose aim was for candidates to acquire the legally required general and specialist knowledge needed for performing maintenance, engineering and other supporting functions.

Courses aimed at acquiring legally required knowledge and refresher courses for general and professional knowledge and skills of technical staff were conducted for maintenance and other support functions.

Within the framework of initial training for technical personnel, a course in the fundamentals of nuclear power plant technology (OTJE) is carried out. This course was not carried out in 2019.

Training of maintenance personnel programs continued in the field of specialist and legally required knowledge. The training required was prepared on the basis of matrices of required qualifications. Some courses were conducted in the Maintenance Personnel Training Centre and in NPP technological units, and partly in cooperation with external institutions. In addition to our own training staff, training was conducted by engaging mentors of practical training from individual maintenance departments.

Under continuous training of maintenance staff, we completed the three segments of the training program on the subject of general and legally required areas. The maintenance staff was updated with new aspects of plant processes and in-house and industry operating experience.

Other legally prescribed and general training

Legally required training includes: occupational health and safety, fire protection, hazardous substances, etc. General training includes: the General Employee Training program, first-line supervisor training, etc.

We continued with the implementation of established programs of initial and refresher courses related to occupational health and safety, fire protection, hazardous substances, Protection and Rescue Plan (NZIR), movement within the power generating facilities, etc.

Radiation protection initial and refresher training was conducted according to legal requirements.

Extensive two NZIR drills were carried out, both supported by the use of full-scope simulator.

In addition, many courses were carried out for other departments within the power plant. They were intended to update the staff on new legislation and introduce innovations in the area of production processes; general courses on computer literacy and foreign languages took place as well.

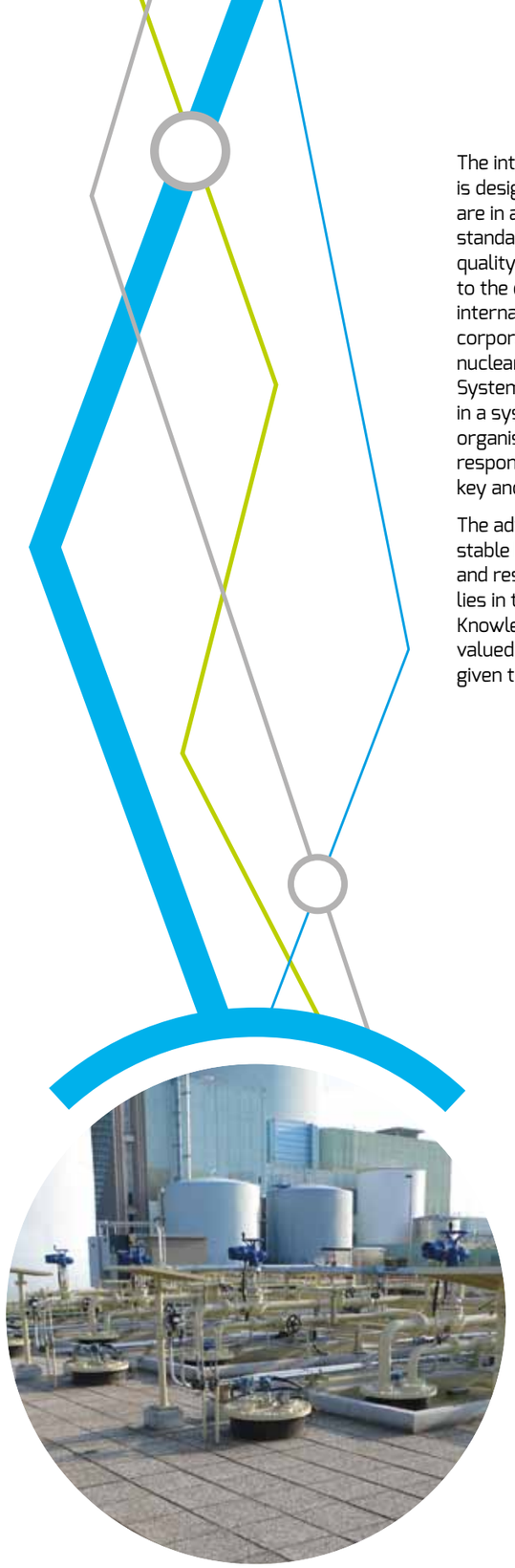
08

Company Organisation

Legislation, the Intergovernmental Agreement, nuclear industry standards and the standards of effective company management represent a framework of NPP's business. The plant's strategic documents - Code of Safety and Business Ethics, Five-Year Development Plan, and Management System - provide the answers who we are, what we believe in, and how and what we want to achieve and lead us to the accomplishment of our mission and vision.

In accordance with the intergovernmental agreement concluded between the Government of the Republic of Slovenia and the Government of the Republic of Croatia on regulating the status and other legal issues related to investments in the Krško Nuclear Power Plant, its utilisation and decommissioning, and the Articles of Association, both having entered into force on 11 March 2003, NPP is organised as a limited liability company. The bodies of the company, having parity membership, are the General Assembly, the Supervisory Board and the Management Board.

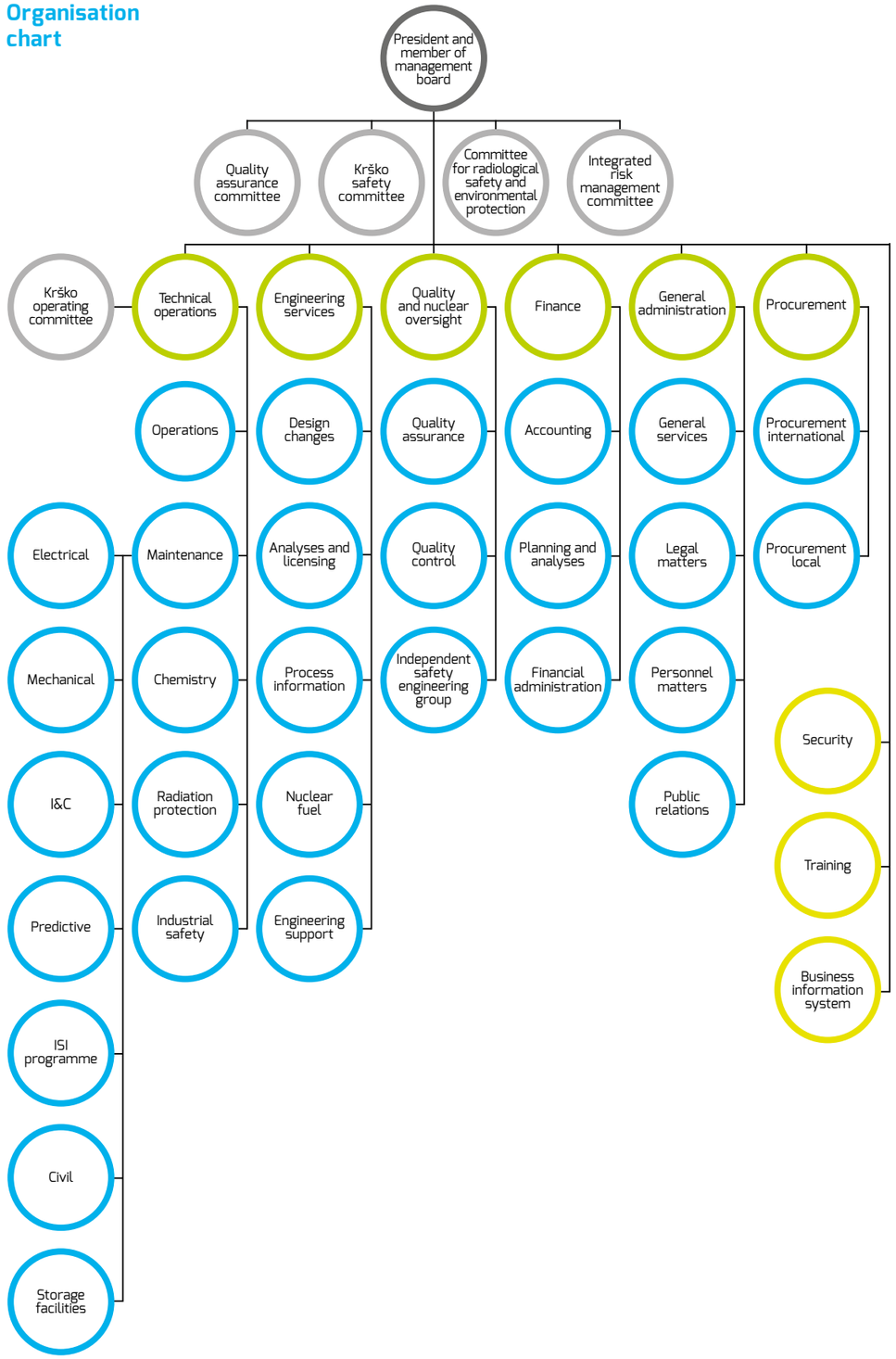
The nominal capital of NPP is divided into two equal business shares owned by the members GEN energija, d. o. o., Krško and Hrvatska elektroprivreda d. d., Zagreb. NPP generates for and supplies electricity exclusively to the members; it is their right and obligation to take 50 percent of the total available capacity and net electric power.



The internal organisation of the company is designed to cover all functions which are in accordance with nuclear industry standards and regulations necessary for quality professional work processes. Due to the company's specific position, its internal organisation covers engineering and corporate functions, including independent nuclear safety inspection. The Management System, one of key documents, outlines in a systematic manner the fundamental organisational features and defines responsibilities of the management, the key and the support processes.

The advantage of our organisation lies in stable human resources with the competent and responsible employees, whose virtue lies in their high enthusiasm and motivation. Knowledge and professionalism are highly valued; therefore, appropriate attention is given to employee personal development.

Organisation chart



09

Summary of the 2019 Financial Statements

In 2019, NPP continued to strictly apply the Intergovernmental Agreement, Slovenian Accounting Standards and other legal regulations; we achieved good operational and business results. The economy of operations is backed up by financial results, while the positive auditor's report confirms that they reflect a fair picture of the financial position of the company, its financial results and cash flows.

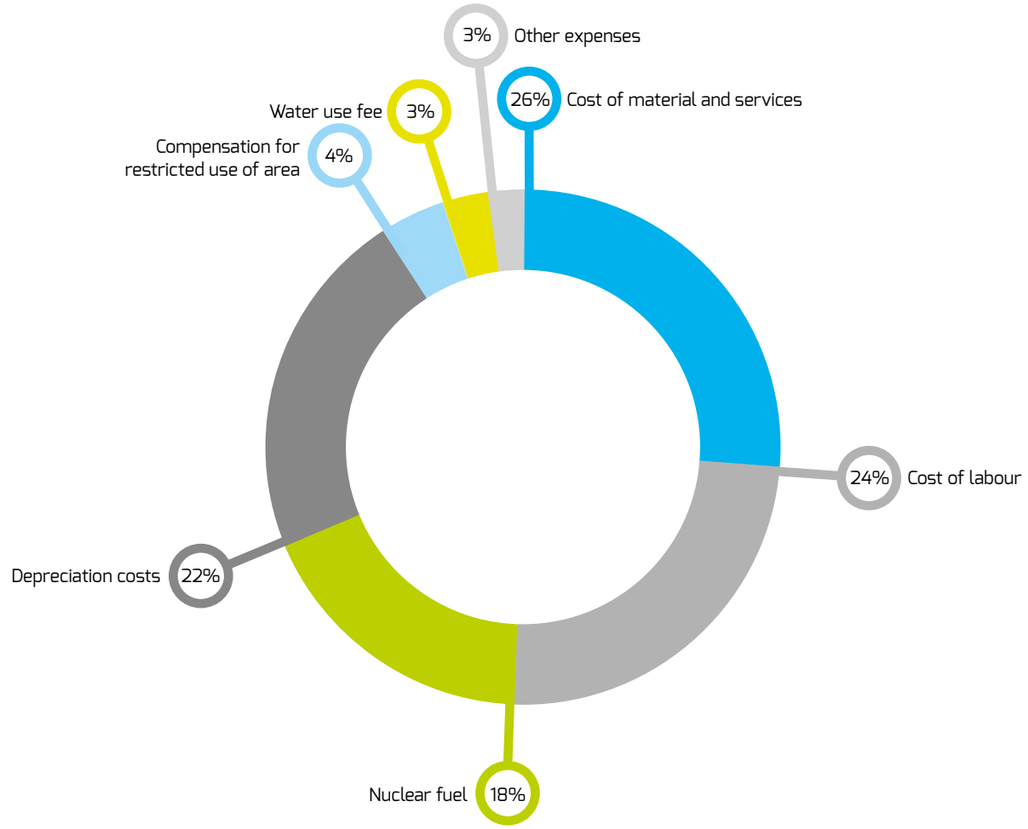
In accordance with the Companies Act (ZGD-1) and the Articles of Association of NPP, a summary of the NPP Report for 2019 is given below. The summary includes the main characteristics of business operations in 2019 and consolidated basic financial statements. All basic accounting statements in complete form are in the NPP Annual Report for 2019. They are drawn up in accordance with the Agreement concluded between the Government of the Republic of Slovenia and the Government of the Republic of Croatia regulating the status and other legal issues concerning investments in the Krško Nuclear Power Plant, its utilisation and decommissioning (Intergovernmental Agreement), NPP's Articles of Association, the Companies Act (ZGD-1) and Slovenian Accounting Standards (SRS).

Business results are shown in the consolidated fundamental financial statements. These should be interpreted together with notes detailed in the NPP's 2019 Annual Report. The Annual Report was submitted to AJPES, the organisation authorised to process and publish the data, on the first working day after it had been accepted at NPP's General Meeting, and was published on their website (www.ajpes.si).

The year 2019 was successful for NPP; the plant's economy and nuclear safety were at a high level, while all environmental requirements were strictly respected. All key targets set for the year were reached. We exceeded the annual planned output and generated 5 532 587 MWh of electricity, which is 102 587 MWh more than planned. We generated a turnover of EUR 174 205 826 and EUR 174 205 826 of expenditure, which means the turnover was equal to expenditure.

The expenditure structure is shown in the graph below.

Expenditure structure for 2019



The largest portions in the structure of expenses are represented by the cost of material and services, the cost of labour, the cost of depreciation and nuclear fuel, amounting to a total of 90 percent of all expenses.

The financial position of NPP is satisfactory. Long-term resources cover all long-term assets and also all inventories.

Auditor's report on financial statements to be published for public use

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REPORT OF THE INDEPENDENT AUDITOR ON THE SUMMARY FINANCIAL STATEMENTS

of Nuklearna elektrarna Krško, d.o.o., intended for public notice

Opinion

The summary financial statements, which comprise the summary balance sheet as at December 31, 2019, the summary income statement, summary statement of changes in equity and summary cash flow statement for the year then ended are derived from the audited financial statements of Nuklearna elektrarna Krško, d.o.o. for the year ended December 31, 2019.

In our opinion, the accompanying summary financial statements are consistent in all material respects, with the audited financial statements, in accordance with ZGD and the materiality criterion and the nature of the summary financial statements purpose.

Summary Financial Statements

The summary financial statements do not contain all the disclosures required by aTreaty between the Government of the Republic of Slovenia and the Government of the Republic of Croatia on the Regulation of the Status and Other Legal Relations Regarding Investment, Exploitation and Decommissioning of the Krško Nuclear Plant (hereinafter 'the Intergovernmental Treaty'), a NEK, d.o.o. Contract of Members (hereinafter 'the Contract of members'), and Slovenian Accounting Standards in those parts that are not governed by the Intergovernmental Treaty or the Contract of Members. Reading the summary financial statements and the auditor's report thereon, therefore, is not a substitute for reading the audited financial statements and the auditor's report thereon.

The Audited Financial Statements and Our Report Thereon

We expressed an unmodified audit opinion on the audited financial statements in our report dated March 25, 2020.

Management's Responsibility for the Summary Financial Statements

Management is responsible for the preparation of the summary financial statements in accordance with and the materiality criterion and the nature of the summary financial statements purpose.

Auditor's Responsibility

Our responsibility is to express an opinion on whether the summary financial statements are consistent, in all material respects, with the audited financial statements based on our procedures, which were conducted in accordance with International Standard on Auditing ISA 810 (Revised), *Engagements to Report on Summary Financial Statements*.

DELOITTE REVIZIJA d.o.o.

For signature please refer to the original Slovenian version.

Nina Kravanja Novak

Certified Auditor

Ljubljana, 25 March 2020

Deloitte.
DELOITTE REVIZIJA D.O.O.
Ljubljana, Slovenija 3

TRANSLATION ONLY, SLOVENE ORIGINAL PREVAILS

Balance sheet
as of 31.12.2019

ASSETS in EUR	31.12.2019	31.12.2018
A. Long-term assets	**417,281,989**	**382,842,516**
Tangible fixed assets	417,254,390	382,803,838
Investment property	–	–
Long-term financial investments	27,599	38.678
B. Current assets	**100,492,169**	**134,867,019**
Inventories	70,484,393	89,067,547
Short-term financial investments	10,973,590	30,053,829
Short-term operating receivables	18,989,650	15,712,965
Cash	44,536	32,678
C. Short-term deferred expenses and accrued revenue	**619,292**	**665,541**
TOTAL ASSETS	**518,393,450**	**518,375,076**

LIABILITIES in EUR	31.12.2019	31.12.2018
A. Capital	**439,901,743**	**440,651,659**
Called-up capital	353,544,826	353,544,826
Revenue reserves	89,294,326	89,294,326
Reserves from fair value re-evaluation	867,063	1,616,979
Net profit or loss carried over	–3,804,472	–3,804,472
Retained net profit or loss	0	0
B. Provisions and long-term accrued costs and deferred revenue	**12,024,005**	**10,828,224**
Provisions for jubilee benefits and severance pay	11,662,745	10,433,453
Other provisions	361,260	394,771
Long-term accrued costs and deferred revenue	0	0
C. Long-term operating liabilities	**42,028,982**	**187,298**
Long-term operating liabilities	41,850,000	0
Long-term operating liabilities	178,982	187,298
Č. Short-term operating liabilities	**23,551,179**	**61,050,079**
Short-term operating liabilities	23,551,179	61,050,079
D. Long-term accrued costs and deferred revenue	**887,541**	**5,657,816**
TOTAL LIABILITIES	**518,393,450**	**518,375,076**

Income statement
for year ending 2019

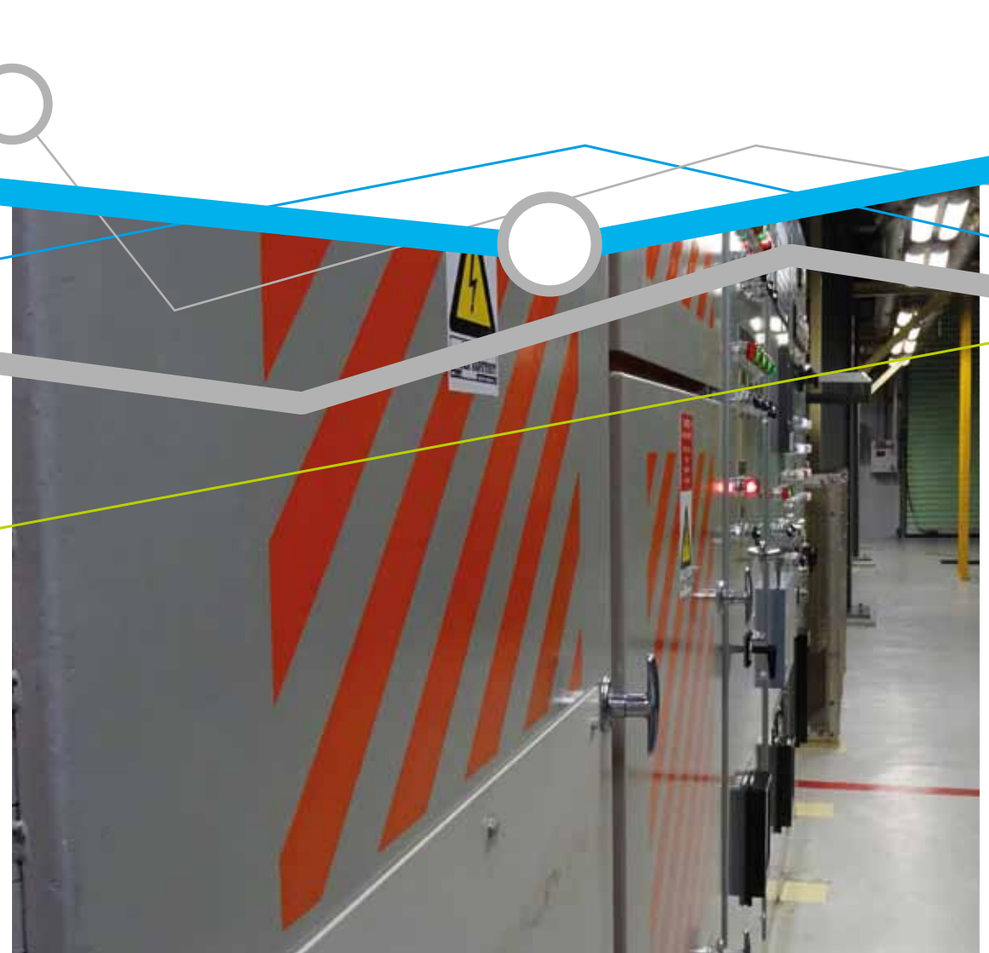
in EUR	2019	2018
Operating revenue	174,178,479	158,195,044
Operating expenses	173,836,774	158,242,254
OPERATING PROFIT OR LOSS FROM OPERATIONS	**341,705**	**–47,210**
Financial revenue	27,347	299,524
Financial expenses	369,052	252,314
OPERATING PROFIT OR LOSS FROM FINANCING	**–341,705**	**47,210**
NET OPERATING PROFIT OR LOSS FOR THE PERIOD	**0**	**0**
NET OPERATING PROFIT OR LOSS FOR THE PERIOD	**0**	**0**

Cash flow statement
for the year ending 2019

in EUR	2019	2018
A. Cash flows from operating activities		
Cash receipts from operating activities	180,620,751	176,290,556
Cash disbursements from operating activities	153,401,119	131,299,138
POSITIVE OR NEGATIVE CASH FLOW STATEMENT FROM OPERATING ACTIVITIES	**27,219,632**	**44,991,418**
B. Cash flows from investing activities		
Cash receipts from investing activities	156,178,019	209,180,340
Disbursements from investing activities	225,210,658	254,173,202
POSITIVE OR NEGATIVE CASH FLOW STATEMENT FROM OPERATING ACTIVITIES	**–69,032,639**	**–44,992,862**
C. Cash flow from financing activities		
Cash receipts from financing activities	142,280,000	–
Cash disbursements from financing activities	100,455,135	–
POSITIVE OR NEGATIVE CASH FLOW STATEMENT FROM FINANCING ACTIVITIES	**41,824,865**	**–**
CLOSING BALANCE OF CASH	**44,536**	**32,678**
Cash flow statement for the period	11,858	–1,444
Opening balance of cash	32,678	34,122

Statement of changes in capital for the years 2019 and 2018

in EUR	Nominal capital	Legal reserves	Statutory reserves	Other reserves	Reserves from fair value re-evaluation	Net profit or loss carried over	Retained net profit or loss	TOTAL
Opening balance 01.01.2019	**353,544,826**	**35,354,483**	**53,321,477**	**618,366**	**1,616,979**	**–3,804,472**	**–**	**440,651,659**
Changes to equity - transactions with owners								
Total comprehensive income of financial year							0	0
Changes within capital - allocation of part of net profit for reserves from profit								
Changes in capital - other changes in capital					–749,916			–749,916
Closing balance 31.12.2019	**353,544,826**	**35,354,483**	**53,321,477**	**618,366**	**867,063**	**–3,804,472**	**0**	**439,901,743**
Opening balance 01.01.2018	**353,544,826**	**35,354,483**	**53,321,477**	**618,366**	**1,327,535**	**–3,804,472**	**–**	**440,362,215**
Changes to equity - transactions with owners								
Total comprehensive income of financial year							0	0
Changes within capital - allocation of part of net profit for reserves from profit								
Changes in capital - other changes in capital					289,444			289,444
Closing balance 31.12.2018	**353,544,826**	**35,354,483**	**53,321,477**	**618,366**	**1,616,979**	**–3,804,472**	**0**	**440,651,659**



List of Acronyms

AJPES	Agency of the Republic of Slovenia for Public Legal Records and Related Services
ASI	Alternate Safety Injection
BB	Bunkered Building
BS OHSAS	British Standard – International Occupational Health and Safety Management Standard
CHUG	Checworks Users Group
NP	Net profit
DEC	Design Extension Condition
ECR	Emergency Control Room
EPRI	Electrical Power Research Institute
EPZ	Elektriciteits Produktiemaatschappij Zuid-Nederland
EU	European Union
FHB	Fuel Handling Building
FORATOM	European Atomic Forum
IAEA	International Atomic Energy Agency
IJS	Jožef Stefan Institute
INPO	Institute for Nuclear Power Operations
I&C	Instrumentation and Control
ISI	In-Service Inspection
ISO	International Organisation for Standardization
MAAP	Modular Accident Analysis Program User Group
NDE	Non-Destructive Examination
NPP	Nuklearna elektrarna Krško /Krško Nuclear Power Plant/
NMAC	Nuclear Maintenance Application Centre
NSRAO	Low- and intermediate-level radioactive waste
NUPIC	Nuclear Procurement Issues Committee
NZIR	Protection and rescue plan
PB	Pre-treatment Building
PSE	Plant Support Engineering
PWR	Pressurized Water Reactor
PWROG	Pressurized Water Reactor Owners Group
RS	Republic of Slovenia
SAMG	Severe Accident Management Guidelines
SD UN NEK	Amendment and Supplementation of NPP Urban Design Plan
SNSA	Slovenian Nuclear Safety Administration
SOER	Significant Operating Experience Report
SUP	Safety Upgrade Program
TIG	Tungsten Inert Gas (Welding)
WANO	World Association of Nuclear Operators
ZGD	Companies Act