

The background features a pattern of overlapping hexagons in shades of blue and white. Several hexagons contain white icons: a globe, three interlocking gears, a steering wheel, a magnifying glass, a bar chart with an upward arrow, and a group of three people. The year '2015' is prominently displayed in the center-right.

2015

KOZLODUY NPP PLC
ANNUAL REPORT

Our core values

- Safety first
- Commitment and mutual respect
- Personal responsibility and integrity at work
- Quest for excellence
- Continuous learning



Dear readers,



You have just opened the 2015 Annual Report of Kozloduy NPP plc. We regard it as a successive page from the annals of Bulgarian nuclear energy - the fruit of our work efforts, fulfilled plans, resolved challenges and success achieved. As a team, we are united under a single leading objective – to defend our plant’s well-earned position of a safe generating capacity, leading producer of electricity and preferred business partner. This is the framework of our success, materialised in concrete results such as reliable generation, secure energy supply, and financial stability.

These words are supported by concrete facts that you may read about on the pages of this issue. In 2015, Units 5 and 6 generated 15 379 097 MWh of electricity, which provided one third of the national electricity output while preventing the disposal to the environment of hundreds of tons of harmful greenhouse gases.

Furthermore, we have reached important stages of the plant’s two major projects - the thermal power uprate to 104% of the 1000-MW reactor units, and the extension of their service life beyond the design life projected. These are issues of great significance not only for the economic prosperity of the Company, but also for the future of our national energy. Work on the projects is currently ongoing, and I hope that soon we will celebrate their successful completion. This will guarantee that Kozloduy NPP is further able to ensure a reliable and secure supply of electricity, affordable for the consumers.



DIMITAR ANGELOV
Chief Executive Officer



6 Блок



KOZLODUY NPP MANAGEMENT SYSTEM

In implementation of its mission to provide safe, efficient and environmentally friendly electricity generation at reasonably low prices to the country and region, Kozloduy NPP plc has set as its long-term objective the safe and reliable operation of the nuclear power units throughout their entire technically justified lifetime, in compliance with the licences issued by the regulatory bodies.

The following strategic projects have been launched in achieving the plant long-term objective:

- Project for Units 5 and 6 Lifetime Extension;
- Project for Units 5 and 6 Reactor Thermal Power Uprate of up to 104%.

The Company Management declares adherence to the following priorities in accomplishing its long-term objective:

- Highest level of safety;
- Effective and competitive electricity generation;
- Maintain certified, competent and motivated personnel;
- Financial stability.

Kozloduy NPP's management applies a Management System (MS), integrating all requirements to the nuclear power plant activities to achieve safe, efficient and environmentally friendly electricity generation of guaranteed quality and security of supplies in compliance with the relevant national and international standards. It incorporates all management aspects and provides for coordination in implementing the requirements for safety, health and safety at work, environment, quality and economy in such a way as to place safety as an overriding priority.

The objectives and tasks of each integrated area are manifested by the policies on safety, OHS, environmental management, quality, security, business and finance, training, and qualification of personnel in accordance with the objectives set.

Kozloduy NPP plc's MS has been developed:

- in compliance with GS-R-3 The Management System for Facilities and Activities, and other applicable IAEA standards and safety guidelines;
- by considering the requirements of BDS EN ISO 9001 Quality Management System. Requirements, BDS EN ISO 14001 Environment Management System, and BS OHSAS 18001 Occupational Health and Safety Management Systems;

- by applying national and international regulations applicable to Kozloduy NPP plc activity;

- by applying the process approach for control of activities implementation and their interfaces.

The Management System uses graded approach in applying the requirements for the implemented activities and their outcomes (products, services) for each process of Kozloduy NPP plc. The graded approach is based on activity and outcome assessment according to specified factors considering the following:

- Significance and complexity of each product item or activity;
- Influence of each product or activity on the top priority – safety, as well as health, environment, quality, security, economy;
- Possible consequences of an inadequately performed activity or a product non-conformance.

The Kozloduy NPP plc Management System has been developed to consider the specifics of the company organisational structure and management, the actual running processes and good practices, and it is focused on future development with the collaboration of the entire personnel. The modelling of the detailed levels of the process activities continued in 2015.

To comply with the normative and regulatory requirements, the nuclear facility operating utilities maintain quality assurance programmes to ensure the application of the MS requirements:

- Quality Assurance Programme for the safe operation of Kozloduy NPP Units 5 and 6;
- Quality Assurance Programme for the Spent Fuel Storage Facility safe operation (DSFSF and WSFSF).

Being a nuclear facility operating utility, Kozloduy NPP plc provides conditions for development and continuous enhancement of safety culture with safety receiving the highest priority and significance for the long-term success of the Company.

The current Management System of Kozloduy NPP plc is applied, evaluated and continuously improved to ensure safe, reliable and efficient operation of the nuclear facilities, guarantee projects delivery to high safety and quality standards, and implement the policies declared by Kozloduy NPP plc.

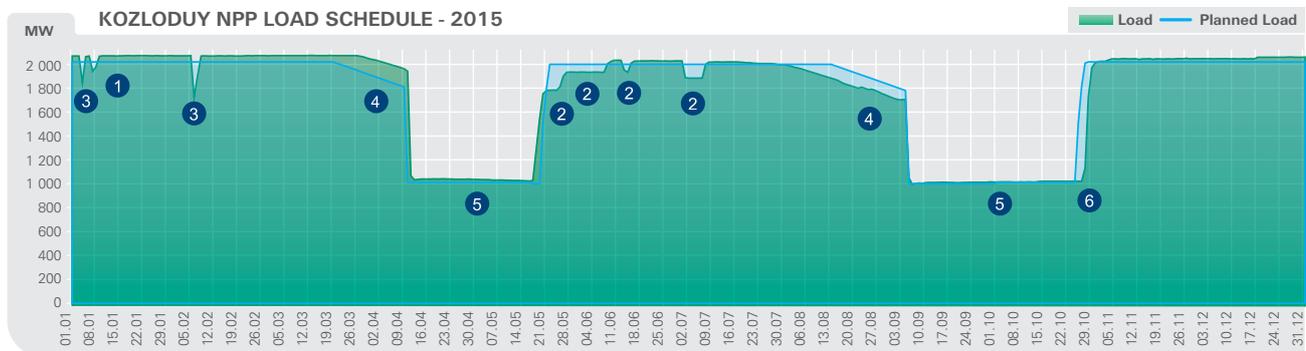


PRODUCTION AND MAINTENANCE PROGRAMMES IMPLEMENTATION

PRODUCTION PROGRAMME

Electricity generation at Kozloduy NPP plc throughout 2015 complied with the load schedule as agreed with the Electricity System Operator EAD.

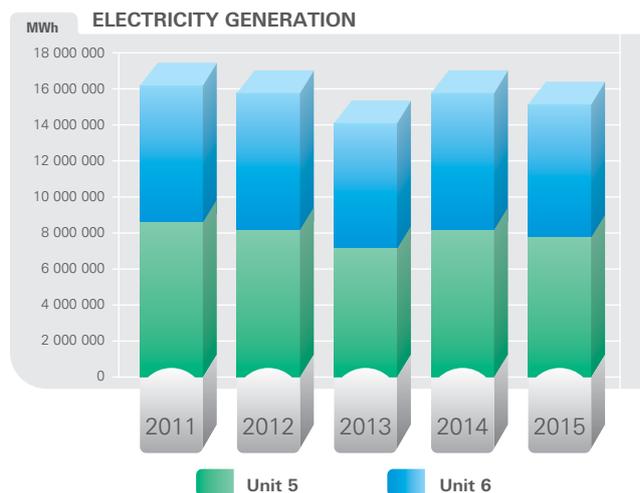
The nuclear power units were operated at the optimum load with minimum unplanned downtime. No deviations impacting safety and/or the environment were identified.



Key: 1 – Power deviation; 2 – Load dispatching restriction; 3 – Unplanned shutdown; 4 – Fuel coastdown operation; 5 – Refuelling outage; 6 – Outage delay

The 2015 electricity generation (gross) at Kozloduy NPP plc amounted to 15 379 097 MWh which constituted 31.33% of the national energy mix.

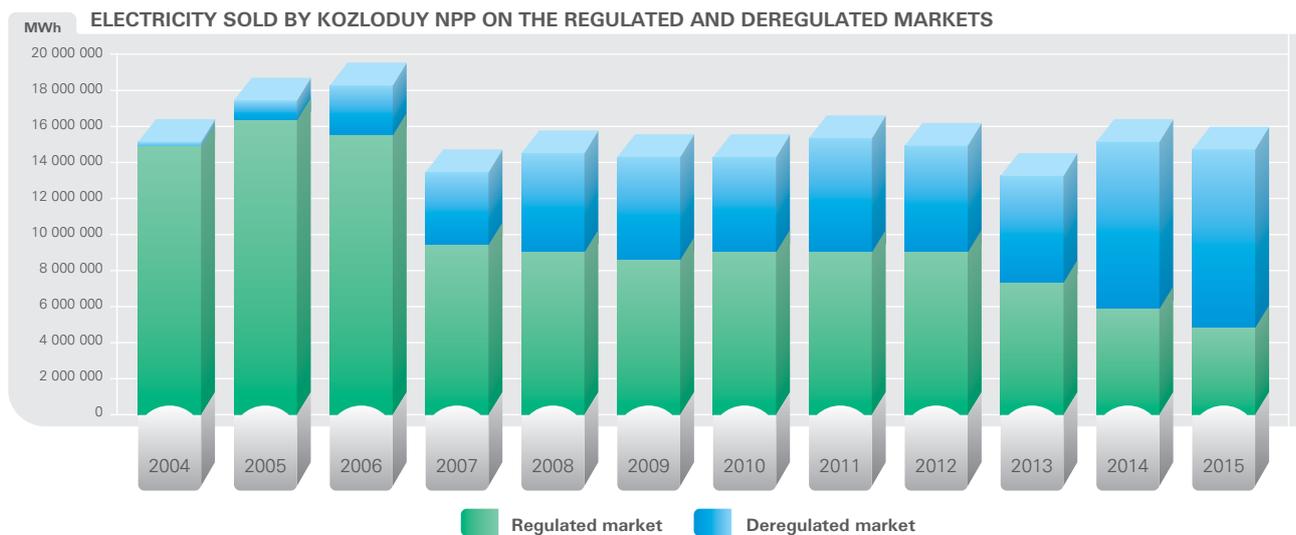
Since the commissioning of the first power unit in July 1974 to the end of 2015, Kozloduy NPP has generated 570 062 498 MWh of electricity in total, while adhering to all the safety requirements governing the operation of the nuclear facilities, and without any impact on the environment. Since its first start up in 1987 to the end of 2015, Unit 5 has generated 154 785 869 MWh of electricity. Unit 6 has generated 144 280 673 MWh since its commissioning in 1991.





In 2015, the net electricity supplied to the national grid by Kozloduy NPP amounted to 14 528 018 MWh, sold in compliance with the current regulations. In view of the tendency towards broadening the electricity market in Bulgaria, in 2015, Kozloduy NPP sold 33% of its net electricity production on the regulated market. The rest

of it was successfully sold on the deregulated market. Being the first Bulgarian company to sell on the deregulated market, and having successfully operated in a dynamic market environment for more than 10 years now, Kozloduy NPP remained the major, preferred, and most secure electricity supplier in 2015, too.



Apart from electricity, Kozloduy NPP also generates thermal power for the heating of on-site main and auxiliary facilities, as well as of the consumers in the town of Kozloduy.

The heat supplied to the end consumers (household and industrial ones) throughout 2015 amounted to 86 GWh.



SPECIFIC PERFORMANCE INDICATORS

The plant specific performance indicators reflect the complex impact of various factors on the production, reliability, and safety of the nuclear generating facilities.

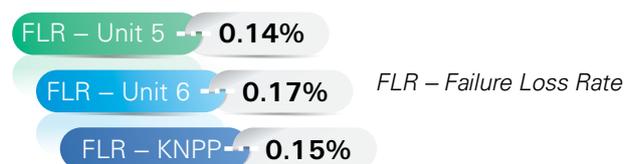
The main contributor to the Load Factor and Unit Capability Factor values in 2015 was the significantly longer planned downtime of Unit 6, compared to previous years, due to replacement of major components.

In accordance with the WANO criteria, a UCF above 85% is indicative of a stable and good level of efficiency and reliability in the operation of NPPs.

The WANO criteria establish UCLF and FLR values below 3% as an evidence of a high level of reliability and safety in the operation of NPPs, whereas the 2015 performance results of Kozloduy NPP were far more favourable. A small number of short-lived unplanned deviations in the operation of the plant and a 3-day delay in the outage of Unit 6 were registered.

The share of system restrictions as an external factor contributing to the underproduction and reduced load factor for the last couple of years remained unchanged.

The Kozloduy NPP performance indicator values in 2015 demonstrated a stable and high level of reliability and safety.





MAINTENANCE PROGRAMME

The activities planned for the 2015 maintenance and repair of the main and auxiliary components were performed to their full extent and with the required quality.

In order to support the operability of the power unit facilities as well as balance of plant, a number of maintenance activities are planned and performed annually. They comply with the technological processes, manufacturer's requirements, Technical Specification requirements for safe operation, and licensing requirements, and include:

- Preventive, minor, and intermediate maintenance and overhaul of mechanical equipment, electrical equipment, and instrumentation and control systems;
- Functional tests and inspections;
- Specialised inspections and diagnostic nondestructive testing;
- Scheduled annual outages with refuelling.

Most of the maintenance activities on the 1000-MW units are performed during refuelling outages in a well-organised and coordinated manner.

During the 2015 outages (37 and 53 calendar days for Units 5 and 6, respectively), apart from the relevant maintenance activities, a large number of measures were implemented under the programmes for plant life extension and thermal power uprate of Units 5 and 6.

A total of 55 measures were implemented on Unit 5 as part of the Plant Life Extension Programme: comprehensive assessment of the condition of individual components and systems, replacement and reconstruction of equipment, modernisation of the steam generator separation systems, and replacement of the generator rotor with a modified 1100-MW one.

A unique (in terms of technology and implementation) project for the replacement of the Unit 6 generator stator with a modified 1100-MW one was completed last year.

For the purpose of its successful implementation, a number of subprojects and preparatory and supporting activities were finalised before the outage (in the period from March 2014 to August 2015). These were related to the provision of additional lifting and handling equipment, strengthening of turbine hall structural elements, specialised training and drills for the staff members involved in the operations, preparation and conduct of the relevant tests, and generator operability inspections.

A large number of other reconstructions and modernisations were also implemented on Unit 6 providing for the stepwise technological upgrade to ensure operation at 104% thermal power, as well as plant life extension:

- Replacement of the coolant temperature measurement system in the primary loops;
- Replacement of the in-core detectors and reactor temperature monitoring sensors;
- Modernisation of the reactor control and protection system (RCPS) software, and the control rod drive power supply devices;
- Replacement of the power supply equipment at two of the safety system trains with new cabinets of the electrical distribution switchgear type;
- Replacement of the fourth stage blades of the turbine second low-pressure cylinder;
- Modernisation of the steam generator separation systems, etc.



SAFETY

LICENSING REGIME

Being an operator of nuclear installations, Kozloduy NPP is subject to state regulation by the Bulgarian Nuclear Regulatory Agency (BNRA) at the Council of Ministers of the Republic of Bulgaria. Specialised oversight is exercised by the Ministry of Environment and Water, the Ministry of Health, the Ministry of Regional Development and Public Works, the State Agency for Metrology and Technical Surveillance and the State Agency for National Security.

The operation of Units 5 and 6 and the Spent Nuclear Fuel Storage Facility is in compliance with the conditions of the operating licences issued by the BNRA.

In February 2015, an application for the issue of operating licence of the WWER-440 Dry Spent Nuclear Fuel Storage Facility was submitted to the Bulgarian Nuclear Regulatory Agency. In July 2015, the BNRA reviewed the facility preparedness to obtain the licence and the requirements set by the Agency were fulfilled by the end of the year.

In 2015, the Company proceeded with the second stage of its priority project for Units 5 and 6 operational lifetime extension. This stage includes implementation of measures resulting from the comprehensive assessment of the residual lifetime of the plant structures, systems and components (SSCs) (project Stage 1). The measures are included in the Plant Lifetime Extension Preparation Programmes, approved by the BNRA, and cover the following activities:

- replacement of the structures, systems and components with expired operational lifetime;
- plant modernisation for safety enhancement;
- performance of additional analyses and justification of the residual lifetime of the non-replaceable SSCs;
- correction of procedures for maintenance and repairs;
- repair of components with a view to their lifetime extension.

Semiannual progress review reports on the Units 5 and 6 Lifetime Extension Programmes were submitted to the BNRA.

An important aspect of the entire preparation of Kozloduy NPP for plant lifetime extension was the implementation of the project for Periodic Safety Review (PSR) at Units 5 and 6. The scope and manner of the PSR conduct were agreed with the BNRA and included the review and identification of the status of 14 safety contributors in compliance with the recommendations of the IAEA SSG-25 Specific Safety Guide, Vienna, 2013. In the past year, the phase implementation of project activities strictly following the adopted time-schedule continued.

The project documentation activities for making changes to the operating licences of units 5 and 6 as per the thermal power uprate project continued in 2015. The required engineering solutions for the power uprate comprehensive testing were implemented during the planned outage at Unit 6. The BNRA approved Comprehensive Programme for Testing of Unit 6 Reactor Installation at Thermal Power Uprate to 3120 MW saw its first stage completed. The final reports on the results from the performed testing were submitted to the BNRA.

In 2015, with Decree No. 79 of the Council of Ministers dated 6 April 2015, changes and amendments were introduced to the Regulation on the Terms and Procedure for Obtaining Vocational Qualification and the Procedure for Issuing of Licences for Specialised Training and of Individual Licences for the Use of Nuclear Power. In order to achieve compliance with the regulatory requirements, a procedure for changes to the licence for specialised training provided by the Personnel and Training Centre Department was launched, and this procedure was finalised with the issue of Order No. AA-04-138 dated 6 November 2015 of the BNRA Chairman.

Another important aspect of the licensing activity was the implementation of engineering solutions for modifications to



the structures, systems and components important to safety of the nuclear facilities. In 2015, the BNRA granted permits

for implementation of 39 engineering solutions at Units 5 and 6, and the SNFSF.

SAFETY CULTURE

The management of the safety culture activities at Kozloduy NPP plc is provided by a Safety Culture Committee. The work of the Committee is planned on annual basis and priority is given to the activities for establishing and sustaining values that encourage the continuous enhancement of safety culture. The safety culture activities in 2015 were focused on enhancement of the staff knowledge, the personal contribution awareness and the importance of everyone for safety assurance, maintaining up-to-date the safety culture documentation, and the work with contractors.

The second safety culture self-assessment conducted according to a methodology developed by the International Atomic Energy Agency was also finalised in the past year. The objective of this self-assessment was to review the safety culture already established in the organisation, assess and identify areas of interest related to safety. For the purpose of

self-assessment, the opinion of the personnel at all the plant structures and hierarchy levels was sought for.

Upon examination of the self-assessment results the conclusion is that Kozloduy NPP follows the safety rules and requirements, which has also been confirmed by the numerous external and internal reviews conducted in recent years. The analysis of the self-assessment aimed at identifying good practices and performance, and possible weaknesses regarding the organisation and personnel in order to take additional action for improvement.

The self-assessment results were made public to both the plant management team and workers and employees through the plant intranet page.

The summarised results with the identified areas for improvement were used to develop a safety culture enhancement measure programme.

NUCLEAR SAFETY

In 2015, seven operating events were recorded at Kozloduy NPP and reported to the BNRA. All the events were classified Level "0", which is below the INES scale (events of no safety significance), including one reactor scram at Unit 6. Based on the causes identified during the analysis, corrective actions were identified and taken in order to prevent recurrence.

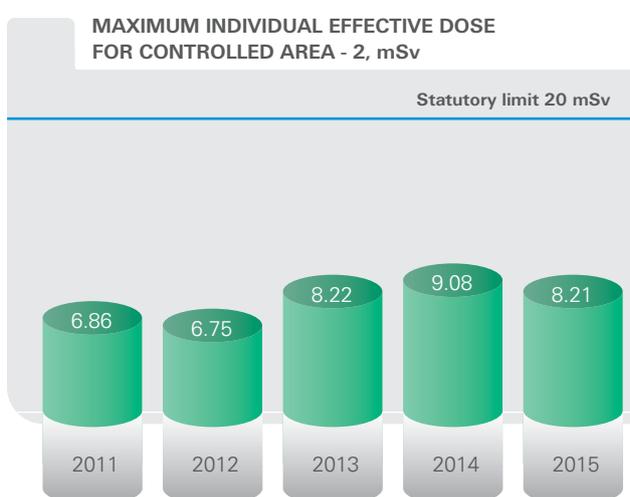
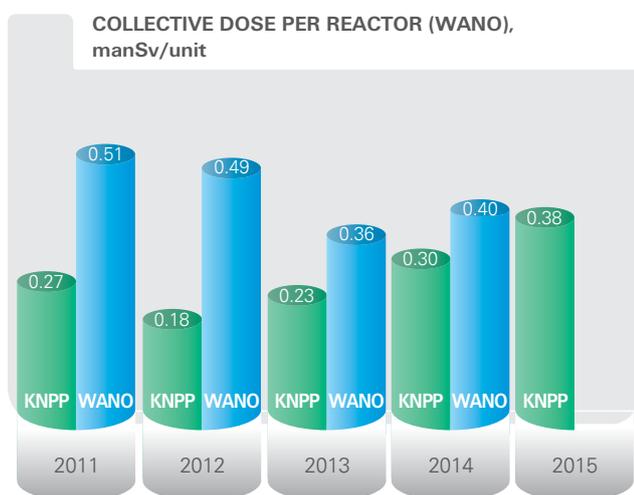


RADIATION PROTECTION

In order to sustain and enhance the level of radiation protection of the personnel and the public, Kozloduy NPP follows a policy of continuous application of the ALARA (As Low As Reasonably Achievable) principle. The principle is based on continuous improvement and optimisation of the measures to limit the harmful impact of ionising radiation. The successful implementation of this policy is based on the staff training and motivation, application of good practices from the plant and/or international operating experience, preliminary planning and preparation of annual outage activities, analysis of completed activities, and last but not least, reliable and efficient radiation monitoring. In the past year, a number of complicated maintenance operations related to the operational lifetime extension

and thermal power uprate to 104% were carried out in the controlled area of Units 5 and 6. Nevertheless, the annual individual and collective doses again placed Kozloduy NPP among nuclear power plants of a good track record in radiation protection.

The maximum individual dose for the past year was 8,21 mSv (41% of the statutory annual limit). The average collective dose for the two operating WWER-1000 units was 0.38 manSv/unit. According to data from the WANO (World Association of Nuclear Operators) Annual Reports, this value is lower compared to the average value of this indicator for a period of five years – 0.44 manSv/unit, in nuclear power plants with pressurised water reactors (PWR).



RADIATION MONITORING OF DISCHARGES TO THE ENVIRONMENT

Every year, the radiation monitoring results confirm the systematic and consistent efforts of Kozloduy NPP to strictly control the technological processes and prevent uncontrolled releases of radioactive substances to the environment. The monitoring of all airborne and liquid discharges to the environment is carried out in compliance with the highest international standards.

The discharges to the environment are monitored by the Bulgarian Nuclear Regulatory Agency, the Ministry of Environment and Water, and the National Centre of Radiobiology and Radiation Protection. They have approved the authorised radioactive substance limit concentrations in waste waters and air and, also, perform independent monitoring of the plant airborne and liquid discharges. In addition, Kozloduy NPP has defined controlled levels for every component in the discharges, which are significantly lower than the allowable levels.

In 2015, the concentration of radioactive substances in airborne discharges to the environment was also kept considerably below the maximum permissible limits. The amounts of discharged radioactive noble gases (RNG), radioactive particulates and iodine-131 (¹³¹I) – were, respectively, 0.14%, 0.10% and 0.015%, of the allowable levels.

Since 2010, Kozloduy NPP has also monitored the content of ¹⁴C and ³H in the exhaust air. In 2015, the discharges of ¹⁴C were 2.5% and ³H - 0.3% of the limits established at the plant.

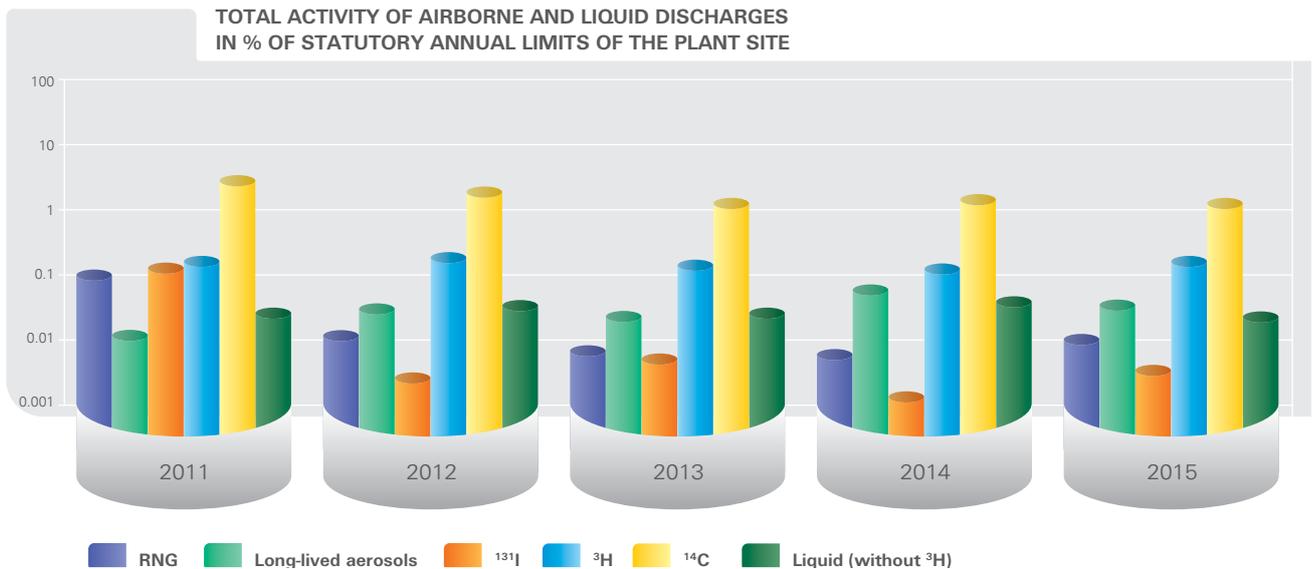
In the past 2015, the content of radioactive substances in the liquid effluents remained significantly below the reference levels. The total activity (without tritium) of the drain waters was 0.4% of the adopted reference level. The tritium activity in the liquid discharges was approximately 11% of the annual limits adopted.

The information about the radioactive discharges from

Kozloduy NPP is annually reported to the European Commission.

The low levels of radioactive discharges from Kozloduy NPP determine also the dose exposures of negligible radiological risk to the public in the plant area. Over the past years the

maximum individual effective dose for a critical group of the population has ranged between 4 and 7 μSv per year, and outlined a stable trend for the assessed radiation risk to meet the criterion of being negligibly low (lower than 10 $\mu\text{Sv/y}$).



RADIOACTIVE WASTE MANAGEMENT

The solid and liquid radioactive waste (RAW) generated from the operation of Kozloduy NPP is handed over for treatment to the Kozloduy Radioactive Waste Specialised Division (SD RAW).

In 2015, 600 m³ of compacted solid radioactive waste and 46 tons of non-compacted solid radioactive waste were generated. The entire quantity was handed over for treatment. The removal of solid RAW from temporary storage facilities located in the EP-2 Auxiliary Building-3 continued and a total

of 35 m³ of waste was handed over during the year.

The generated amount of liquid radioactive concentrate (still bottoms) from the radioactive contaminated water treatment amounted to 155 m³. The radioactive concentrate is handed over to SD RAW of Kozloduy for final treatment according to the RAW management comprehensive programme of Kozloduy NPP. The liquid RAW storage facilities indicated a trend towards increase in the tanks free volumes.

SPENT NUCLEAR FUEL MANAGEMENT

The spent nuclear fuel (SNF) at Kozloduy NPP is stored in compliance with all safety requirements. After being kept for a specified period in the at-the-reactor pools, the fuel is transferred to the 'pool type' spent fuel storage facility, which is common for all the units. The assemblies of spent nuclear fuel from Units 1, 2, 3, and 4 loaded in Constor 440/84 type casks are stored in the Dry Spent Fuel Storage Facility. Part of the spent fuel from Kozloduy NPP, following the storage in the SFSF, is returned to Russia for reprocessing and long-term storage.

During the planned outage at Unit 5, 42 fuel assemblies were transferred from the reactor to at-the-reactor pool - 5. Thirty-six assemblies from at-the-reactor pool - 5 were moved for

storage to the SFSF. During the refuelling outage of Unit 6, 48 fuel assemblies were moved to the at-the-reactor pool – 6, while 96 assemblies with spent fuel were transferred for wet storage from at-the reactor pool – 6 to the SFSF.

As of 31 December 2015, the SFSF stores a total of 3048 spent fuel assemblies from the two reactor types (2592 are from WWER-440 and 456 are from WWER -1000). There are 504 WWER-440 spent fuel assemblies stored in the Dry Spent Fuel Storage Facility.

In 2015, the BNRA, IAEA and EC carried out a total of nine nuclear fuel inspections at Units 5 and 6, the Wet Spent Fuel Storage Facility and and Dry Spent Fuel Storage Facility.

EMERGENCY PLANNING AND PREPAREDNESS

Maintaining of a high level of emergency planning and preparedness at Kozloduy NPP is of essential importance for providing the nuclear plant safety.

The main goal of emergency planning is to protect the personnel and the public from the harmful effects of ionising radiation in the event of a nuclear or radiological emergency. For this purpose, Kozloduy NPP has developed an emergency plan including a system of measures for effective limitation and mitigation of the consequences of potential accidents, natural disasters or calamities.

For better organisation and preparedness of the personnel, emergency drills and exercises are planned and implemented on an annual basis.

In 2015, two emergency drills were carried out at Kozloduy NPP, on the 25th March and the 30th September. The topic of the first exercise was Hydrazine Hydrate Spillage in the Hydrazine Hydrate Storage Area at EP-2. One of the main

objectives was to check the preparedness of the personnel to perform rescuing and recovery operations in case of emergency resulting from handling hazardous substances and mixtures on site. The second exercise was on the scenario of an Accident with a SG Header Rupture at Unit 6, Opening and Failure to Close of the Main Steam Line Relief Valve and Radioactivity Release to the Environment.

During the general exercise performed on the 12th November on the scenario of a Terrorist Attack on Kozloduy NPP and Compromising the Integrity of the Spent Fuel Storage Facility, the preparedness of emergency response teams and coordination with the relevant external structures and institutions was checked as per the Off-site Emergency Plan of Kozloduy NPP. The analysis of the exercise and drills showed that the personnel of Kozloduy NPP performs in an organised and adequate manner, possesses the required skills to act under varied emergency conditions.

PHYSICAL PROTECTION

Sustaining a high level of the Kozloduy NPP security system is among the priorities of the Company's management policy.

A number of activities were performed in 2015 to enhance the level of the plant physical protection. Analyses were conducted jointly with the authorised government agencies to assess and update nuclear site design basis threat in compliance with the latest revision of the Regulation on the Physical Protection of Nuclear Fuel, Nuclear Materials and Nuclear Facilities.

The automated access control system was optimised in accordance with the current international requirements. New check points of the access control system were arranged and new video monitors were installed providing their security with the help of the required technique. The access control system software was updated in compliance with the regulations and prescriptions of the regulator. Upon completion of the analysis of the implemented new rules for computer security enhancement, the security system was successfully tested.

For modernisation and optimisation of the telecommunication systems, new optic cable trays were laid between the

Kozloduy NPP site and the Bank Pumping Station; between Kozloduy NPP and Checkpoint 24; and between the Kozloduy NPP Police Department and Checkpoint 25. TETRA radio coverage is provided for the Emergency Response Centre rooms.

In November 2015, a general emergency exercise was conducted on the scenario of a Terrorist Attack on Kozloduy NPP and Compromising the Integrity of the Spent Fuel Storage Facility. The emergency teams that took part in the exercise demonstrated high skills in dealing with such a situation, good coordination and interaction among all structural units involved.

During the past 2015, Kozloduy NPP successfully completed the security culture self-assessment, which was the first one ever carried out on a nuclear power plant using the IAEA methodology. Based on the analysis conclusions, a plan was developed for security culture enhancement, an item of which is plant staff training in security issues scheduled for 2016. Practically, the self-assessment proved the applicability of the IAEA methodology in an operating nuclear power plant and was to the real benefit of Kozloduy NPP security culture enhancement.

FIRE SAFETY

Fire Safety at Kozloduy NPP is maintained in compliance with the current industrial international and national requirements. For that purpose, a number of engineering and organisational measures have been developed and applied ensuring the adequate protection of staff, facilities, and safety systems and reducing fire risk.

The high level of fire safety culture is maintained through regular training sessions for the operating staff and the fire

responsible persons of each administrative unit. The efficiency of the fire alarm and detection systems and fire suppression systems is ensured through continuous improvement, innovations, and implementation of additional engineering solutions. Last year saw the successful replacement of the external fire protection ring and installation of fire alarm and detection systems for the general plant facilities at Units 5 and 6. The activities for the visualisation of the fire alarm and



detection systems are still in progress. Once again, the level of fire safety at Kozloduy NPP, as well as the actions of the staff in charge of its maintenance, were highly rated during

the 2015 inspections conducted by the Vratsa Regional Directorate for Fire Safety and Civil Protection.

RADIOECOLOGICAL MONITORING

The purpose of radioecological monitoring at Kozloduy NPP is to monitor and analyse the environment radiation condition, and evaluate the local population dose exposure in accordance with the European and national regulations. The scope, range and monitored parameters are stipulated in a long-term programme agreed with the BNRA, National Centre of Radiobiology and Radiation Protection (NCRRP) at the Ministry of Health (MH), and the Executive Environment Agency (ExEA) at the Ministry of Environment and Water (MEW). The programme fully complies with the relevant national and European regulations including Article 35 of the EURATOM Treaty, Recommendations of EC 2000/473/ EURATOM and 2004/2/ EURATOM.

Since 2012, the laboratory of the Radioecological Monitoring Department has been accredited by the Bulgarian Office of Accreditation according to BDS EN ISO/IEC 17025:2006, which is an evidence of the competence and quality of the performed analyses. A parallel independent monitoring is carried out by the control bodies, which are the Executive Environment Agency and the National Centre of Radiobiology and Radiation Protection. The implementation of monitoring programmes is subject to regulatory oversight and supervision by the BNRA.

The monitored area includes the plant industrial site, the 2-km Precautionary Action Zone (PAZ), the Bulgarian area of the 30-km Urgent Protective Action Planning Zone (UPZ), and monitored points in the 100-km radius surrounding the plant in the Bulgarian territory. The subject of monitoring

are the basic environmental components – air, water, soil, vegetation, agricultural crops, milk, fish, etc. The radiation gamma background in the local settlements is continuously measured. Field measurements by means of a mobile laboratory are carried out.

The monitoring in 2015 involved more than 4 900 radioactivity analyses of over 2 600 samples, in total, from different environmental items. The quality of the performed analyses and measurements is ensured by annual participation in prestigious international inter-laboratory comparisons and proficiency testing involving reference samples.

The radiological indicator values resulting from the analyses of plant environmental samples in 2015 were within the background levels specific for the region. No impact of the nuclear power plant operation has been detected. The detected human-induced activity levels are many times below the permissible limits for the relevant radiological indicators and analysed samples. The radiological situation is fully favourable. The results of the internal radiation monitoring are verified by the independent radioecological studies under the programmes of the MEW and NCRRP.

The gamma background levels at the monitoring points on-site and within the 100-km zone for 2015 were fully comparable with, and did not deviate from the natural gamma background specific for the region.

There is an automated information system for radiological monitoring (AISRM) with a total of 13 local measuring posts in different populated areas to keep the public in the 30-km

zone informed. The data is displayed on information boards in public places and wirelessly transmitted on-line to the central station at Kozloduy NPP and thence to the ExEA. The system data is also in the frames of the natural background.

The human-induced atmospheric activity during the year was close to the natural background (average of 2.3 $\mu\text{Bq}/\text{m}^3$) which is many times below the permissible limits according to Regulation on Basic Standards for Radiation Protection (BSRP) of 2012.

No radiological effects due to the operation of Kozloduy NPP on the water of the Danube River and drinking water sources in the region were observed. The total beta activity of the water from natural ponds ranged between 0.020 and 0.15 Bq/l, which is only 30% of the maximum permissible limit of 0.5 Bq/l stipulated in Regulation H-4/2012. The content of tritium in the samples from the open ponds is around the Minimum Detectable Activity (MDA) of up to 7.5 Bq/l.

The radiological condition of drinking water complies with the health standards (Regulation No. 9 of 16 March 2001). The total beta activity measured in the regional drinking water sources ranges between 0.024 and 0.17 Bq/l. Tritium above the MDA has not been detected (average of 2.6 Bq/l).

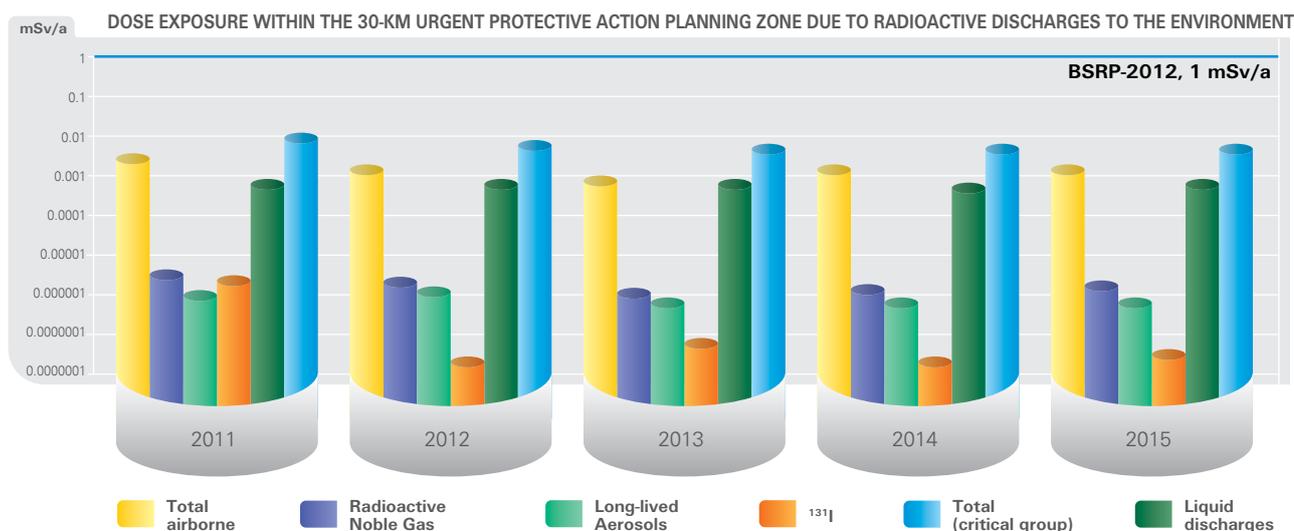
The human-induced soil activity has not been affected by the operation of Kozloduy NPP. In 2015, the activity of ^{137}Cs varied to 45 Bq/kg, the average value being 10 Bq/kg. This percentage is lower than the average value for the country. The activity of ^{90}Sr ranged between 0.32 and 4.4 Bq/kg, which is typical for the soils in this geographic region. The human-induced activity in the vegetation studied was within the standard limits – ^{137}Cs to 2.3 Bq/kg and ^{90}Sr – to 3.7 Bq/kg.

The radioactivity of staple foods produced in the region, such as milk, fish, and agricultural crops, remained within the normal radiation background levels, much below the relevant permissible limits (Regulation No. 10 of 2002).

PUBLIC DOSE EXPOSURE MONITORING

The total value for 2015 of the maximum individual effective dose of the public due to liquid and airborne discharges to the atmosphere taking into account the contribution of ^{14}C and ^3H was 5,3 $\mu\text{Sv}/\text{a}$. This is a negligible value compared to the annual public limit (1000 μSv) as regulated in the Basic Standards for Radiation Protection Regulation, State Gazette, Issue 76 of 2012, and is about 400 times below the natural radiation background exposure for the country. The results are similar to those of a number of nuclear power plants in the European Union (European Commission Radiation Protection No 176, 2013). The collective dose to the public within the 30-km Urgent Protective Action Planning Zone of

Kozloduy NPP is 0.031 manSv/a. The normalised collective dose of 0.018 manSv/GW.a, was comparable to the average values reported for PWR reactors worldwide (UNSCEAR). For calculating the additional public dose exposure due to radioactive discharges from the plant to the environment, verified and validated modelling codes for evaluation, based on the CREAM methodology adopted by the European Union and adapted to the geographical and hydrological specifics of the Kozloduy NPP area are applied. The low levels of radioactive discharges from Kozloduy NPP determine dose exposures of negligible radiological risk to the public in the plant area.



ENVIRONMENTAL MANAGEMENT – NON-RADIOLOGICAL ASPECTS

The management of the environmental non-radiological aspects at Kozloduy NPP is an integral part of the Company Integrated Management System and is aimed at achieving and maintaining compliance with the applicable regulations in the field of environmental protection.

The plant is a holder of all the required permits in compliance with the Environmental Protection Act including the transport and disposal of non-radioactive waste, water usage, discharge of waste waters, greenhouse gas emissions, and activities with hazardous chemical substances. In 2015, all conditions and measures in the issued licences were fulfilled. The fees payable according to the Water Act were promptly disbursed and the required information, reports and papers prepared.

All the planned samples from surface, underground and waste waters were analysed according to the Programme for Plant Monitoring of Waters during the Operation of Kozloduy NPP and the Programme for Plant Non-radiological Monitoring of Landfill for Non-radioactive Household and Industrial Waste. The analyses were carried out by accredited laboratories of the Vratsa Regional Executive Agency for Environmental Protection, the Engineering Chemistry Section (Quality Division) and the Radioecological Monitoring Department (Safety Division). The results from the analyses of about 3,000 water samples showed no rising trend in values of the monitored indicators. There were no recorded values exceeding the permissible limits resulting from the operation of Kozloduy NPP, and the values are close to those from the previous years. The annual report on the results from the plant non-radiological environmental monitoring in the area of Kozloduy NPP was prepared and submitted to the Executive Environment Agency and the Vratsa Regional Inspectorate of Environment and Water.

In compliance with the operating licence for a plant of high

risk potential, an emergency response plan of Kozloduy NPP plc for actions in the event of a large accident involving hazardous chemicals was validated.

In 2015, pursuant to the programme for non-radioactive waste management activities, a system for separate collection of metal, glass, plastic and paper packaging was introduced. Seventy special containers were purchased and placed in the plant main buildings. About 3.5 tons of hazardous waste was handed over to licensed external organisations for further treatment. A contract was signed for clearing construction debris from the area surrounding Kozloduy NPP, and the contractual works are to be launched in 2016.

At the end of 2015, the fill-up of the first stage of the plant landfill for non-radioactive waste and industrial waste was completed. The second stage of the landfill with scheduled operating lifetime by 2031 was prepared for use.

No deviations were identified during the eight inspections in 2015 carried out by the Vratsa Regional Inspectorate of Environment and Water, and thirteen inspections of the Danube Region Water Basin Directorate in Pleven.

Emissions of greenhouse gases saved in 2015 by Kozloduy NPP compared with conventional thermal power plants (in thousand tons)



OCCUPATIONAL HEALTH AND SAFETY

Kozloduy NPP plc has deliberately pursued a policy of strict adherence to the requirements of effective national laws and regulations on health and safety at work. Risk assessment programmes, harmonised with the IAEA recommendations, international practices, and national regulations are implemented at the nuclear power plant. The programmes address all activities related to the industrial safety and obligations arising from the Health and Safety at Work Act (HSWA) and relevant statutory instruments. An important point is the focus on prevention and encouragement of safety enhancement and employee healthcare solutions. Consistent efforts are made to maintain personnel training, and awareness of abiding by the occupational health and safety rules.

Working environment parameters are periodically measured by laboratories to eliminate or minimize unhealthy agents. Compliance with regulations is assessed and corrective actions prescribed, if necessary. The employees of Kozloduy NPP are provided with personal protective equipment, free protective food, reduced working hours, and compulsory work injury insurance of groups of workers subject to high risks.

The KNPP industrial injury indicators are continuously maintained at low values. The plant industrial injury rate was 0.24 for the past year, which is significantly below the average for the industrial sector – 1.46, or the average for the country – 0.68.



PROGRESS ON THE PROJECT OF KOZLODUY NPP UNITS 5 AND 6 LIFETIME EXTENSION

The results from the analyses performed following the large-scale modernisation (1999 – 2008) of Units 5 and 6, demonstrated a high level of nuclear, radiation and technological safety, commensurate with that of the best nuclear power plants worldwide. The design and operational practices proved their conformity with the requirements of the national legislation and the IAEA international safety standards. Based on the conclusions drawn, and in compliance with relevant international practices, Kozloduy NPP has launched preparations for extending the service life of Units 5 and 6.

Pursuant to the Act on the Safe Use of Nuclear Energy, and the currently effective Operating Licences of Units 5 and 6, the Bulgarian Nuclear Regulatory Agency (BNRA) has defined the requirements that need to be fulfilled if the plant plans on operating the units beyond their design lifetime. In this connection, Kozloduy NPP has put in place the necessary arrangements to meet the requirements, and started the implementation of the project for Kozloduy NPP Units 5 and 6 Lifetime Extension.

The project activities have been scheduled for delivery in two major stages:

Stage 1: Comprehensive Assessment of the Actual Condition and Residual Lifetime of the Equipment and Facilities of Units 5 and 6 at Kozloduy NPP. This stage was completed over the years 2012 – 2014 by contractors with adequate experience in similar projects within the European Union. The methodology used corresponded to the high level of performance expected from an EU member country, and ensured indisputable evidence justifying the Units 5 and 6 lifetime extension.

Stage 2: Implementation of the Preparatory Programmes for Kozloduy NPP Units 5 and 6 Lifetime Extension
The second stage of the project draws extensively on the

results and recommendations of Stage 1 and comprises:

- development, approval and agreement with the BNRA of the Programmes for the two units;
- implementation of the actions scheduled in the Programmes, namely organisational, technical and methodological activities for extending the operating life of Units 5 and 6, while providing due justification of the long term operation timeframes.

Kozloduy NPP has prepared a project management plan for Units 5 and 6 Lifetime Extension Stage 2, covering the scope of activities, resources required, timelines, stages and deliverables. A great number of the measures have been integrated in the annual outage schedules, and form part of the respective programmes as per the BNRA requirements:

- Preparatory Programme for Unit 5 Service Life Extension; performance timelimits 2014 – 2017;
- Preparatory Programme for Unit 6 Service Life Extension; performance timelimits 2016 – 2019.

The measures concerning both units have been allocated in five areas, taking into account their specific applicability area and functional principle:

- Area 1 – Mechanical equipment (ME);
- Area 2 – Electrical equipment and instrumentation and control systems (EE and I&C);
- Area 3 – Civil Structures (CS);
- Area 4 – Measures ensuing from the comprehensive assessment and residual life evaluation of structures, systems and components (SSCs), for immediate and periodic implementation;
- Area 5 – Measures in the wake of the SSCs comprehensive assessment and residual life evaluation, projected for the next licensing period.

The measures currently in progress are allocated in the following groups:



- group A – replacement of SSCs;
- group B – modernisation or rehabilitation of SSCs;
- group C – additional residual lifetime assessments and time limited ageing analyses;
- group D – activities within the maintenance and repair operations;
- group E – lifetime characteristics management through modifications of the operating modes over the long-term operation period.

Regarding unit 5, a total of 265 measures have been envisaged and included in the project management Plan for Service Life Extension. For implementing the activities on the key measures, a contract has been awarded to a Consortium comprising ZAO Rusatom Service, OAD Concern Rosenergoatom, and Electricite de France (EDF) with the subject of Development of a Justification for KNPP Unit 5 Lifetime Extension to 60 Years. The activities include analyses, calculations, time-limited ageing analyses for major and auxiliary equipment of the reactor plant, assessment of the containment, the reactor building, diesel generator stations (DGS) and cable ducts between DGS and the reactor building, as well as the underground trunk pipelines, spray ponds, etc.

Regarding unit 6, a total of 228 measures have been envisaged and included in its project management Plan for Service Life Extension.

To complete the activities of the second stage of the plant life extension project, and carry out the key measures involving analyses, calculations, time-limited ageing analyses for major and auxiliary equipment of the unit 6 reactor plant, Kozloduy NPP has placed a contract with the Consortium

of Rusatom Service - Risk Engineering. The contract scope covers measures for assessment of the containment, the reactor and DGS buildings.

During the 2016 outage of unit 5, the condition of the turbine and other plant elements will be inspected.

The assessment of the programmes for in-service inspection and evaluation of the status of the unit 5 secondary circuit structures, systems and equipment have been performed as per the contract of Kozloduy NPP with AO Rusatom Service. The outstanding activities include safety analysis, calculations and time-limited ageing analysis of the residual life of SSCs important to safety and to the electricity generation.

The arrangements in place at Kozloduy NPP permit the simultaneous performance of the measures projected for both Units 5 and 6, while exercising strict control on the activities currently in progress as per the Programmes approved. Optimal coordination is ensured among the activities undertaken by the plant structures and the outside organisations contracted. The work process includes interaction with the Bulgarian Nuclear Regulatory Agency which monitors the compliance with the legislative requirements, coordinates and issues permits for design modifications, agrees work reports and programmes generated from the activities carried out at Stages 1 and 2 for the two units. The Agency inspects the existing project management arrangements, the financial and human resources provided, and the activities' performance control measures envisaged.

The activities for Units 5 and 6 Service Life Extension have been self-financed by Kozloduy NPP.



INVESTMENT PROGRAMME

In 2015, Kozloduy NPP invested substantial financial resources in projects related to the accomplishment of the strategic objectives for Units 5 and 6 Lifetime Extension and Reactor Thermal Power Uprate of up to 104%. A series of measures on plant safety sustaining and enhancing including measures under the programme for implementation of the recommendations of stress tests conducted at the nuclear facilities of Kozloduy NPP were taken in accordance with the Act on the Safe Use of Nuclear Energy, and the current operating licences.

The total amount invested under the 2015 Investment Programme was BGN 110.473 million self-financing with a view to implementing the following priority projects:

Units 5 and 6 Lifetime Extension

The project-related costs amounted to BGN 30.192 million, financing the implementation of the following important measures: procurement and replacement of check valves for the safety systems and systems important to safety; lifetime extension of the existing hydraulic snubbers; procurement of in-core detector assemblies and thermal control flat ribbon cables for Units 5 and 6; design, procurement and installation of 0.4 kV power supply cabinets replacing the three-phase distribution cabinets for the safety systems at Units 5 and 6, and BOP switchgears; modernisation and procurement of reactor coolant pump spare parts; procurement of pneumocylinders for isolating pressure-operated valves of Units 5 and 6, etc.

Reactor Thermal Power Uprate of up to 104%

The sum accounted for the project implementation amounted to BGN 25.684 million.

In accordance with the updated integrated concept, the activities for transition and getting adjusted to operation at uprated power level were provisionally subdivided in stages including short-term and long-term activities. The short-term

measures implementation will enable power uprate overall testing to be conducted, while the long-term measures implementation will enable the operation at uprated power level.

The short-term measures include additional analysis performance to justify the units' safe operation at uprated power level, and measures taken to provide for conditions for power uprate overall tests performance involving changes in structures, systems and components. The following actions were successfully completed: design of the new coolant temperature measurement system in the primary loops of Units 5 and 6, and its installation on Unit 6; modification of the hardware and software of the reactor trip system and the automated reactor-power regulator, preparation of the documentation for modernisation of the steam generator separation system for ensuring the design steam humidity during operation at uprated power level. The first stage of the separation system modernisation of the four steam generators (SGs) at Unit 5, and the second stage of the modernisation of Unit 6 first and fourth SGs was completed in the course of the 2015 Units' outages. Functional tests of the separation system of both Units were conducted.

The long-term activities for modification of major equipment SSCs include as follows:

- Manufacturing, transport and supply to site of a retrofitted high pressure cylinder flow section of the K-1000-60/1500-2 turbine, to ensure the turbine generator 9 operation at 1100-MW rated power – all the documents for tender procedure initiation have been prepared;
- Design, supply and installation of electric double girder overhead bridge cranes, with Q = 160/20t crabs for Units 5 and 6 Turbine Halls. A 160-t crane was installed in the Unit 6 Turbine Hall.
- Procurement and installation of new stators for the 1100-MW generators. The new stator was installed on Unit 6 during



the 2015 annual outage. Regarding Unit 5, a contract was signed for the manufacture of a new stator and retrofitting of the generator rotor.

Measures resulting from the 2011 Stress Tests and the National Action Plan following tests completion

The Project adheres to the areas subject to reassessment within the framework of the stress tests conducted, and the additional measures as per the National Action Plan.

The investments in this project implementation totalled BGN 1.957 million. The measures include: severe accident phenomena assessment for Units 5 and 6 spent fuel pools; design, procurement and installation of the 5,6 UL15 system for maintaining acceptable water levels and avoiding emergency control room flooding; optimisation of the 5, 6UV40D01+D06 temperature mode for containment penetrations cooling; other measures resulting from the stress tests completed.

Activities aimed at safety enhancement, fulfilment of licensing conditions and regulatory document requirements

The purpose of the project is to implement activities ensuring the provision of nuclear safety, radiation protection and environmental protection during the nuclear power units' operation and radioactive materials management at KNPP.

In 2015, BGN 17.155 million were invested in:

- Upgrading of RTM860TS body contamination monitors;
- Provision of additional equipment for the spent fuel storage facility (SFSF);
- Upgrading of the SFSF radiation monitoring system.

Investment activities for routine maintenance of the nuclear power Units, on-site auxiliary facilities and infrastructure

In 2015, BGN 35.485 million were invested in activities related to major and auxiliary facilities maintenance to provide for the normal operation of the balance-of-plant facilities supporting the electricity generation process:

- Retrofitting of the existing equipment not included in the measures under the major investment projects;
- Replacement of equipment with expired lifetime;
- Implementation of the control bodies' recommendations and regulatory document requirements;
- Measures related to the Kozloduy NPP sites' physical security;
- Replacement of heat-supply system degraded sections in the town of Kozloduy;
- Activities related to the maintenance and refurbishment of R&R and other types of facilities.

Among the more significant project measures were the following:

- Retrofitting of Auxiliary Building-3 instrumentation and control systems;
- Supply of tensioning devices for the primary side major equipment: a contract was completed for design, manufacture and procurement of a spare stud tensioner for the RPV main flange;
- Development and completion of a project on the reconstruction and retrofitting of the Discharge Water Treatment Facility, etc.

The long-term assets set in operation in 2015 totalled BGN 152.155 million. Five activities received the approval of the State Acceptance Committee.



FINANCIAL PERFORMANCE

The 2015 financial and economic results are indicative of the Kozloduy NPP successful performance throughout the year. This was demonstrated by the following indicators: electricity sales income, sales profitability, solvency level, and capacity to meet the current and long-term commitments through Company's own funds.

The Company's after-tax income amounted to BGN 82 million which was 4 million above the previous year's figure. The financial result was constituted by the BGN 112 million profit from continuing operations, and BGN 30 million loss from discontinued operations. The loss from discontinued operations resulted from accrued provisions for the management of spent nuclear fuel from the 440-MW Units 1-4 pursuant to the Strategy for Management of Spent Nuclear Fuel and Radioactive Waste, covering the period until 2030, and Company's contractual commitments for the transport of SNF from the 440-MW units for storage and reprocessing in Russia.

The total revenue of Kozloduy NPP plc for 2015 amounted to BGN 851 million which was comparable to the figure for 2014 – BGN 850 million. The electricity sales income amounted to BGN 825 million (97% in the income structure) and played a key role in the financial and economic performance of the Company. The reported figures were considerably affected by the longer outage downtime resulting from activities related to the projects for plant life extension and thermal power uprate, as well as by the load dispatching restrictions due to the reduced electricity demand.

The income from regulated price sales in 2015 was BGN 61 million less than the previous year's figure. The difference was due to the 1 125 215 MWh drop in the electricity sales and the lower regulated price compared to the previous regulatory period.

The income from deregulated market electricity sales

amounted to BGN 686 million compared to BGN 625 million for 2014. This income growth resulted from the 7% increase in the share of deregulated market sales, and 2% increase in the average market prices (BGN 69.32 per MWh in 2014 and BGN 70.83 per MWh in 2015).

Due to the Balancing Electricity Market launched on 1 June 2014, and the obligations of Kozloduy NPP plc as a participant in this market, in accordance with the Electricity Market Rules, the Company concluded contracts to purchase electricity deficits and sell surplus electricity in order to compensate for grid imbalances. This led to BGN 4.7 million drop in the net income from electricity sales constituted by the BGN 0.364 million surplus sales of balancing electricity and BGN 5 million deficit purchases of balancing electricity.

The total operating costs for 2015 exceeded by BGN 26 million (4%) the 2014 figure. The increase was driven by two key factors: increase of the Company's variable costs based on the obligation of Kozloduy NPP plc to allocate monthly payments of 5% of the income from electricity sales to the Electricity System Security Fund, enforced by the Amendment to the Energy Act of 24 July 2015; and growth of the service costs in respect of the Contract for drafting of a justification for the Kozloduy NPP Unit 5 life extension.

The effective management of cash flows throughout the year and regular proceeds from electricity sales on the deregulated market facilitated own funding in a timely manner of current and long-term Company's commitments.

In 2015, Kozloduy NPP plc effected payment without delay of all due instalments under the contracts for supply of nuclear fuel, obligatory insurance costs, payments to the RAW, NFD (Nuclear Facilities Decommissioning), and ESS (Electricity System Security) Funds, payments to staff and social insurance institutions, payments under the maintenance and investment programmes contracts, etc. Financing was provided of the



Company's priority activities related to the safe operation of the nuclear facilities, and implementation of the investment projects for Units 5 and 6 lifetime extension and thermal power uprate. In 2015, BGN 279 million were paid to the state and municipal budgets. This included the payments of BGN 101 million to the RAW, NFD, and ESS Funds, BGN 136 million for taxes and fees, BGN 42 million for social security and health insurance contributions. As part of the measures undertaken by the Company to

increase the level of debt collectability, an agreement was concluded with NEK EAD for stretching out the payment of BGN 132 million which was paid in full by the end of 2015. As of 31 December 2015, the financial assets of Kozloduy NPP plc amounted to BGN 90 million, which was BGN 71 million above the previous year's figure. The higher level of debt collectability was mainly due to the increased share of sales on the deregulated market where normally delayed payments by clients are not acceptable.

FINANCIAL PERFORMANCE INDICATORS

N°	BGN thousand	Report 31.12.2015	Report 31.12.2014	Difference 2015/2014 (%)
c.1	c.2	c.3	c.4	c.5=(c.3/c.4)-1
1	Total operating income	851 105	850 413	0.08%
2	Total operating costs	(727 166)	(701 162)	3.71%
3	EBITDA ¹⁾	284 148	302 590	-6.09%
4	EBIT ²⁾	123 939	149 251	-16.96%
5	EBT ³⁾	121 909	145 364	-16.14%
6	EBIT margin	14.6%	17.6%	-17.03%
7	EBITDA margin	33.4%	35.6%	-6.17%
8	Total assets	3 424 589	2 380 591	43.85%
9	LTA ⁴⁾	2 836 880	1 791 039	58.39%
10	Working capital ⁵⁾	329 552	331 464	-0.58%
11	Cash	89 851	18 920	374.90%
12	Equity	2 657 738	1 678 821	58.31%
13	Return on equity	4.59%	8.66%	-47.02%
14	Return on assets	3.56%	6.11%	-41.70%

1) EBITDA – earnings before interest, taxes, depreciations and amortization

3) EBT – earnings before taxes;

5) Working capital – current assets minus current liabilities

2) EBIT – earnings before interest and taxes;

4) LTA – long-term assets (long-term tangible assets + expenses on LTA acquisition);



STATEMENT OF FINANCIAL POSITION

	Assets	31 December 2015 BGN thousand	31 December 2014 BGN thousand
Non-current assets	Property, plant, and equipment	2 836 880	1 791 039
	Intangible assets	5 573	7 118
	Investment property	3 034	-
	Investments in subsidiaries	15 161	15 161
	Loans granted to related parties	17 090	18 990
	Other long-term receivables	3 630	4 618
	Available-for-sale financial assets	232	232
		Non-current assets	2 881 600
Current assets	Nuclear fuel	235 901	247 184
	Inventories	59 156	59 324
	Trade and other receivables	56 133	45 497
	Loans granted to related parties	2 860	2 367
	Related parties receivables	98 471	170 141
	Income tax receivables	617	-
	Cash and cash equivalents	89 851	18 920
		Current assets	542 989
	Total assets	3 424 589	2 380 591



STATEMENT OF FINANCIAL POSITION

	Equity		
Equity and liabilities	Share capital	196 493	165 607
	Legal reserves	16 561	15 385
	Revaluation reserve of non-financial assets	1 385 905	429 303
	Reserve from remeasurements of defined benefit liability	(19 883)	(5 961)
	Other reserves	984 126	984 126
	Retained earnings	94 536	90 361
	Total equity	2 657 738	1 678 821
	Liabilities		
Non-current liabilities	Loans	147 788	192 038
	Retentions on construction contracts	1 471	1 393
	Financing	190 689	190 737
	Liabilities for employee retirement benefits	24 375	16 062
	Deferred tax liabilities	189 091	89 571
	Non-current liabilities	553 414	489 801
Current liabilities	Trade and other payables	103 853	142 961
	Related party payables	11 377	2 265
	Loans	46 058	46 491
	Financing	1 047	1 456
	Retentions on construction contracts	5 776	5 742
	Liabilities for employee retirement benefits	15 384	12 029
	Income tax liabilities	-	1 025
	SNF provision	29 942	-
Current liabilities	213 437	211 969	
Total liabilities	766 851	701 770	
Total equity and liabilities	3 424 589	2 380 591	



**STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
FOR THE YEAR ENDED 31 DECEMBER**

	2015	2014
	BGN thousand	BGN thousand
Revenue from electricity sales	825 181	829 970
Revenue from heat sales	2 026	2 037
Sales Revenue	827 207	832 007
Financing income	1 006	1 213
Revenue from sales of services, goods, and other sales	22 892	17 193
Material costs	(159 156)	(154 579)
Hired services costs	(117 141)	(93 712)
Staff costs	(184 463)	(187 882)
Depreciation and amortization	(160 209)	(153 339)
Other costs	(115 674)	(101 105)
Changes in work in progress	8 935	(10 856)
Acquisition of machinery, facilities, and equipment under business activity	542	311
Operating profit	123 939	149 251
Financial costs	(4 562)	(5 983)
Financial income	2 532	2 096
Profit before tax	121 909	145 364
Income tax expense	(9 518)	(9 108)
Profit for the year from continuing operations	112 391	136 256
Loss for the year from discontinued operations	(29 957)	(58 532)
Profit for the year	82 434	77 724
Other comprehensive income:		
Items that will not be reclassified subsequently to profit or loss:		
Revaluation of defined benefit liability	(15 467)	513
Revaluation of non-financial assets	1 063 034	-
Income tax related to items not reclassified subsequently to profit or loss	(104 756)	(51)
Other comprehensive income for the year, net of tax	942 811	462
Total comprehensive income for the year	1 025 245	78 186



CASH FLOW STATEMENT FOR THE YEAR ENDED 31 DECEMBER

	2015 BGN thousand	2014 BGN thousand
Operating activities		
Proceeds from customers	941 056	917 405
Payments to suppliers	(295 914)	(251 493)
Payments to staff and social insurance institutions	(183 654)	(169 843)
Payments for fees, commissions, and the like	(192)	(51)
Payments to the RAW, NFD, and ESS Funds	(100 556)	(85 939)
Income taxes received/(paid)	(16 394)	(9 901)
Cash flows related to other taxes and payments to the State Budget	(101 821)	(129 060)
Insurance-related cash flows	(10 706)	(9 901)
Other cash flows from operating activities	54 665	(7 986)
Net cash flows from continuing operations	286 484	253 231
Net cash flows from discontinued operations	(15)	(28 812)
Net cash flows from operating activities	286 469	224 419
Investing activities		
Acquisition of property, machinery, and facilities	(173 474)	(157 272)
Proceeds from sale of property, machinery, and facilities	3 200	18
Proceeds from loans	1 372	754
Interest received	531	266
Dividends received	712	255
Net cash flows from investment activities	(167 659)	(155 979)
Financing activities		
Repayments of loans	(44 251)	(44 251)
Interest paid	(3 628)	(5 449)
Dividends paid	-	(45 142)
Net cash flows from financing activities	(47 879)	(94 842)
Reclassification to other long-term receivables	-	(4 618)
Net change in cash and cash equivalents	70 931	(26 402)
Cash and cash equivalents at the beginning of the year	18 920	45 322
Cash and cash equivalents at the end of the year	89 851	18 920



INTERNATIONAL COOPERATION

Active international cooperation in the modern nuclear industry provides for the extensive popularisation and application of the best achievements of world experience in this sphere.

With this objective in mind, the plant regularly exchanges information with the International Atomic Energy Agency (IAEA), the World Association of Nuclear Operators, and a number of other international organisations, nuclear power plants, and leading nuclear energy companies. The WANO Peer Reviews are among the established effective tools for experience sharing among the nuclear power plants all over the world.

A follow-up peer review of Kozloduy NPP was conducted in June 2015 by WANO - MC (Moscow Centre). The objective was to measure the efficiency of the actions undertaken to implement the recommendations and suggestions made by the peer review of late 2013. The WANO - MC team was familiarised with the work of the nuclear power plant in the areas of organisation and administration, also: occupational safety, operations, maintenance, radiation protection, operational experience, training and qualification, fire protection, emergency planning and emergency preparedness. The reviewers quantitatively evaluated the progress in the areas of improvement. The peer review concluded with a high appreciation of Kozloduy NPP achievements, which is yet another guarantee for the public that the Bulgarian nuclear power plant has followed all the safety requirements and met the most stringent demands of nuclear industry.

Another form of that cooperation in the field of experience exchange was the WANO technical support mission (TSM). In February 2015, the Moscow Centre of the Association conducted a TSM on the topic of "Assessment of effectiveness of the measures taken by Kozloduy NPP to

enhance the quality of the operating staff walkdowns". At the end of the mission the experts noted the good status of facilities, systems and components, and the preparedness of the Bulgarian nuclear specialists to persist in maintaining and enhancing the Kozloduy NPP safety in the future.

From 9 to 11 November, 2015, an IAEA Workshop was conducted at Kozloduy NPP for the plant staff training on the forthcoming IAEA SALTO (Safety Aspects of Long Term Operation) Mission during the summer of 2016.

At the end of 2015, Kozloduy NPP hosted a preparatory workshop on the corporate peer review conduct methodology, with participation of BEH EAD representatives. The objective was to prepare the two companies for the coming corporate peer review of Kozloduy NPP PLC and BEH EAD by the Moscow Centre of WANO at the end of 2016.

Two additional benchmark missions under the WANO Cooperation Programme were conducted at Kozloduy NPP in November 2015. The first was dedicated to the practical acquaintance of a group of the Slovakian Mochovce NPP experts with the activities associated with the operation and maintenance of motor engines, especially of the fuel pumps and redundant diesel generator systems. During the second mission, the experts from JSC AER, (Russia), were familiarized with Kozloduy NPP policy and practices of foreign material exclusion, and how the plant applied the external operational experience (SOER and JIT) in the implementation of maintenance activities.

A confirmation of the active cooperation of Kozloduy NPP with WANO was the visit to the plant paid by Mr. Jacques Regaldo - Chairman of the Coordination Board of the World Association of Nuclear Operators, and Mr. Vasiliy Aksenov - Director of the WANO Moscow Centre.

The visit took place on 1 July, in response to the desire expressed by Mr. Jacques Regaldo to get first-hand



knowledge of the Bulgarian nuclear power plant, the achievements of its employees in ensuring high levels of safety and operational reliability of the nuclear facilities.

During the meetings with the plant management, the WANO leaders gained a detailed insight in the current plant status and the progress on the project for the 1000-MW Units 5 and 6 operational life extension. The fruitful long-term partnership between KNPP and WANO-MC was highlighted during the talks.

Last year, Kozloduy NPP representatives took part in the following missions: OSART, organised by IAEA at the Chashma NPP (Pakistan); IAEA SALTO peer review at the Tihange NPP (Belgium); WANO corporative peer review of

Slovenske Elektrarne AD (Slovenia); WANO peer review of the Pilgrim NPP (USA); the Bilibino NPP (Russia), and the Cernavoda NPP (Romania); in WANO Technical Support Missions at the Kudankulam NPP (India); the South Ukrainian NPP, the Kola NPP (Russia), and in other international forums. Throughout the year, Kozloduy NPP was actively involved in conducting a number of technical and working meetings, and workshops in connection with the plant membership in international and national non-governmental organisations, along with bilateral cooperation with other plants and specialised nuclear energy research and development, and regulatory institutions.



HUMAN RESOURCES MANAGEMENT

Kozloduy NPP has a long-standing history of investing efforts, care and resources in the management and development of the Company's most valuable resource - the human capital,

while applying the IAEA requirements and the best available practices worldwide.

PERSONNEL PROFILE

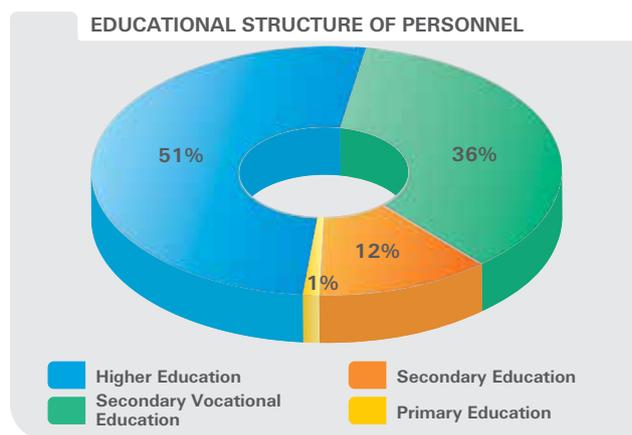
The trend towards retaining the envisaged staffing levels continued in 2015. In accordance with the existing staff recruitment and selection procedures, 220 workers and employees filled in the vacancies available throughout the year. The prime motivation factor to join the Kozloduy NPP remained the opportunities for professional development provided by the nuclear power plant (56% of the candidates). About 10% of all candidates in the selection process were plant staff, and 77.70% of the internal promotions involved workers and employees filling higher positions, which confirmed the effectiveness of the existing opportunities for career development.

Of all newcomers, 162 workers and employees were employed under contracts of indefinite duration, 50 - under fixed-term employment contracts (for reasons such as seasonal work; replacement of an employee temporarily absent from work, etc.) and another 8 workers and employees were employed under contracts of internship. More than half of the newcomers (52.27%) have higher educational background, and 39% were assigned to managerial positions or positions requiring high educational degree and qualification.

In 2015, a total of 219 workers and employees were discharged from the plant, 148 of which upon satisfying the retirement conditions, 45 – due to reaching the termination date of their probation or agreed period of time, and 26 – for other reasons.

The nuclear power plant is a high-tech company, thus imposing

high level requirements for the employees' education and training. Secondary education is the minimum educational level required for job candidates at Kozloduy NPP.



Nearly 87% of the Company's specialists have higher and secondary vocational education, while 73% of all the employees with higher education hold a master's degree. Another 27.17% of the Company's employees have an education level higher than the required one for the job. Kozloduy NPP has encouraged the staff education and qualification enhancement in terms of plant applicable specialties.

KOZLODUY NPP – A RESPONSIBLE EMPLOYER

The social policy for plant personnel is aimed at providing jobs corresponding to the employees' qualifications, relevant remuneration, occupational health and safety, health care services and medical aid, good living conditions, opportunities for organising cultural and sports events, and rest and recreation in their free time.

The Company provides for a number of social benefits for the employees such as group voluntary health insurance, additional voluntary pension insurance, medical services and regular medical checks, free food, prophylactic programmes, and a range of possibilities for sports and recreation, etc.

The prophylactic programmes were arranged in 5-day shifts all the year round in the plant-owned Ledenika Health and Recreational Complex located near the town of Vratsa. Workers and employees of all work categories enjoyed rest and improved their health at the Complex. A total of 656 present and former plant employees used the excellent recreational facilities of the Complex in 2015.

Kozloduy NPP has put up a modern Sports and Recreation Complex in the town of Kozloduy including indoor and outdoor swimming pools, fitness room, sauna, steam bath,

solarium, physiotherapy cabinets, beach volleyball court, beach volleyball mini-court etc. The sports activities of the plant workers and their children were encouraged. The Gymnastics, Sport and Tourism Club participated actively in different sports activities. Hundreds of power engineers are members of the football, volleyball, swimming, tourism, judo, or yoga sections, etc.

The House of Culture in the town of Kozloduy is a popular cultural centre where different performances are held. Children and adults attend the classes of piano, arts, theatre, ballet, folklore, vocal groups and foreign language.

The prestigious awards and major prizes won in a number of national and international events in 2015 is considered a recognition of the power engineers' efforts put in different creative activities and sports events in their spare time.

Taking care of the nuclear power plant employees continues even after their retirement. A Pensioners Club has been established and its members actively participate in the Company's events. The Club's initiatives were funded respectively within the annual social funds programme approved.

KOZLODUY NPP COMMUNITY OUTREACH

One of the priorities of the Kozloduy NPP corporate social responsibility is to assist the sustainable development of the Kozloduy Municipality and the nearest settlements where most of the plant employees live with their families. The nuclear power plant has supported cultural, education, sports, youth and social activities in the region for years.

A number of social initiatives of major significance were taken with the active partnership of the plant and power engineers personally, e.g. the Third UN Global Road Safety Week - SaveKidsLives, donation of books to cultural clubs in the neighbouring villages, cabinets equipment in the primary school of the town of Miziya bought with plant employees

endowments, support of social institutions in the region, and many others. A part of the initiatives were organised in cooperation with the Women in Nuclear - Bulgaria (WiN), whose initiatives Kozloduy NPP has traditionally supported. The plant Women Committee has regularly organised different charity events and all the charity donations serve noble causes. The money donated in 2015 was used for providing bed linen, teaching aids, gardening tools and equipment, electric appliances and presents for the children of the social centres in the villages of Borovan, Bardarski Geran, the town of Byala Slatina, etc.

TAKING CARE OF THE YOUNG GENERATION

As a socially responsible company, Kozloduy NPP pays a special attention to the young people and their future career development.

In 2015, the plant continued its long-term collaboration with a number of higher education institutions providing opportunities for students of different specialities applicable to the plant operations to participate in the individual paid and unpaid internship programmes.

The plant took part in career development forums of higher education institutions in order to promote the development opportunities it provides. Great interest was shown in the

plant's internship programmes and employment terms and conditions during the 2015 Internship Forum of the Technical University of Sofia, and the Career Days in the Faculty of Physics at the St. Kliment Ohridski Sofia University.

Kozloduy NPP traditionally took part in the National Initiative 'A Manager for a Day'.

The fact that about 50% of the newcomers in 2015 were individuals under 30, employed following a recruitment and selection procedure, is indicative of the interest of the young people in career development at the nuclear power plant.



WWER-1000 reactor full-scope simulator training

PERSONNEL TRAINING

Kozloduy NPP has established and applied a personnel training and qualification system in conformity with the international standards and state regulations. A Training Centre which provides the necessary conditions for conducting the required training has been established and maintained.

The Act on the Safe Use of Nuclear Energy requires that the specialized training for activities in nuclear facilities be delivered by a training organisation licensed by the regulatory body to provide for such services. The Kozloduy NPP Personnel and Training Centre Division is assigned the functions and responsibilities for the application of the

Licence for Conducting Specialized Training in Operations with Nuclear Facilities and Sources of Ionising Radiation issued to the Company.

The training process is organised in conformity with the priority set in the Company's Policy Statement to provide for licensed, competent and motivated personnel. This is meant to promote a high level of safety culture, develop a corporate culture where qualification plays a key role, effectively use and manage individual and corporate knowledge, stimulate the personnel to acquire the necessary knowledge, skills and positive attitude towards work.

TRAINING OF KOZLODUY NPP PERSONNEL

Kozloduy NPP conducts a compulsory specialized training for acquiring, maintaining, and improving the knowledge and skills related to the nuclear facilities' operation and maintenance. It is based on the systematic approach to training – a methodology internationally acclaimed and used in most of the nuclear power plants. The training required to perform a job and an independent job assignment is in accordance with initial training programmes with an individual training programme developed for each staff member. The knowledge and skills acquired through the initial training are consolidated, upgraded and further developed by means of continuing training conducted at the Training Centre, and on-site. Individual continuing training programmes are developed annually for the individuals at licensed positions whose work is related to nuclear safety and radiation protection. In 2015, 265 continuing training programmes and 150 individual initial

training programmes were developed and implemented. The training of the rest of the staff is organised and delivered using curriculum schedules for the different subjects and personnel groups. Over 25 curriculum schedules and 80 on-the-job training schedules were implemented in 2015 applying different training settings – classroom, simulator and/or in-service. Throughout the past year, a total of 1 140 training courses at the Training Centre and over 1 120 on-the-job trainings were organised and performed. Company employees also received 17 specialized trainings organised outside Kozloduy NPP. Overall, 2 755 plant employees attended 102 194 man-hours of specialised training of varying scope (subject matter and duration). Regulatory requirements for passing initial and continuing full-scope simulator (FSS) training are imposed on the operating personnel performing functions related to

the provision and control of nuclear safety – reactor operator, unit shift supervisor, plant shift supervisor, and reactor physicist. The initial simulator training

conducted in 2015 was 140 hours and the continuing simulator training was delivered in 1 300 training hours.

EXTERNAL ORGANISATIONS PERSONNEL TRAINING

In accordance with the regulations, the training requirements for both the Company's own personnel and the external organisations' personnel assigned to perform activities in nuclear facilities are the same.

In 2015, about 5 570 individuals from 157 external organisations attended the induction training courses

of: Introduction to KNPP to gain site access; Radiation Protection - for access to the controlled area; and training for acquiring certain qualifications in occupational safety, work with sources of ionising radiation, etc.

In 2015, internships and group practices for 37 students were arranged.

KNOWLEDGE MANAGEMENT

The knowledge management in Kozloduy NPP is based on the IAEA documents and complies with the current standards, criteria and international experience in the nuclear industry where special attention is paid to this valuable resource.

The knowledge management process in the nuclear plant is regulated in the Knowledge Management System which forms part of the training and knowledge management process. The risk of nuclear knowledge loss of experts working at the Kozloduy NPP and approaching retirement

is being assessed applying a Nuclear Knowledge Capture Methodology. The documents developed during the past year are supplemented with the required procedures and materials for the training of the specialists involved in the knowledge management process.

A part of the activities in this field is the exchange of information and transfer of knowledge of highly qualified nuclear energy experts who have already retired or left the plant.

PROVISION OF RESOURCES

The Training Centre has excellent training facilities for providing quality training - classrooms and conference rooms equipped with up-to-date training aids, computer-training rooms, mock-up hall, and workshops for professional training with real operating equipment. The rotating mechanisms room of the hands-on training workshop was refitted in 2015. A full-scope simulator for WWER-1000 reactor type is operated in the Training Centre to cover the regulatory

reactor operator preparation requirements. It is maintained in compliance with the current state of the reference Kozloduy NPP Unit 6. Therefore, 39 of the engineering solutions on Unit 6 were determined to be included in the FSS configuration throughout the year.

The scientific and technical literature digitizing continued throughout the year as well as the plant library stock enrichment.

INTERNATIONAL PROGRAMMES

In 2015, a consortium of 7 countries led by the Kozloduy NPP won a project under the European Commission Programme Horizon 2020. The project is entitled "Enhancement of training capabilities in WWER technology through establishment of WWER training academy – CORONA II" with a start date 01

September 2015 and three-year duration.

The national project on the technical cooperation programme with the IAEA BUL0010 Integrating of Cyber Learning Platform (CLP4NET) in the Kozloduy NPP plc training system was successfully completed at the end of the year.



PUBLIC RELATIONS

Open and transparent business presentation of the biggest electricity generating plant in Bulgaria, provision of timely and topical information about all aspects of the Company activities are the main principles applied by Kozloduy NPP in its communication process with the public.

The nuclear power plant has a long tradition in this respect - in 2015, the Information Centre of Kozloduy NPP celebrated its 25th anniversary. Established among the first of its kind in a Bulgarian industrial enterprise, it is recognized as a source of correct and timely information about both the operation of the Bulgarian nuclear power plant, and the promotion of nuclear power as a safe, reliable and environmentally benign source of electric energy. From this aspect, the documentary video films, the visits of different Kozloduy NPP site facilities, and the personal contacts with its experts that the Centre organises significantly enhance the information and knowledge of the Bulgarian and foreign visitors about the plant. Nearly 21 000 people visited Kozloduy NPP in the period 2005 – 2015. The past year was a successive one in keeping the tendency of kids, pupils and students comprising more than 50% of all the visitors. More than 1 800 visitors altogether were directly acquainted with the operation of the nuclear power plant. The Doors Open Day initiative traditionally enjoys a special interest and allows citizens from all over the country and abroad to touch on the working rhythm of the biggest power generating entity in the country. During the two Doors Open Days in June and November, people from Romania, Switzerland, and Italy; from the Bulgarian towns of Sofia, Plovdiv, Varna, Burgas, Gabrovo, Pleven, Blagoevgrad, Veliko Tarnovo, Pazardzhik,

Lovech, Yambol, Sliven, Vratsa, Etropole, Petrich, Velingrad, Krichim, etc., arrived at Kozloduy NPP.

In reply to the great interest of the visitors, modern interactive displays providing information about the Kozloduy NPP history, high technology facilities and their safe operation, were installed in the Information Centre in 2015.

Meetings, discussions, round tables, and other similar events represent other popular forms of presenting the history and achievements of the nuclear power plant. A workshop on the development of the nuclear energy in the country was conducted on April 17th for Sofia Technical University students and lecturers.

A key priority of the Kozloduy NPP communication activities are the company publications - books, booklets, leaflets, etc. In 2015, the company organ „Parva Atomna“ celebrated its first jubilee. It has turned into a peculiar chronicle of the Kozloduy NPP history. During these two decades and a half, the journal has preserved its key principles of objective presentation of the nuclear power plant activities in plain language for the mass audience, and dissemination of topical information about the implementation of projects, modernisations, and innovations in the nuclear energy, social policy, achievements of the staff, and many others.

The Kozloduy NPP internet site is an important source of information about plant activities. Besides the main information about the plant and nuclear energy, it publishes current electricity generation real-time data, press releases, tender notices, public procurements, vacancies, and so on. Last year, there were more than 500 000 visits of www.kznpp.org.





www.kznpp.org