

# Annual Report



# 2021





Dear readers,

Relentless professionalism, high accountability level, excellent performance results – this is how we can summarise the achievements of the nuclear power plant team in 2021. Regardless of the challenges and unprecedented restrictions imposed by the year-round pandemic, we successfully accomplished the objectives before us.

We provided all the conditions necessary for the stable and reliable operation of the power units. This asserted the position of Kozloduy NPP as base power supplier with zero carbon emissions, and the largest electricity producer in the country, generating 34.6% of the total national power output for the year. What is more, in 2021, Unit 5 reached the highest production result for its entire operational period, generating nearly 8.3 terawatt hours of electricity.

I am happy to share that our commitment to continuously enhance the safety and operational reliability of the nuclear facilities was highly appreciated by the reviewers during the WANO Design-informed Peer Review, and the IAEA SALTO mission. This is particularly important for us now, in the long-term operation period of Units 5 and 6 when Kozloduy NPP remains the basis for stability of the national energy system, and continues its contribution for sustainability and prosperity.

Bearing due responsibility to the community, all of us, the whole team of the Bulgarian nuclear power plant stay convinced that the results of our work confirm on a daily basis the need of further developing nuclear energy in the green transition process, in order to achieve the decarbonisation targets and contribute to a better future on the planet.

**Nasko Mihov**

Chief Executive Officer

# CLEAN ENERGY GENERATION



## ELECTRICITY GENERATION

In 2021, the nuclear power units of Kozloduy NPP EAD performed in conformity with the load schedule, with optimal loads and without any events affecting safety or the environment.

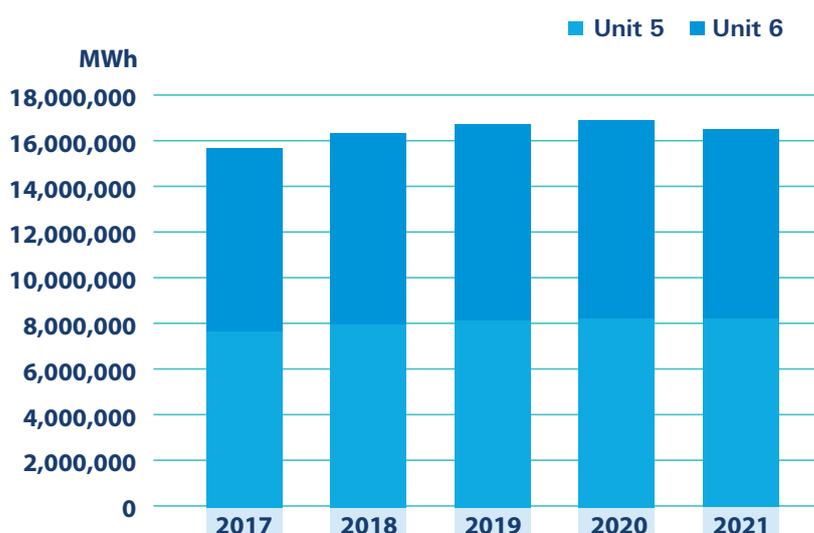
The plant produced 16,486,894 MWh of electricity. Thus, the share of electricity from nuclear was 34.6% of the national electricity generation for the reporting year.

Unit 5 achieved the annual production result of 8,295,108 MWh – the highest figure over its entire operational period. Since the first start-up in 1987, this unit has generated a total of 203,004,493 MWh.

The electricity output of Unit 6 in 2021 was 8,191,786 MWh, while the total figure since the commissioning in 1991 amounts to 193,176,619 MWh.

Since the commissioning of Unit 1 in July 1974 until the end of 2021, KNPP has generated 667,177,069 MWh of electrical power in total.

## ELECTRICITY GENERATED (GROSS)



IN 2021, UNIT 5 ACHIEVED THE HIGHEST ANNUAL PRODUCTION RESULT FOR ITS ENTIRE OPERATIONAL PERIOD.



## ELECTRICITY SOLD, BY MARKET SEGMENTS

In 2021, Kozloduy NPP supplied to the Bulgarian transmission system 15,650,833 MWh net active electric power which was sold in conformity with the pertinent national regulations.

According to the monthly quotas determined by the Energy and Water Regulatory Commission, 18.8% of the net energy generated went to the Public Supplier at regulated prices. The remaining portion of electricity was sold at the exchange market organised by the Independent Bulgarian Energy Exchange EAD (IBEX).

Kozloduy NPP produces also heat energy to cater for the houseloads of the facilities on-site, as well as provides heating to domestic and public consumers in the town of Kozloduy. In 2021, the end users received heating energy in the amount of 81,120 MWh.

# UNIT 5

**91.05** → LF (Load Factor), %, over a calendar time period

**88.40** → UCF – Unit Capability Factor, %

**0.42** → UCLF – Unit Capability Loss Factor, %

**0.30** → UA7 (Unplanned Reactor Scram Actuation/7000 hrs)

# UNIT 6

**89.92** → LF (Load Factor), %, over a calendar time period

**89.74** → UCF – Unit Capability Factor, %

**0.85** → UCLF – Unit Capability Loss Factor, %

**0.00** → UA7 (Unplanned Reactor Scram Actuation/7000 hrs)

## SPECIFIC PERFORMANCE INDICATORS

The World Association of Nuclear Operators (WANO) and the International Atomic Energy Agency (IAEA) have defined specific performance indicators for monitoring and analysis of the achieved level of reliability and safety of the nuclear units and also for trending nuclear energy status globally.

With the excellent performance indicator values recorded for 2021, the plant further confirmed the established trend of operating with high reliability, safety and effectiveness. Thanks to the good work arrangements, Kozloduy NPP reached unit capability factor (UCF) of 89.07%, while the unplanned capability loss factor (UCLF) had its value significantly better than the reference one. Globally, the results of UCF exceeding 85% and of UCLF up to 3% are evidence of high degree of optimisation of the production process.

In recent years, the load factor value of Units 5 and 6 has been around or above 90% and regarding this criterion Kozloduy NPP ranks among the best in the group of nuclear power plants with pressurised water reactors.



THE EXCELLENT OPERATING INDICATORS VALUES CONFIRM THE TREND OF THE PLANT TO PERFORM WITH HIGH LEVEL OF RELIABILITY, SAFETY AND EFFECTIVENESS.





## MAINTENANCE PROGRAMME

Kozloduy NPP performs the necessary annual maintenance and repair activities in accordance with its licensing obligations, the requirements of the technical specifications for safe operation and the manufacturers' requirements. The annual maintenance programme includes preventive maintenance and repair, functional tests and inspections, specialised inspections and diagnostic non-destructive examination. The objective is to ensure the long-term operability of all the facilities at Units 5 and 6 and the common plant facilities, structures, systems and components of the safety systems, systems important to safety, and the systems of importance for the production process.

The main scope of activities within the annual maintenance programme is performed while the units are shut down for scheduled outage and refuelling. Owing to the efficient work organisation in place and the productive coordination among the teams, the whole scope of maintenance, repair and modernisation activities planned for 2021 was implemented within optimal timelines. The outage of Unit 5 lasted 40 days, and the one of Unit 6 was 33 days for a third year in a row.

In parallel with the indispensable repair activities within the planned annual outage, the measures identified in the long-term operation programmes are also carried out to increase safety and manage the equipment lifetime.

All outage works in the plant are performed with high quality, in the required scope, and with own funding.



# SAFETY FIRST

## LICENSING REGIME

Kozloduy NPP EAD operates two nuclear power units – Units 5 and 6 with WWER-1000 reactors, and two storage facilities for spent nuclear fuel (SNFSF) – one with underwater storage technology, and one for dry storage.

The operation of nuclear facilities is subject to regulatory oversight on behalf of the Bulgarian Nuclear Regulatory Agency (NRA) at the Council of Ministers of the Republic of Bulgaria. Specialised oversight is exercised by a number of other government bodies, namely the Ministry of Environment and Water (MEW), the Ministry of Health (MH), the Ministry of Regional Development and Public Works (MRDPW), the State Agency for Metrology and Technical Surveillance (SAMTS), etc.

The nuclear facilities are operated according to the provisions of the operating licences issued by the NRA. The Company maintains licences for the use of ionising radiation sources, and licences for transport of radioactive substances (RAW). In 2021, the licence to conduct specialised training was renewed for another 5-year term.

## SAFETY CULTURE

Kozloduy NPP implements comprehensive long-term measures for the continued enhancement of safety culture (SC), which is coordinated by the Safety Culture Committee – an advisory body with the Safety and Quality Director. The measures aim at maintaining an attitude of responsible personal behaviour and expanding the belief of plant staff in the priority of safety in the operation of nuclear facilities at the plant. In view of identifying and analysing strengths and areas for improvement, under the guidance of the SC Committee, Kozloduy NPP performs periodic self-assessments of the safety culture and the nuclear security culture (using an IAEA methodology), and the nuclear safety culture (according to a WANO methodology).

In 2021, the fourth comprehensive self-assessment of safety culture was launched, based on IAEA documents. The self-assessment uses methods such as staff surveys, document review, observations, interviews and focus-groups. For the second time in a row the questionnaire was published on the plant intranet site thus enabling other employees outside the representative sample to take part in the survey as well.

Safety culture and human performance feature among the topics for specialised training of the personnel. A number of training materials in this field were either prepared or updated over the reporting year.

The Design-informed Peer Review that WANO - Moscow Centre conducted in 2021 evaluated positively the safety culture of Kozloduy NPP, identifying continuous learning and personal accountability as its strengths.



## NUCLEAR SAFETY

The operation of Kozloduy NPP nuclear facilities is performed in compliance with the provisions of their licences, the requirements of the technical specifications and the pertinent operating procedures.

In 2021, there were no breaches of the operational limits and conditions for safe operation. Six operating events were registered and reported to the NRA. All of them were rated below INES scale/level 0 (events without safety significance). Based on the causes identified by the analyses, corrective measures were defined in order to avoid recurrence. One reactor scram occurred on Unit 5 throughout the year.

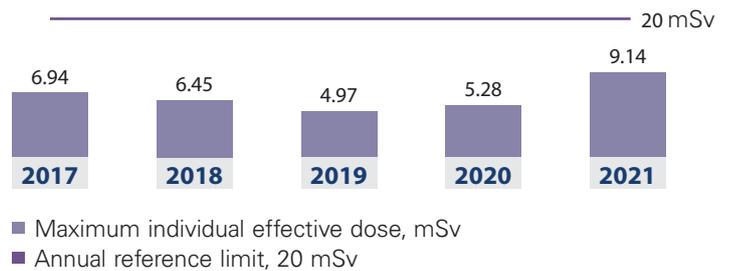


## RADIATION PROTECTION

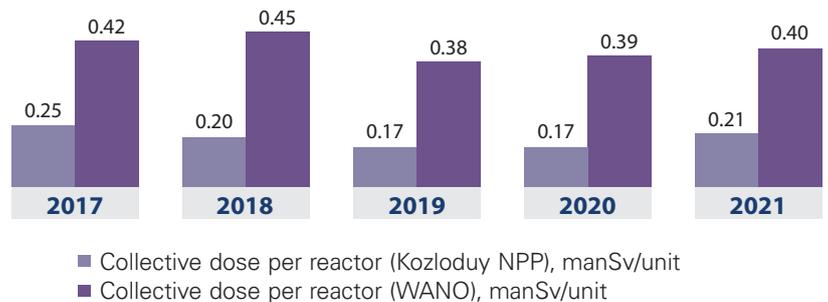
Continuous optimisation of radiation protection measures based on the ALARA (As Low As Reasonably Achievable) principle is achieved through strict application of reliable and effective radiation control, training and motivation of the personnel, sound planning, preparation and analysis of the performed activities, use of good practices from own and international operational experience.

The maximum individual effective dose incurred in 2021 was 9.14 mSv – 46% of the annual regulatory limit. The personnel collective dose from the operation of Units 5 and 6 was 0.42 manSv, or 0.21 manSv, on average for each reactor. Comparisons with the data from WANO annual reports point to the conclusion that the data reported for Kozloduy NPP persist in staying lower than the average results for the collective dose in this type of reactors operating worldwide.

### MAXIMUM INDIVIDUAL EFFECTIVE DOSE IN THE CONTROLLED AREA OF KOZLODUY NPP, mSv



### COLLECTIVE DOSE FOR A SINGLE REACTOR OF KOZLODUY NPP COMPARED TO THE WANO INDICATOR, manSv/unit



## RADIATION MONITORING OF EFFLUENT DISCHARGES TO THE ENVIRONMENT

The results from the radiation monitoring of liquid and gaseous discharges, carried out in accordance with the highest international standards, confirm the high quality of control applied to the technological processes in Kozloduy NPP. The values recorded in 2021 for the emissions of radioactive noble gases (RNG), radioactive aerosols, and iodine-131 (<sup>131</sup>I) were, respectively, 0.03%, 0.06% and 0.16% of the reference levels. The radioactive substances in the waste water from the plant were within 0.5% of the reference level. The limits set for tritium content in the discharges to the environment were not exceeded.

The Kozloduy NPP has stipulated annual limit values of the discharges' activity that are significantly lower than the normative ones. Independent external control is performed on behalf of the NRA, MEW and the National Centre of Radiobiology and Radiation Protection (NCRRP). Data from the monitoring of the discharges of radioactive substances to the environment are annually reported to the European Commission (EC).





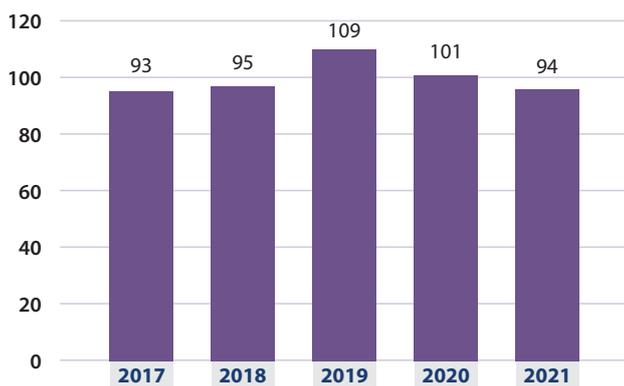
## RADIOACTIVE WASTE MANAGEMENT

The underlying principle of radioactive waste (RAW) management at Kozloduy NPP is minimising the quantities of generated RAW.

In 2021, 94 tonnes of solid and 195 m<sup>3</sup> liquid radioactive wastes were generated and transferred directly to the State Enterprise Radioactive Waste (SE RAW) for processing.

Wastes stored in the dedicated storage facilities are retrieved following an approved time schedule and are also transferred for processing.

SOLID RAW GENERATED, tonnes



SOLID RAW STORED, m<sup>3</sup>



## SPENT NUCLEAR FUEL MANAGEMENT

The spent nuclear fuel (SNF) is stored in the plant with strict adherence to all relevant safety conditions and in accordance with the updated Strategy for SNF and RAW Management until 2030. Having being kept in spent fuel pools (SFP) located at the reactors, the spent fuel is moved for underwater storage in the dedicated spent fuel storage facility (WSF) which is common for all the units. Spent nuclear fuel from Units 1, 2, 3, and 4 loaded in Constor 440/84 casks is stored in the dry spent fuel storage facility (DSF). During the scheduled annual refuelling outages in 2021, four transports of SNF from Unit 5 spent fuel pool, and five shipments from the SFP of Unit 6 were implemented to the spent fuel storage facility. Two Constor 440/84 casks holding WWER-440 SFP were moved from the WSF to the DSF. Spent nuclear fuel from the WWER-1000 reactors was delivered in two shipments to Russia for technological storage and processing.

In 2021, nine inspections of SNF were performed on behalf of the NRA, IAEA and EC.

## EMERGENCY PLANNING AND PREPAREDNESS

The objective of emergency planning at Kozloduy NPP is to maintain the high level of response preparedness of the personnel, develop and plan early warning and notification actions, and protect the environment. All relevant activities are performed in compliance with the national statutory requirements, and the European and world standards.

In 2021, training was conducted for 892 employees of Kozloduy NPP, SE RAW, Regional Police Department – Kozloduy NPP, and the On-site Fire Safety and Civil Protection Service at Kozloduy NPP. The schedule also included 2 joint exercises and 17 drills some of which involved teams from the NRA, SE RAW, Regional Police Department – Kozloduy NPP, and the On-site Fire Safety and Civil Protection Service at Kozloduy NPP.

Construction activities at the Off-site Emergency Response Centre in Kozloduy continued over the reporting year.

## NUCLEAR SECURITY

A robust modern system for physical protection is in place at the nuclear power plant. Its main target is the effective prevention of illicit or malicious acts, and ensuring the overall security of nuclear material and nuclear facilities. To this effect all technical and organisational controls, tools and methods are used in conformity with the national regulations in force and the provisions of international standards.

Among the important projects completed in 2021 were the implementation of new systems and components for the modernisation of network and server infrastructure, upgrading of video surveillance and access control systems, extending the security system across new security sites. Implementation of computer security world's leading trends was achieved by updating the system for threats detection and prevention. There is a process in progress for development of service segmentation and control over changes in configuration data of particularly important technical security systems.



THE PHYSICAL PROTECTION SYSTEM OF KOZLODUY NPP IS CONSTANTLY EVOLVING IN LINE WITH THE GLOBAL LEADING TRENDS.

## CYBERSECURITY

Upholding a high level of information security is an important priority task for Kozloduy NPP. The measures applied for effective protection against cyberattacks comply with the statutory requirements, the provisions of the applicable international standards and the best available practices in the field.

In order to ensure reliable protection of information, both the internet communication system and all the important systems in the nuclear power plant are subject to continuous modernisation. In 2021, a system for monitoring and protection of information and for increasing security of personal data processing was put into service. Latest generation high-tech devices that meet up-to-date criteria for protection and cybersecurity ensure high reliability and protection of the company's internet connectivity.

In 2021, the Kozloduy NPP cybersecurity system built up to the current standards did not register any event that can be classified as a cyberattack.

## FIRE SAFETY

Kozloduy NPP implements a range of technical and organisational controls to ensure its fire safety with a focus on achieving a high level of prevention. As a result, no fires or ignitions occurred on the production premises in 2021.

Fire safety has been provided in accordance with the national standards and international requirements. In view of this, evaluation and construction supervision are performed during delivery of projects, terms of reference, and solutions by the Company, and also when contracts are placed with external organisations. Over the year, a total of 402 inspections were conducted, which resulted in 353 corrective actions focused on strict adherence to the rules and norms concerning fire safety.

Continuing training was delivered as scheduled for the operational staff and the designated officers responsible for fire safety control in the respective Kozloduy NPP structural departments.

Progress has been made on the seismic upgrading of the car lifter garage, as well as the construction of dedicated garage cells, and of the building of the On-site Fire Safety and Civil Protection Service at Kozloduy NPP.



## RADIOECOLOGICAL MONITORING

The radiation parameters of key environmental components (air, water, soil, vegetation, agricultural produce) within the area of Kozloduy NPP are subject to continuous monitoring involving detailed and systematic studies that use approved and validated methods for measurement and analysis at the accredited laboratory of the power plant. The activities are fully harmonised with the requirements of art. 35 of the Euratom Treaty, Recommendation 2000/473/Euratom, and IAEA documents.

Together with the radioecological monitoring carried out by Kozloduy NPP, which is agreed with the competent authorities on behalf of the MEW and MH, and is approved by the NRA, independent external monitoring on programmes implemented by the Executive Environment Agency (ExEA) at the MEW, and the NCRPP at the MH is also in place.

The area of monitoring covers the plant site and the Bulgarian portion of the 30-km surrounding monitored area with reference points in the 100-km radius around Kozloduy NPP. The general public

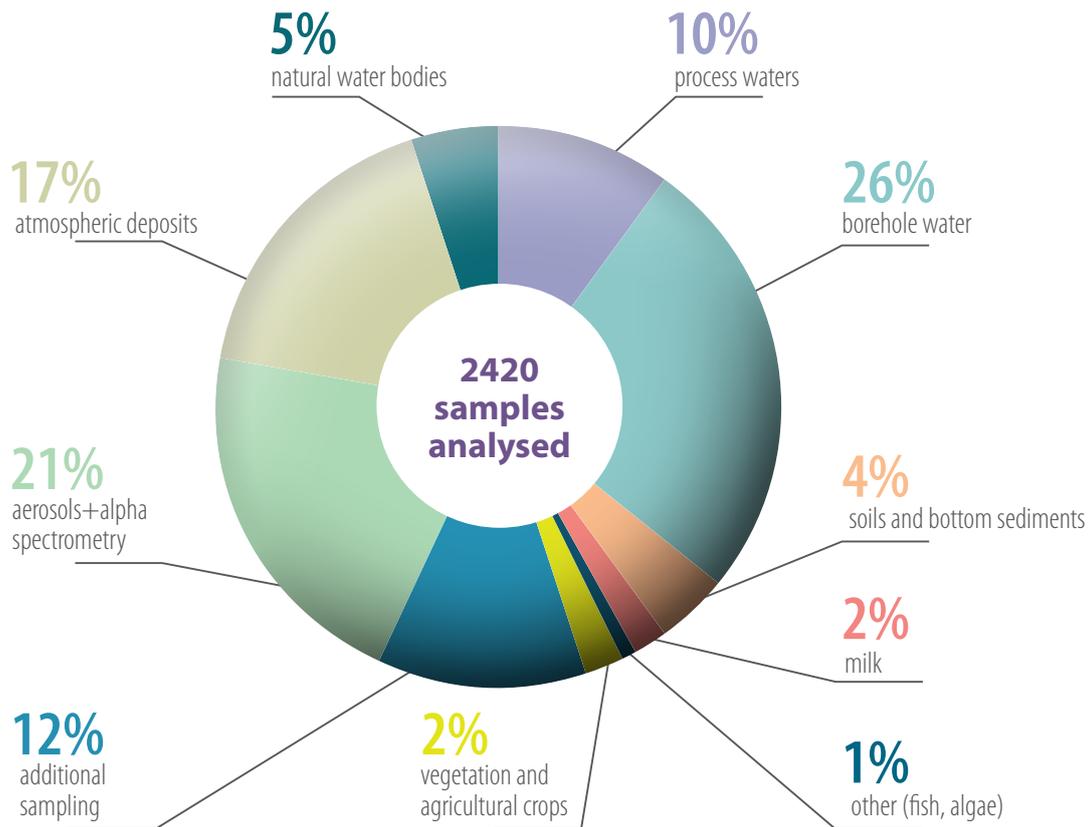
has wide access to the data for background gamma radiation recorded on-line by the automated system for radiological monitoring in 14 local populated areas. The data are visualised on information boards installed in public locations and transmitted in real time to the nuclear power plant, from where they are transferred to the ExEA and the NRA.

In 2021, more than 1,280 background gamma radiation measurements were performed, and over 4,160 analyses of more than 2,400 samples from various environmental sites. The results were fully comparable with the data from the preceding years, and did not deviate from the natural background gamma radiation levels typical for the region.

The atmospheric air human-induced activity featured values close to the natural background ones, much below the permissible limits. No radiological effects due to the operation of Kozloduy NPP on the water of the Danube or drinking water sources in the region were observed. The total beta activity of water from natural water bodies, and the radiation status of drinking water satisfied the health sanitary norms. Also, no impact of the nuclear power plant was found on the radio-ecological status of soils in the area or the staple foods produced locally, such as milk, agricultural crops, etc. The human-induced activity of fish in the Danube upstream and downstream Kozloduy NPP site, is also examined and the results are fully comparable and many times below the limits. The environmental radiation parameters remain within normal background levels.



THE RADIOECOLOGICAL MONITORING RESULTS DO NOT DEVIATE FROM THE NATURAL BACKGROUND GAMMA LEVELS TYPICAL FOR THE REGION.



## EVALUATION OF PUBLIC DOSE EXPOSURE

The operation of Kozloduy NPP is a source of low emission levels to the environment, which, in turn, leads to negligible public dose exposure in the surrounding area. In recent years, the conservatively assessed values of the maximum annual individual effective dose to the public have varied within the range of 4 - 7  $\mu\text{Sv/a}$ , which is hundreds of times below the natural background exposure level for the country (2.33 mSv/a) and about 30 times below the regulatory dose limit.

The evaluation employs verified and validated modelling programmes based on the CREAM methodology approved by the European Union, and the MODARIA platform of the IAEA, both of which were adapted to the respective geographical and hydrological specificities of the Kozloduy NPP surrounding area.

The obtained results get verified through independent control by the NCRRP, and they are found to correspond with the ones reported by other nuclear power plants with WWER and PWR reactors in the EU and across the world.

## OCCUPATIONAL HEALTH AND SAFETY

Ensuring occupational health and safety (OHS) at Kozloduy NPP is achieved while following the national regulatory requirements for health and safety at work, and the applicable international legal norms, criteria, standards, recommendations and good practices of proven effectiveness. The OHS objectives, principles and priorities of the plant management are defined in the Kozloduy NPP EAD Occupational Health and Safety Management Policy.

In this respect, the focus is on prevention. Appropriate organisation has been established to follow and monitor the regulatory requirements, and implement measures to prevent adverse consequences under the impact of specific work environment factors. Only individuals with the required capabilities and qualification, and having received pertinent training and briefing get admitted to work. Effective protection equipment and initial and periodic medical checks are provided.

The continuous improvement of work conditions has resulted in the plant industrial injury rate (0.05 for 2021) being significantly lower than the average for the country – 0.62, or 1.2 for the industry.

“

IN 2021, THE INDUSTRIAL INJURY RATE OF KOZLODUY NPP WAS 24 TIMES LOWER THAN THE VALUE RECORDED FOR THE INDUSTRY.





## ENVIRONMENTAL PROTECTION

In pursuance of the Company’s policy and strategic objectives for safe and clean energy generation, in 2021, the measures and activities for environmental protection were completed as scheduled.

All the permits issued to Kozloduy NPP in accordance with the Environmental Protection Act, the Waters Act, and the Waste Management Act have been maintained up-to-date. The permit for discharge of waste waters from the Ledenika Health and Recreation Complex had its validity term extended to 2023.

During the reporting year a planned review and assessment of environmental aspects was carried out and the three-year programme for their management was updated for the period 2022 – 2024.

Planned analyses of waste, surface and ground water samples were completed. The Kozloduy NPP accredited laboratories and the Vratsa Regional Lab with the ExAE performed 2,035 tests. The resulting data are in full compliance with the individual emission limits specified for the plant.

The system for separate collection of nonradioactive wastes that Kozloduy NPP adopted some years ago has slowed down the design fill-up rate of the plant landfill for nonradioactive domestic and industrial waste. Thus, stage II of the landfill has a residual capacity of 77.7%.

The Vratsa Regional Inspectorate for Environment and Water conducted four inspections and the Black Sea Region Basin Directorate - Varna carried out one inspection, but found no deviations and issued no prescriptions.

### GREENHOUSE AND OTHER HARMFUL GAS EMISSIONS SAVED BY KOZLODUY NPP COMPARED WITH CONVENTIONAL TPPs RESULTS FOR 2021 (TONNES)

CO<sub>2</sub>  
18,093,000

SO<sub>2</sub>  
36,000

NO<sub>x</sub>  
11,000

Ash  
100



# ENSURING FINANCIAL STABILITY

In 2021, the financial and economic indicators of Kozloduy NPP were significantly improved compared to 2020.

The Company ended the year with a net profit to the amount of BGN 890 million (the profit recognised for 2020 was BGN 276 million), and cash and cash equivalents amounting to BGN 914 million (the figure for 2020 was BGN 485 million).

The operating income from the activity of the Company was BGN 2,717 million. The electricity sales reached a record for the reported revenue amounting to BGN 2,703 million, which exceeds by 115% the revenue reported for 2020. The key factor for this increase is the upward trend in electricity prices established in the country and on the European markets in the third quarter of 2021.

The revenues from sales on the regulated market amounted to BGN 162 million which accounts for a minimum increase of 1% compared to 2020, and results from the price set by the Energy and Water Regulatory Commission (EWRC).



KOZLODUY NPP EAD  
SUCCESSFULLY  
FULFILLED ALL  
ITS FINANCIAL  
COMMITMENTS  
FOR THE YEAR

The revenues from sales at freely negotiated prices were BGN 2,540 million, an amount that exceeds by 132% the ones for 2020. The increase results from the changes in the structure of market sales (prevalence of the ‘day-ahead’ market transactions), and the rising prices.

The operating expenses of the Company in 2021 were in the amount of BGN 1,677 million, featuring a significant difference from those in 2020 with a recognised value of BGN 966 million. The difference is due to increased contributions to the Nuclear Facilities Decommissioning (NFD) Fund, the Radioactive Waste (RAW) Fund, and the Energy System Security (ESS) Fund due to the revenues increase, and the transfer of BGN 450 million to the state budget in the form of grants pursuant to Decree No. 739, dated 26 October 2021, of the Council of Ministers, for the implementation of the approved Programme for Compensation of Industrial End-Users of Electricity, providing support of BGN 110/MWh to the entire business for October and November 2021.

During the reporting year, the Company maintained high amount of net cash exposures, which allowed the timely payback of all current payables. The company used its own financial resources to fund all the operating and investment activities.

Pursuant to the updated ‘Strategy for spent nuclear fuel (SNF) and radioactive waste management till 2030’, over the March - June period in 2021, two transports of WWER-1000 spent nuclear fuel were fulfilled to Russia for processing and storage.

In 2021, the loan for the Modernisation Programme of Units 5 and 6 was fully repaid to the Euratom through instalments in the amount of BGN 11 million.

The nuclear power plant closed the year 2021 without any overdue payments. All due payments for securing the next fuel campaigns of Units 5 and 6, the mandatory insurance premiums, and payments to NFDF, RAWF, and ESSF, were effected in time. In 2021, BGN 1,010 million was paid to the state and municipal budgets allocated as follows: payments to the NFDF and RAWF - BGN 252 million; payments to the ESSF - BGN 120 million; payments for taxes and fees - BGN 584 million; payments for social security and health insurance payments - BGN 54 million.

Kozloduy NPP EAD paid BGN 138 million dividend to BEH EAD deducted from the profit for 2020. Pursuant to the resolutions of the Board of Directors of BEH EAD, an additional dividend in the total amount of BGN 470 million was paid as follows: in February - BGN 220 million transferred from the Other Reserves Fund, and in August - BGN 250 million charged to the retained earnings from previous years and to the Other Reserves Fund.

The table below presents key indicators of the results from the company's activity and evaluation of the status and performance of Kozloduy NPP in 2021 in comparison with the preceding year.

Indicators (BGN '000)		Statements 31.12.2021	Statements 31.12.2020	Change 2021/2020 (%)
c.1	c.2	c.3	c.4	c.5=(c.3/c.4)-1
1	Total operating income	2,716,914	1,272,236	114%
2	Total operating expense	-1,677,206	-966,442	74%
3	EBITDA <sup>1)</sup>	1,220,079	484,353	152%
4	EBIT <sup>2)</sup>	1,039,708	305,794	240%
5	EBT <sup>3)</sup>	1,039,126	306,377	239%
6	EBIT margin	38%	24%	59%
7	EBITDA margin	45%	38%	18%
8	Total assets	4,072,723	3,481,607	17%
9	LTA <sup>4)</sup>	2,456,097	2,279,582	8%
10	Working capital <sup>5)</sup>	1,194,272	815,334	46%
11	Cash and cash equivalents	914,193	485,106	88%
12	Equity	3,327,343	2,786,418	19%
13	Return on equity <sup>6)</sup>	31%	11%	184%
14	Return on assets <sup>7)</sup>	26%	9%	190%

<sup>1)</sup> EBITDA – earnings before interest, taxes, depreciation and amortisation from continuing operations;

<sup>2)</sup> EBIT – earnings before interest and taxes from continuing activities;

<sup>3)</sup> EBT – earnings before taxes from continuing activities;

<sup>4)</sup> LTA – long-term tangible assets + expenses on LTA acquisition);

<sup>5)</sup> Working capital – current assets minus current liabilities;

<sup>6)</sup> Return on equity - EBT/Equity;

<sup>7)</sup> Return on assets - EBT/Total assets

## SEPARATE STATEMENT OF FINANCIAL POSITION

	31 December 2021	31 December 2020
<b>Assets</b>	<b>BGN'000</b>	<b>BGN'000</b>
<b>Non-current assets</b>		
Property, plant, and equipment	2,456,097	2,279,582
Intangible assets	22,990	6,768
Investment property	4,127	4,115
Investments in subsidiaries	22,166	22,161
Loans granted to related parties	3,670	5,989
Receivables from related parties		1,145
Equity instruments at fair value through other comprehensive income (OCI)	549	510
<b>Non-current assets</b>	<b>2,509,599</b>	<b>2,320,270</b>
<b>Current assets</b>		
Nuclear fuel	428,446	433,399
Inventories	112,102	105,650
Trade and other receivables	5,125	29,881
Loans granted to related parties	2,391	2,398
Receivables from related parties	44,625	46,827
Income tax receivables		1,834
Cash and cash equivalents	914,193	485,106
	<b>1,506,882</b>	<b>1,105,095</b>
Assets included in disposal groups classified as non-current assets held for distribution to owners	56,242	56,242
<b>Current assets</b>	<b>1,563,124</b>	<b>1,161,337</b>
<b>Total assets</b>	<b>4,072,723</b>	<b>3,481,607</b>

## SEPARATE STATEMENT OF FINANCIAL POSITION

(continued)

	31 December 2021	31 December 2020
	BGN '000	BGN '000
<b>Equity and liabilities</b>		
<b>Equity</b>		
Share capital	244,585	244,585
Legal reserves	24,458	24,458
Revaluation reserve of non-financial assets	2,171,928	1,913,926
Remeasurements of defined benefit liabilities	(76,552)	(76,615)
Revaluation reserve of financial assets at fair value	285	250
Other reserves	21,406	109,309
Retained earnings	941,233	570,505
<b>Total equity</b>	<b>3,327,343</b>	<b>2,786,418</b>
<b>Liabilities</b>		
<b>Non-current liabilities</b>		
Retentions on construction contracts	97	326
Financing	99,182	103,158
Pension and other employee obligations	101,211	89,115
Non-current trade and other liabilities	117	6,118
Deferred tax liabilities	175,921	150,469
<b>Non-current liabilities</b>	<b>376,528</b>	<b>349,186</b>
<b>Current liabilities</b>		
Trade and other payables	227,290	167,969
Payables to related parties	5,156	4,827
Borrowings		11,170
Financing	4,319	4,206
Retentions on construction contracts	7,137	3,626
Pension and other employee obligations	30,876	28,606
Provision for spent nuclear fuel and others	24,908	79,720
Income tax liabilities	23,287	
	<b>322,973</b>	<b>300,124</b>
Liabilities included in disposal groups classified as non-current assets held for distribution to owners	45,879	45,879
<b>Current liabilities</b>	<b>368,852</b>	<b>346,003</b>
<b>Total liabilities</b>	<b>745,380</b>	<b>695,189</b>
<b>Total equity and liabilities</b>	<b>4,072,723</b>	<b>3,481,607</b>

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

	<b>2021</b>	<b>2020</b>
	<b>BGN '000</b>	<b>BGN '000</b>
Revenue from sale of electricity	2,702,696	1,255,807
Revenue from sale of heat energy	3,556	3,103
<b>Revenue from sale of production</b>	<b>2,706,252</b>	<b>1,258,910</b>
Income from sale of services, goods and other sales	3,155	2,944
Income from financing	3,922	3,942
Other revenues and incomes	3,550	6,030
Gains from sales of non-current assets	23	415
Change in the fair value of investment property	12	(5)
Cost of materials	(138,333)	(131,783)
Hired services expenses	(171,206)	(157,358)
Employee benefits expenses	(254,568)	(240,446)
Provisions for defined benefit plans	(29,305)	(17,346)
Depreciation/amortisation and impairment of non-financial assets	(180,859)	(178,559)
Provisions costs	(24,908)	(37,924)
Recognised/ reversed expected credit losses of financial assets, net	(430)	1,693
Other expenses	(430,824)	(205,417)
Compensations of industrial end-users of electricity	(450,000)	
Cost of goods and other current assets sold	(426)	(368)
Changes in work in progress	3,539	834
Acquisition of self-constructed machinery, plant, and equipment	114	232
<b>Operating profit</b>	<b>1,039,708</b>	<b>305,794</b>
Finance costs	(2,356)	(1,587)
Finance income	1,774	2,170
<b>Profit before tax</b>	<b>1,039,126</b>	<b>306,377</b>
Income tax expenses	(148,822)	(30,567)
<b>Profit for the year</b>	<b>890,304</b>	<b>275,810</b>

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

(continued)

	2021	2020
	BGN '000	BGN '000
<b>Other comprehensive income:</b>		
<b>Items that will not be reclassified subsequently to profit or loss:</b>		
Remeasurement of defined benefit liabilities	63	1,028
Revaluation of non-financial assets	287,141	
Change in the fair value of financial instruments at fair value through other comprehensive income		
– profit/losses for the current period	39	(19)
Income tax relating to items that will not be reclassified into profit or loss	(28,718)	(101)
<b>Other comprehensive income for the year, net of tax</b>	<b>258,525</b>	<b>908</b>
<b>Total comprehensive income for the year</b>	<b>1,148,829</b>	<b>276,718</b>

## SEPARATE CASH FLOW STATEMENT FOR THE YEAR ENDED 31 DECEMBER

	2021	2020
	BGN '000	BGN '000
<b>Operating activities</b>		
Cash receipts from customers	3,264,067	1,544,057
Cash paid to suppliers	(441,685)	(469,081)
Cash paid to employees and social security institutions	(265,073)	(248,582)
Paid licences, taxes and other payments to the NRA	(5,385)	(6,025)
Payments to the RAW, NFD, and ESS funds	(371,709)	(190,867)
Cash flows related to other taxes and payments to the governmental budget and local budgets	(429,529)	(182,665)
Cash flows related to insurance policies	(16,135)	(13,925)
Income tax payments, net	(126,966)	(38,198)
Other cash flows from operating activity, net	(4,264)	2,546

## SEPARATE CASH FLOW STATEMENT FOR THE YEAR ENDED 31 DECEMBER

(continued)

	2021	2020
	BGN '000	BGN '000
Payments under a programme of the Council of Ministers to compensate industrial end-users of electricity	(450,000)	
Net cash flows from continuing operations	1,153,321	397,260
<b>Net cash flows from operating activity</b>	<b>1,153,321</b>	<b>397,260</b>
<b>Investing activity</b>		
Acquisition of long-term investments in subsidiaries	(5)	(7 000)
Acquisition of property, plant, and equipment	(101,676)	(112,810)
Received and reimbursed financing, net	(6,303)	(6,303)
Proceeds from disposals of property, plant and equipment	24	1 383
Loan repayments received	2,300	2,250
Dividends received	770	969
Interest received	196	254
<b>Net cash flows from investing activity</b>	<b>(104,694)</b>	<b>(121,257)</b>
<b>Financing activity</b>		
Repayments of borrowings	(10,879)	(22,248)
Interest paid	(452)	(912)
Dividends paid	(607,905)	(162,446)
Lease payments	(232)	(232)
<b>Net cash flows from financing activity</b>	<b>(619,468)</b>	<b>(185,838)</b>
<b>Net change in cash and cash equivalents</b>	<b>429,159</b>	<b>90,165</b>
Cash and cash equivalents at the beginning of the period before impairment	<b>485,106</b>	<b>395,583</b>
Expected credit losses of cash and cash equivalents	<b>(72)</b>	<b>(642)</b>
<b>Cash and cash equivalents at the end of the period</b>	<b>914,193</b>	<b>485,106</b>



# INVESTING, IMPROVING, ADVANCING

Implementation of the Kozloduy NPP investment programme activities is an important prerequisite for ensuring safe and secure operation of the plant as a reliable source of electricity and available capacity. The main priority is the implementation of actions ensuing from the requirements in the Safe Use of Nuclear Energy Act, the current licences for operation of Units 5 and 6, and the measures foreseen for continuous enhancement of the plant's safety level.

The total amount of funds invested under the Investment Programme in 2021 was BGN 88,527 thousand, provided from Kozloduy NPP own funds. The long-term assets commissioned throughout last year had a value of BGN 60,655 thousand.

A considerable portion – 81% of the recognised expenses were invested in upholding and enhancing Kozloduy NPP safety, improving the facilities' performance, and ensuring the reliable long-term operation of Units 5 and 6 at power updated to 104%.

The remainder of the investment expenses went toward the staged implementation of energy efficiency measures, and also measures ensuring the normal operation of facilities that support production, and actions to maintain and increase the level of plant physical protection and site access control.

## TARGET – MAINTAIN AND ENHANCE SAFETY

The 2021 Investment Programme funded measures of the ‘Programme for Maintaining and Enhancing Safety at Kozloduy NPP’ that are outside the scope of the programmes in force concerning nuclear safety, radiation protection, fire safety, emergency preparedness, physical protection and environment protection. The latter ensue from internal and external operating experience, peer reviews conducted, or requirements set out in regulatory documents.



THE INVESTMENT PROGRAMME OF KOZLODUY NPP IS SELF-FINANCED.

## ACCOMPLISHMENT:

The total amount of such expenses recognised for 2021 is BGN 15,760 thousand.



## TARGET – LONG TERM OPERATION

Long-term operation (LTO) of Units 5 and 6 at Kozloduy NPP is essential for the reliable functioning of the energy system in Bulgaria.

The measures foreseen for implementation in the LTO period aim at ensuring that the safety related structures, systems and components adequately perform their functions. Account is taken of the need to replace equipment with modern analogues due to physical ageing changes of equipment, as well as in connection with technological development and scientific advancements, and modified regulatory requirements. In 2021, the amount invested in ensuring Units 5 and 6 long-term operation was BGN 50,301 thousand.

### ACCOMPLISHMENT:

- Replacement of engineered safety features cabinets on the primary and secondary side, panels with normalising transducers, and power supply panels;
- Implementation of the system measuring the volumetric concentration of gases such as hydrogen, oxygen, carbon oxide and water vapour in the containments of Units 5 and 6;
- Rehabilitation of the pipeline system of pump units for planned and emergency core cooling of Unit 6. Procurement of pump units. Replacement of the first pump unit will be implemented during the annual outage of the unit in 2022;
- Migration of the Ovation computer information and control system of Units 5 and 6 to the latest generation of the Ovation platform, including integration of the safety parameter display system, symptom-based emergency operating procedures, and partial modernisation of the full-scope simulator for WWER-1000 reactors, the overall objective of which is safe and effective performance and lifetime extension of the system to the year 2042;
- Measurement of the actual geometry of the core baffle of WWER-1000 reactors, processing and analysing of the results obtained, and identifying the parameters of core baffle material unlimited swelling, as well as the conditions for repeating the calculations to justify the operating life.

## TARGET – RELIABLE OPERATION AT UPDATED POWER LEVEL

In 2021, BGN 5,658 thousand was invested in activities regarding the operation of Units 5 and 6 at thermal power updated to 104%.

### ACCOMPLISHMENT:

- Modernisation of the control and protection systems of Units 5 and 6: the implementation of the project for modernisation of the neutron flux monitoring system (NFMS) at Units 5 and 6 is in progress; this will enhance safety and ensure safe and reliable operation at thermal power of 104%, and will also improve accuracy, speed and robustness of control of the core condition. The NFMS replacement on Units 5 and 6 is scheduled to take place in 2022.
- Implementation of new generators and auxiliary systems at Units 5 and 6: the design solution comprises replacement of equipment that will have the required scope of parameter control regarding the coolability of the systems.

## TARGET – CONTINUOUS MAINTENANCE OF THE UNITS, AUXILLIARY FACILITIES AND INFRASTRUCTURE

In 2021, BGN 16,808 thousand was recognised for activities completed within the Investment Programme concerning the maintenance of major and auxiliary equipment, as well as ensuring the normal operation of facilities that support production activity.

### ACCOMPLISHMENT:

- Enhancing the reliability of accumulator batteries in the Switchyard;
- Actions for enhancing and upholding the security of Kozloduy NPP;
- Actions to improve the efficiency and quality of heat supply to the town of Kozloduy;
- Providing the hardware and/or software for managing the network and enhancing the security and capability of the power plant information system;
- Modernising of the equipment not covered by the measures within the major investment projects.

## TARGET – OPERABILITY OF EQUIPMENT, FACILITIES AND PLANT SITES

To ensure the timely, quality and effective performance of the scope of activities required to maintain the operable condition of equipment in order to guarantee safe and faultless operation of facilities and equipment, a maintenance programme is in place and implemented by the Spent Fuel Storage Facility, the Switchyard, Bank Pumping Station, Hydro-engineering Facilities and Civil Structures, Common Plant Facilities Maintenance, and Heat Supply organisational units.

In 2021, the planned scopes of preventive maintenance and repairs were completed within the schedules and taking due consideration of the technological conditions and requirements of the technological documentation for safe operation of the facilities. The necessary stock of machinery, materials and spare parts was provided.

### ACCOMPLISHMENT:

- Repair and rehabilitation work on low-pressure discharge channels between the distribution manholes of Units 5 and 6;
- Repair of low-pressure channels, distribution manhole and discharge manholes at Unit 5;
- Repair of the Occupational Medical Centre building;
- Rehabilitation and makeover of rooms in the Ledenika Rest and Recreation Complex.



# WORKING IN PARTNERSHIP

The world nuclear industry development is a powerful example of the effectiveness of international cooperation. The sharing of experience, knowledge and good practices makes it possible to follow the highest standards in ensuring the safety and reliability of nuclear facilities.

Being an active participant in this process and member of the leading world organisations in the field of nuclear energy such as the World Association of Nuclear Operators (WANO), International Atomic Energy Agency (IAEA), Nuclear Energy Agency (NEA) at the Organisation for Economic Cooperation and Development (OECD), Kozloduy NPP strives to apply the world's best achievements and openly shares its operating experience.

## WANO

Ever since the establishment of WANO, Kozloduy NPP has been actively participating in all forms of partnership with the Association – Member Support Programme, Peer Review Programme, Performance Analysis Programme, Industry Learning, Development Programme, and Corporate Communications.

The involvement of Bulgarian nuclear experts in international teams in WANO Peer Reviews carried out in 2021 at Dukovany NPP (Czech Republic), Novovoronezh NPP (Russia), and Rivne NPP (Ukraine), the Corporate Peer Review at Krško NPP (Slovenia), as well as the Support Missions at Belarus NPP, Mohovce NPP (Slovakia), and Rostov NPP (Russia) is a recognition of the high prestige they enjoy in the global professional community.

Despite the complicated epidemic situation last year, two training seminars were successfully organised at Kozloduy NPP. From 21 to 25 June, lecturers from WANO Moscow Centre presented the topic of Nuclear Leadership and Safety Culture in a video conference. From 31 August to 02 September an in-person training seminar on ‘Managers in the Field’ took place. Possibilities to improve performance indicators and human performance were presented, followed by a number of practical exercises conducted at the plant Training Centre.

From 25 November to 10 December, Kozloduy NPP hosted a Design-informed Peer Review conducted by WANO Moscow Centre. Within the review, 22 experts from 9 countries performed observations of the activities in the field, review of documentation and interviews with plant staff. In preparation of the DIR, in February, an initial video conference training was held with the counterparts in the 12 review areas, which provided them with an insight of the methodology and tools of the review. A PreVisit of WANO representatives followed from 10 to 13 May at Kozloduy NPP site as part of the peer review, and a Crew Performance Observation was conducted from 13 to 23 September.



KOZLODUY NPP  
APPLIES THE  
WORLD'S BEST  
PRACTICES AND  
OPENLY SHARES  
ITS OPERATING  
EXPERIENCE.



## IAEA

A significant event at Kozloduy NPP in 2021 was the SALTO Mission conducted from 6 to 16 July. During the mission the IAEA team performed a review of the activities implemented to ensure the long-term operation (LTO) of Units 5 and 6 in the following areas: Organisation of ageing management and LTO activities; Scope setting, plant programmes and corrective action programme; Ageing management of mechanical structures, systems and components; Ageing management of electrical and instrumentation and control structures, systems and components; Ageing management of civil structures, systems and components; Human resources, competence and knowledge management for LTO. The review team, comprising experts from four countries and representatives of the IAEA provided proposals for further improvement of the activities performed to ensure safe long-term operation, and found a good level of work performance worthwhile sharing with the international professional community.



Over the year, Kozloduy NPP representatives took part in a number of IAEA events. Experts from the nuclear plant participated in a Technical Meeting on Innovative Seismic Design Options for Advanced Water Cooled Reactors and Small Modular Reactors (10 - 12 May) and Technical Meeting on the Evaluation of Defence in Depth in Periodic Safety Reviews (18 - 21 May), the Fifth International Conference on Nuclear Power Plants Life Management (16 - 19 May), on-line Consultancy Meeting of the Programme Committee for the Fifth International Conference on Nuclear Power Plant Life Management (15 - 16 September), International Generic Ageing Lessons Learned (IGALL) Phase 5 Steering Committee Meeting on Materials Ageing, virtual training course on the topic International Generic Ageing Lessons Learned for NPPs (IGALL) (19 - 22 October), international meeting for exchange of experience in the upgrading of Instrumentation and Automation systems, co-organised by IAEA and the regulatory authority of Slovenia (1 - 6 November).





## OECD NEA

At the beginning of 2021 the Republic of Bulgaria became the 34th member state of the Nuclear Energy Agency at the Organisation for Economic Cooperation and Development.

A virtual mission was conducted on the occasion of the country's admission to the NEA on 19 – 20 January. The programme of the event included a number of bilateral on-line meetings of the Nuclear Energy Agency top management representatives with Bulgarian governmental institutions and energy companies, such as the Ministry of Energy, Nuclear Regulatory Agency, Kozloduy NPP, SE RAW, and the Institute for Nuclear Research and Nuclear Energy at the Bulgarian Academy of Sciences.

The main goal of NEA is to assist collaboration between its member states in maintaining and developing the scientific, technological and legal bases required for the safe, environmentally sound and cost-effective use of nuclear energy for peaceful purposes. Membership in this prestigious organisation supports the development of the Bulgarian nuclear energy and will facilitate the exchange of good practices in the application of the highest standards in this field.





# KNOWLEDGE, EXPERIENCE, PROFESSIONALISM

The active contribution of the personnel possessing the required knowledge and skills is a key factor for the Company to achieve its main target - safe, efficient and environmentally friendly generation of energy in the long-term operation period. To comply with the IAEA safety standards requirements, and with the priorities set at the Company level and that of the principal, a long-term programme has been developed listing actions to attract and ensure staff through professional recruitment, provide conditions for systematic training, qualification enhancement, and professional development, maintain a high level of motivation, manage the accumulated knowledge and ensure succession.

## HIGHLY QUALIFIED AND WELL-TRAINED PERSONNEL

One of the important requisites for the safe implementation of the activities in a nuclear power plant is the availability of appropriately qualified specialists. Sixty per cent of the employees at Kozloduy NPP hold a higher education degree, while twenty-seven per cent have graduated secondary vocational education. In 2021, the number of newcomers to the plant was 231, of which 51% were university graduates. The permanent acceptance of documents of candidates for employment in 30 priority specialties for the Company continues.

It is the Company's aim to present an opportunity for every employee to develop their professional potential. Equal rights and opportunities for work and career growth are provided, depending only on their qualification, experience, personal qualities and performance results. During the reporting year, 188 specialists moved to new positions of greater responsibility.

## TRAINING AND QUALIFICATION

The Training Centre (TC) at Kozloduy NPP aims at forming and maintaining licensed, competent motivated personnel of high safety culture. The company implements a systematic approach to training - a logical, step-by-step process of developing and presenting training materials that develop specific competences (knowledge, skills, attitude) needed for performing work obligations for each job position in the nuclear power plant. Training is conducted based on individual training curricula and approved schedules.

Kozloduy NPP holds a licence, renewed in October 2021, for specialised training and issuing of individual licences for activities at nuclear facilities and use of ionising radiation sources.

The plant Training Centre conducts theoretical, practical and simulator training for the plant personnel. Different forms of specialised in-service training are also carried out, and on-line training via ESTRA platform is used. Throughout the year 1,411 training courses were delivered at the TC, 1,131 in-service training sessions and 155 practical on-the-job trainings involving a total of 3,046 plant employees and 3,361 workers at 157 external companies and organisations. There have been issued 49 individual licences for working in nuclear facilities and 19 individual licences for working with sources of ionising radiation.

Specialised training of the plant staff in 2021 took a total of 216,528 man-hours, 46% of which used the ESTRA system. On average, each Kozloduy NPP employee took 71 training hours of initial, continuing and extraordinary training.

The mechanical teaching aids at the TC are maintained in conformity with the existing equipment in the plant. In 2021 a construction project started for new premises and upgrading the existing ones for practical training of operations and maintenance staff with the aim of improving the quality of their skills and acquiring new specific competences.

## EDUCATIONAL PROFILE OF PLANT PERSONNEL

Higher education degree

60%

Secondary vocational education

27%

General secondary school education

12%

Other

1%



IN 2021, THE SPECIALISED TRAINING LICENCE OF KOZLODUY NPP WAS RENEWED.

The operating personnel performing functions for nuclear safety assurance and control undergo specialised initial preparation and continuing training also at the full-scope simulator (FSS-1000) of the power units with WWER-1000 reactors. To ensure compliance with the reference Unit 6 current condition, 29 configuration changes were made to the FSS over the year. In the same period, continuing specialised training at FSS-1000 was provided for 39 teams of nuclear operators, training for FSS trainers, and emergency response trainings and drills. Two WWER-1000 operator trainers were trained, as well as two secondary side instructors. Following a review and analysis of the training needs, 4 new scenarios were developed and 17 ones updated.



## KNOWLEDGE MANAGEMENT

A knowledge management system has been established and maintained at Kozloduy NPP on the basis of current standards, criteria and world nuclear experience. At all levels of the nuclear knowledge cycle, namely recognition, acquisition, transformation, development, dissemination, use, sharing and retention, an integrated, systematic approach is applied, aimed at effective management and use of this key resource needed to achieve the business goals of the Company.

Personnel competence is appreciated as the key element of corporate knowledge, and procedures are developed to guarantee storage of this valuable asset. Careful analysis is applied to the needs of employing more specialists for the long-term operation period, and training is delivered per individual curricula to provide well-prepared replacements for key staff.

The SALTO review team identified as good performance the knowledge management activities at Kozloduy NPP as well as the information system that enables automated evaluation of risk and the consequences of knowledge loss, and planning of corrective actions to prevent such loss.



## SUPPORT FOR A CAREER IN NUCLEAR ENERGY

Kozloduy NPP is consistent in providing support for the study process of school and university students who have chosen technical subjects applicable in the plant. By encouraging young people willing to acquire the specialised knowledge required to work in the nuclear industry, the company reaffirms its commitment to the formation of the next generations of power engineers.

The power plant maintains proactive cooperation with the vocational high schools in the region. Kozloduy NPP Scholarship Programme is intended for and includes pupils who have selected the subjects of 'Nuclear Energy' in the Kozloduy vocational school, and 'Automated Systems' in the Belene vocational school. In partnership with 'Igor Kurchatov' Vocational School (Kozloduy), a dual form of training was implemented for high school students majoring in 'Nuclear Energy' and 'Heating Engineering - heating, air conditioning, ventilation and refrigeration', and in 2021 the first trial internship was conducted. Last year, the plant entered into cooperation with the 'Vasil Levski' Vocational High School (Mizia) where 'Mechanical Engineering Technology' was introduced as a new specialty.

Kozloduy NPP is partner with a number of higher education organisations such as 'St. Kliment Ohridski' Sofia University, the technical universities in Sofia, Gabrovo, Ruse, etc. In 2021, cooperation agreements were signed with Sofia Technical University, and 'Konstantin Preslavsky' University of Shumen.

Traditionally, the plant takes part in specialised events where potential employers and future professionals meet. Representatives of the nuclear power plant participated in the career forum 'Internship - a step to success' organised by the Sofia Technical University, the 'Careers' on-line event of the University of Chemical Technology and Metallurgy - Sofia, as well as the 'Career Days - IT, Communication and Outsourcing' held in Gabrovo.

In 2021, two campaigns were conducted to identify students eligible to receive scholarships from the Company. Nine young people were selected who are currently majoring in nuclear subjects at the Technical University - Sofia and the 'St. Kliment Ohridski' Sofia University.

The paid summer internship programme at the nuclear power plant marked a record high interest. The 17th edition of the campaign was joined by 42 young people, studying technical subjects of priority to Kozloduy NPP. There is constant interest in the unpaid form of internship at the plant, which was chosen by 14 university students last year.



KOZLODUY NPP  
PERFORMED  
YOUTH FOCUSED  
PROGRAMMES  
INVOLVING  
136 PARTICIPANTS  
IN 2021.



# PARTNERSHIP, SUPPORT, TRANSPARENCY

The plant's high corporate social responsibility translates into its active support and care for the Company employees and local community, application of anti-corruption practices and environmental protection. Kozloduy NPP reinforces the values underlying the principles of the Global Compact and contributes to the progress in the implementation of the United Nations Sustainable Development Goals.

## RESPONSIBLE EMPLOYER

The Company's priorities regarding the employees include ensuring health and safety at work, maintaining a positive work environment that encourages professional development, providing equal opportunities for career growth based on personal achievements. Women at Kozloduy NPP account for more than a third of the personnel and are represented at various positions, including operational and management levels. Smooth transition between the generations of professionals is ensured owing to the well-established system for training and transfer of specific knowledge.

Initiatives focused on plant employees are regularly organised to promote corporate values and maintain team spirit. Many volunteers took part in charity campaigns and cleaning campaigns held in 2021. The photo contest 'Charged with energy' and the information stands graphic design competition strongly inspired the creative talents of the employees.

The annual celebration of the Day of the Power Engineer includes conferring awards to the most distinguished professionals in ten areas. Since 2019, the 'Safety first' prize for joint contribution has also been awarded. The prize goes to the team that has performed to the highest standards of safety culture, united efforts and leadership at the workplace.



THE STRONG TEAM SHARES COMMON VALUES.





## COMMITMENT TO SOCIETY

Socially important causes have always enjoyed the support of the Company corporate governance and employees. Throughout the year, Kozloduy NPP continued to endorse various charity initiatives. Many volunteers participated in yet another blood donation initiative organised in partnership with the Military Medical Academy, Sofia. Once again, they attested their social responsibility and personal commitment to a campaign, crucial to all members of the community.

A fundraising contest for making traditional Bulgarian 'martenitsa' was held just before 1 March. Participants from all around the country were drawn in the event and their handiwork was displayed in an exhibition. The money raised by the sales and additional funds collected were donated to the Day Care Centre for children and youths with disabilities in Kozloduy.

## COMMON EFFORTS TOWARD POSITIVE CHANGES

Kozloduy NPP actively participated in initiatives, organised by the Bulgarian Network of the UN Global Compact (UNGC Bulgarian Network) - webinars, information campaigns, 'Games for Good' project and other activities.

At the end of 2021 the ecological initiatives of Kozloduy NPP and three other Bulgarian companies were included in the first joint publication of the UNGC Bulgarian Network of Eastern Europe, 'The Future is Green and Inclusive' report.

The plant is a member of the UNGC Bulgarian Network since 2012 and as a representative of the responsible and sustainable Bulgarian business it consistently endorses the 10 universal principles of the Compact. All activities regarding the implementation of these principles are annually presented in the 'Communication on Progress' report.

## SUPPORT FOR THE LOCAL COMMUNITY

The sustainable development of Kozloduy Municipality and nearby region is an important priority of the corporate social responsibility adopted by Kozloduy NPP. The good partnership relations established with the local authorities are reflected in the valuable support for development of education, culture, health care, sports and youth-focused activities, public works, infrastructure upgrade, conduct of volunteer and charity campaigns

## TAKING CARE OF NATURE

The active participation of the plant and its team in international and national initiatives focused on ecology conveys the efforts for preserving the environment.

A series of events dedicated to the World Environment Day were held during the first week of June 2021: new trees were planted on the facility site, two children's playgrounds were renovated near the town park area, and a sapling complemented the Ecology Alley in front of the Sports and Recreation Centre. Kozloduy NPP took part in the Authentic Honey initiative of the UNGC Bulgarian Network and was among the companies to adopt beehives.

The motto of the International Danube Day 2021 was 'Discover Danube'. Volunteers from the plant contributed to keeping the Danube river bank clean by clearing up the town's riverside and park, as well as the areas around Kozloduy HPP and the plant bank pump station.

Within the framework of the European Mobility Week (16 - 22 September 2021) themed 'Safe and healthy with sustainable mobility', Kozloduy NPP employees responded to the call to employ eco-friendly transportation methods. They used modes of transport with low- or zero-emission and reached their workplaces by bikes and electric scooters.



## OPENNESS AND TRANSPARENCY

Kozloduy NPP is committed to the provision of factual and impartial information on every aspect of its activity – safety, power generation, social activities, etc. Furthermore, the plant is engaged in an ongoing dialogue with institutions, business, non-governmental organisations, and scientific research circles. Special emphasis is placed on communication with the youth, hence encouraging education and interest in STEM disciplines, i.e. Science, Technology, Engineering, Mathematics.

The corporate website, with fully updated interface design and content, enjoyed the keen interest of many visitors in 2021. The number of followers getting news about the plant from the official Company profile in one of the social networks has grown.

The photography exhibition ‘Sun on Earth – New Age in Nuclear Technology’, staged in August in Sofia, drew attention to the nuclear energy and the scientific achievements in the field. Among the facilities displayed on the photos, together with the international ITER project, was also our nuclear power plant – an epitome of high-tech nuclear research and achievements in Bulgaria, the main producer of clean energy, gaining international recognition for its activity.







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