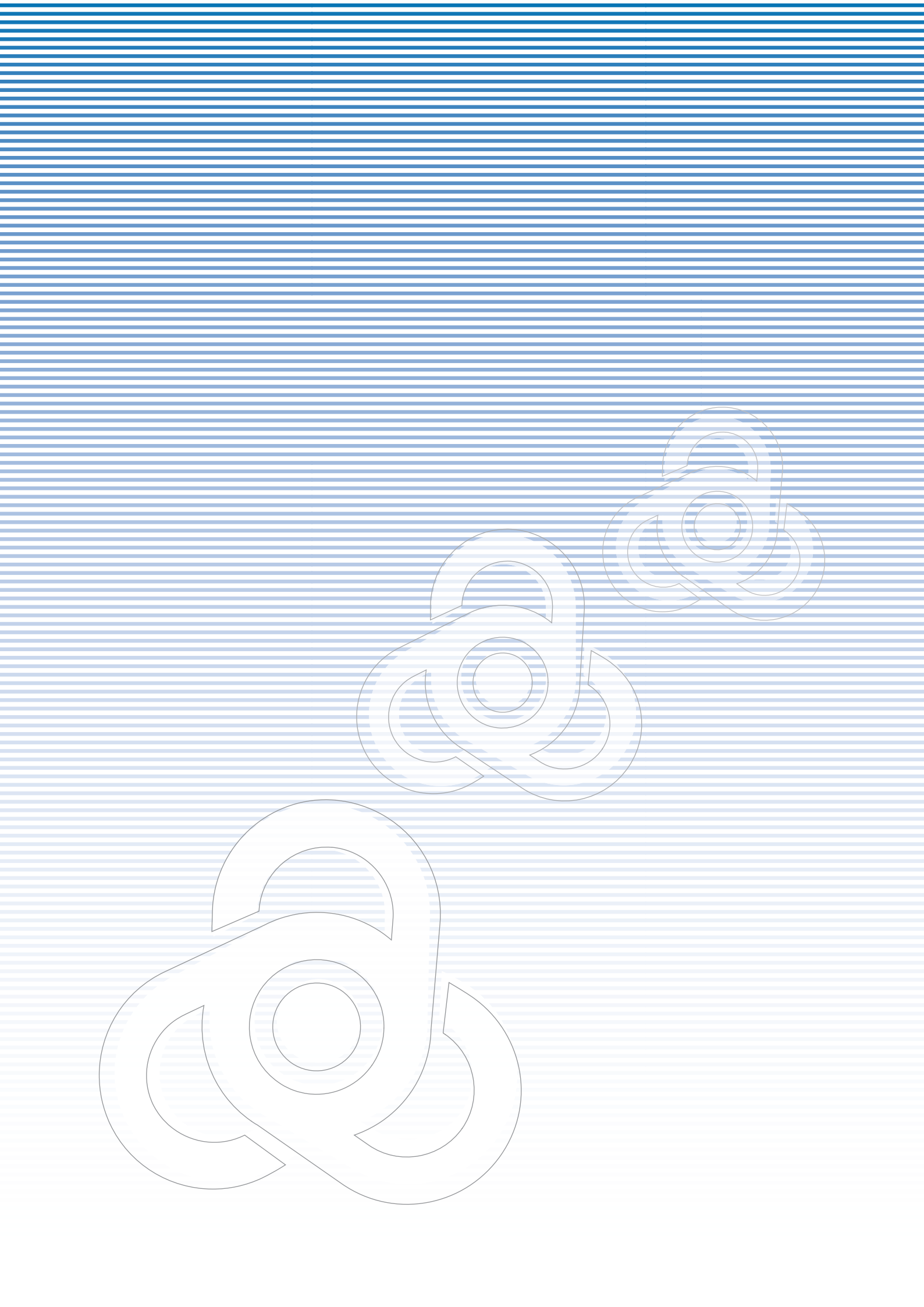
ANNUAL REPORT

2008

KOZLODUY NPP PLC



DEAR READERS,

This Annual report you have just got hold of presents Kozloduy NPP Plc's excellent results and crowning achievements in 2008, entirely indebted to the professionalism and indisputable dedication of all my colleagues at the Plant.

This was a year that witnessed us surpass a lot of our so far best accomplishments in a number of areas.

The amount of electric power produced by the two 1000 MW units exceeded that of the previous year (2007) by more than a billion kWh to break all records in the history of Units 5 & 6 operation. Operating only these two units Kozloduy NPP provided more than 35% of the gross national electric power production, this major part being environmentally clean and at the most reasonable price.

Undoubtedly, for the safe and reliable operation of Units 5 & 6 the successfully implemented Modernization Programme has contributed decisively. In November 2008, a mission of the International Atomic Energy Agency (IAEA) experts reviewed the compliance of the Programme as implemented with the IAEA recommendations, regarding modernizations of this type of reactor. The works accomplished by Kozloduy NPP management and staff was assessed by IAEA team as „impressive and successful". Such an appraisal was yet another recognition of our continuous effort to maintain the units in compliance with highest of contemporary standards.

2008 was one more year in a row to register no unplanned SCRAM whatsoever, thus bringing Unit 6 amongst the very best for the world nuclear industry achievement of 12 consecutive years without scram. The downtrend to reducing the number as well as the significance of the operational events proves to be steady and in 2008 there were no events that were assessed to levels higher than „0" according to the INES scale.

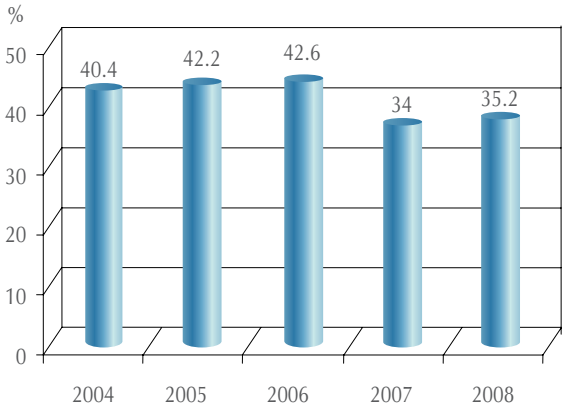
I would like to once more emphasize that all these achievements are the result of the efforts of the entire team that operates and ensures safety at the Kozloduy NPP and any nuclear power plant management in the world would have taken pride in such a team.

IVAN GENOV
EXECUTIVE DIRECTOR
OF KOZLODUY NPP

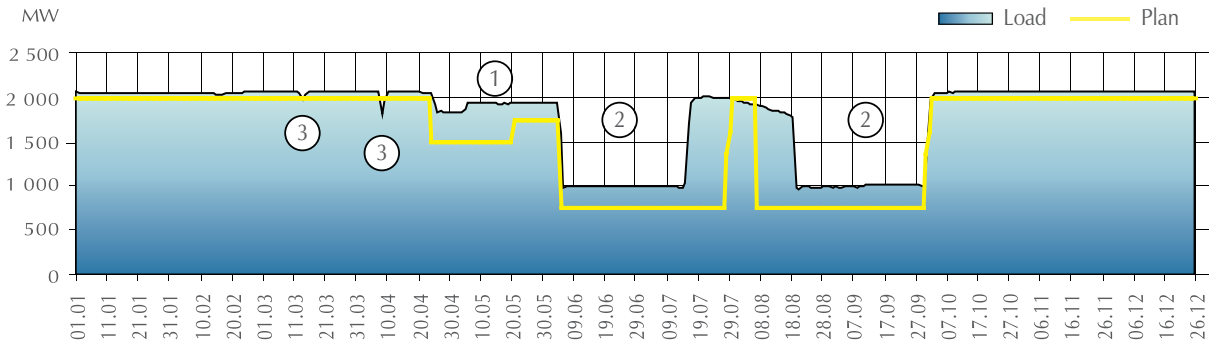
GENERATION
MODE OF OPERATION OF GENERATING FACILITIES

The operation of the two units – 1000 MW Units 5 and 6 during the year was in line with the load schedule agreed with the dispatcher and updated on-line in accordance with the Rules for the grid management. The performance of the dispatcher's electricity generation schedule during the year was ensured due to the sustainable, reliable and effective operation of the nuclear facilities in optimal operational modes.

Share of Kozloduy NPP generation in the national electricity generation (%)

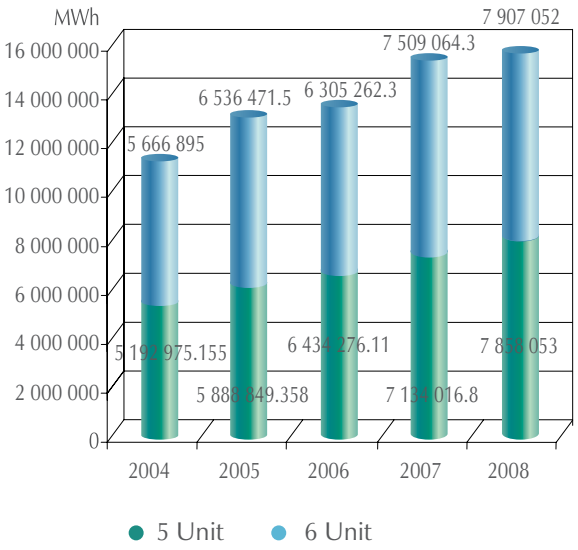


KNPP Load schedule for 2008

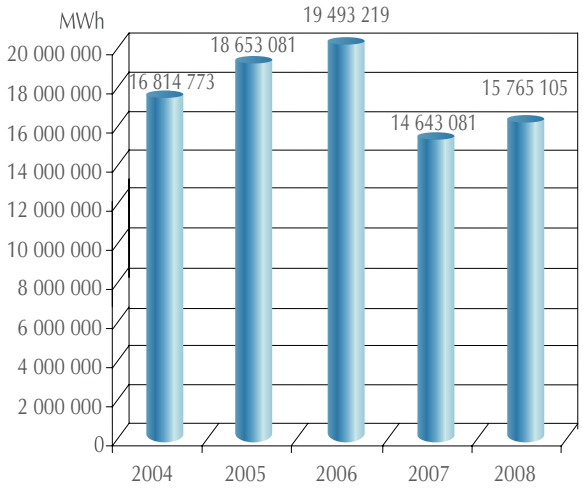


① Dispatcher's Load Schedule
② Planned annual outage
③ Power deviation

Electricity generated by Units 5 and 6



Electricity generated



A record generation was reported in 2008 for the operational history of the two 1000 MW units of Kozloduy NPP – 15 765 105.2 MWh, or 1 122 024 MWh more compared to 2007. It was a result of their reliable operation as well as the optimized duration of downtimes for planned outages, refuelling and modernization. There have been no emergency shutdowns of the generating facilities or significant deviations from the preset load schedules.

With the approximately 16 million MWh generated, Units 5 and 6 provided more than 35% of the national electricity generation.

Since the commissioning of the first unit in July 1974, the nuclear power plant has generated more than 462 million MWh electricity by the end of 2008, without any events having an impact on safety or on the environment.

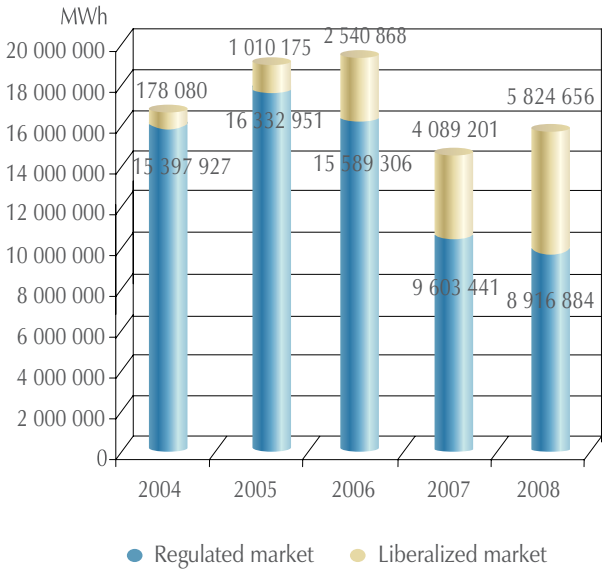
ELECTRICITY SOLD (NET)

The net active electricity supplied for the national grid in 2008 from Kozloduy NPP was 14 741 540 MWh, whereas to eligible consumers (regulated market) 8 916 884 MWh (60.5% of the total net generation). The amount of electricity sold at the regulated market is 3.33% above that determined by the State Energy and Water Regulatory Commission (SEWRC) in compliance with the Energy Act.

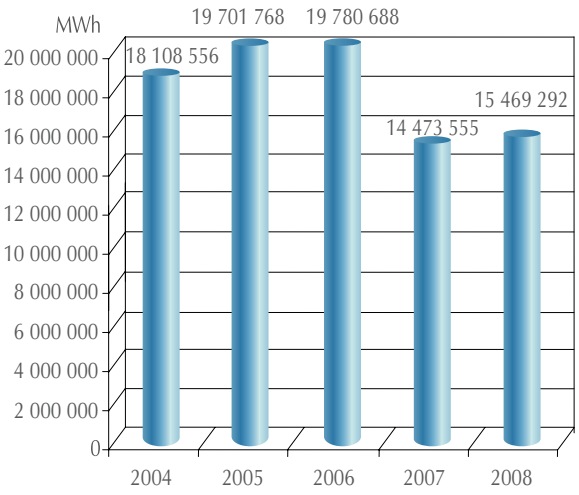
The other part of the net generation (39.5%) is sold by Kozloduy NPP on the deregulated market. Being a reliable and demanded trade participant, the plant has supplied 5 824 656 MWh electricity under bilateral contracts to eligible industrial consumers and sellers on the liberalized market in the country.

Regardless of the dynamics of the market environment resulting in competitive prices and the good market policy, Kozloduy NPP maintained its leading position as preferred and secure supplier in 2008. The total amount of electricity supplies on the deregulated market ranked the nuclear power plant first with almost 70% market share.

Electricity sale by Kozloduy NPP on the regulated and on the deregulated market in the country



Availability

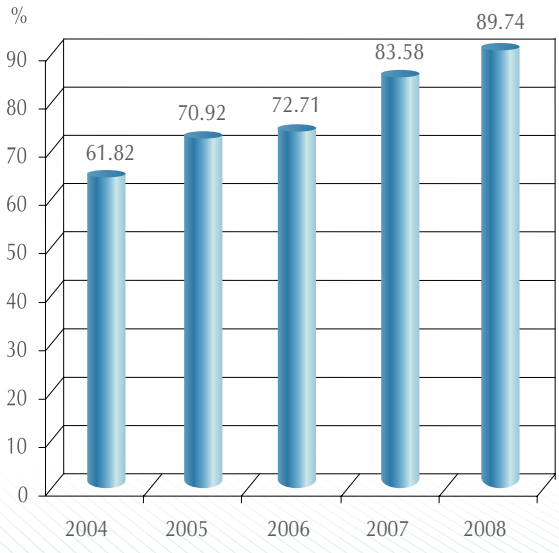


Along with the net electricity supply for satisfying the demand in the country, and for the need of the control and security of the electrical power system, throughout the year the availability of Kozloduy NPP generating facilities amounted to 15 469 292 MWh.

LOAD FACTOR

The load factor of the operating units is a complex indicator for the level of their operation in terms of reliability of operation, generation optimization (incl. overproduction) and the planned outage downtimes. The result achieved for the year – almost 90%, is the maximal value achieved by the 1000 MW units for the period since their commissioning until now and demonstrates the exceptionally good operation that is typical for the leading plants in the nuclear industry.

Load factor for Units 5 and 6 (%)



MAINTENANCE PROGRAM

The planned annual outages for refuelling Units 5 and 6 were performed within short terms – 41 and 43 calendar days correspondingly, considered from the day of stopping of the turbine generator to the day of its connection to the grid. The activities provided for the equipment maintenance and modernization were performed within the planned scope and required quality. A project for replacement of one train of the safety control system was implemented at Unit 6. The planned outage downtimes optimization provided for the production over the plan that contributed significantly for the plant revenues.

HEAT GENERATION

Kozloduy NPP heat generation is an important co-activity. It ensures the normal conditions of operation for the personnel and equipment including at the closed units as well as the heat supply for the town of Kozloduy.

63.5% of the heat generated by the boiler installations at Units 5 and 6 was used for the plant home needs. The consumption in the town of Kozloduy (both household and industrial consumers) is comparatively constant.

All aspects of Kozloduy NPP activities are in strict subordination to the main priority and commitment of the Company management to continuously enhance levels of safety and maintain and develop a safety culture that meets the current international standards and criteria and world experience in nuclear power engineering.

LICENSING

The nuclear facilities at Kozloduy NPP are being operated in compliance with the licenses granted by the Bulgarian Nuclear Regulatory Agency (BNRA) for the operation of Units 1 – 6 and the Spent Nuclear Fuel Storage Facility (SNFSF). The use of ionizing radiation sources (IRS) in the Company's production program is in compliance with the licenses granted by the BNRA related to the use of IRS for commercial purposes to perform control functions and radioactive substances transportation.

In September 2008 the licenses to operate in the „E" mode the shutdown Units 1 & 2 were renewed, and their expiry date is 31.12.2011.

In the beginning of October applications were submitted to the BNRA for the renewal of the Units 5 & 6 operation licenses.

In order to achieve an integrated management with regard to the decommissioning activities as well as to the radioactive waste management (RAW) the state strategy on Units 1 & 2 was developed in 2008 that envisages Units 1 & 2 to be written off Kozloduy NPP Plc assets. By a Governmental decree №839 of 20.12.2008 Units 1 & 2 were declared to be facilities subject to management of RAW and altogether with the necessary movables were consigned to the State Enterprise RAW (SE RAW). The Decision determines that Kozloduy NPP Plc shall continue to operate the units in compliance with the granted „E" mode of operation until SE RAW receives the corresponding licenses.

With regard to the licensing procedure of the Dry Spent Fuel Storage Facility technical design (DSFSF) the following steps have been undertaken by Kozloduy NPP Plc.

1. Order № РД-22-152/02.04.2008 to approve the technical design of the nuclear facility – DSFSF, located on Kozloduy NPP site, in its part regarding storage of VVER 440 spent nuclear fuel;

2. Permit № О-3357/17.06.2008 related to the construction of the nuclear facility – Dry Spent Fuel Storage Facility for 2800 spent fuel assemblies of VVER 440 reactors.

In 2008 39 permissions were obtained from the BNRA regarding modifications, that lead to changes in the construction, systems and equipment (implementation of technical decisions) and internal regulations on implementation of activities, important to safety of the nuclear utilities on site of the Kozloduy NPP.

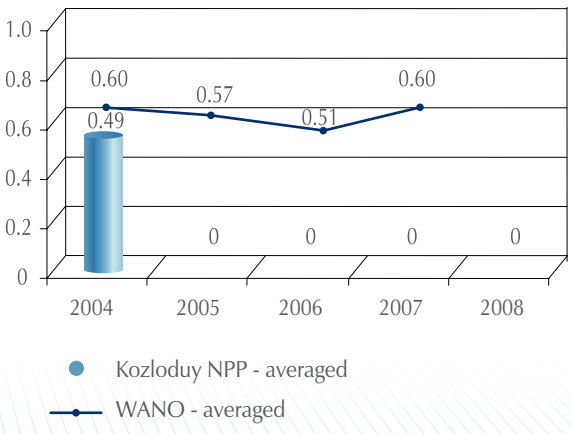
NUCLEAR SAFETY

2008 is the fourth successive year for Kozloduy NPP to register as a year without any reactor SCRAM.

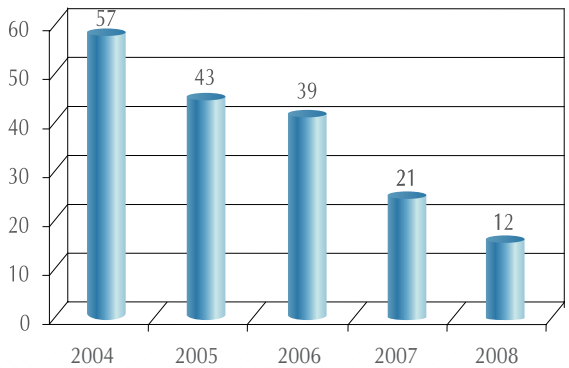
Thus the period with no unplanned reactor scram on Unit 6 reached the record-breaking 12 years. This is one of the best achievements in the world and together with the 7 years and 7 months (within the period April, 1994 – November, 2001) without scram at Unit 5, prove safety and reliability of the 1000 MW Kozloduy NPP units. The criteria accepted by the World Association of Nuclear Operators (WANO) determine one scram per two years as an indicator of high level of safety and reliability of operation.

According to the International Nuclear Events Scale – INES, one of the 12 operational events reported was out of scale and 11 were ranked level „0" (deviation) – below INES scale.

Scrams per reactor for 7000 hours of operation



INES events reported to the Nuclear Regulatory Agency



The values of the annual limit of the effective dose of occupational radiation exposure of 50 mSv, as well as the limit of 100 mSv for 5 consecutive years, as specified in the Basic Norms for Radiation Protection – 2004, have not been exceeded in 2008.

The maximal individual effective dose at Kozloduy NPP for the year does not go beyond the 19% of the annual normative limit. The collective effective dose in Kozloduy NPP for 2008 follows the established steady trend of reduction in the last 12 years.

The average value of the collective dose of the two units in operation in Kozloduy NPP for 2008 is 0.27 manSv/unit. In accordance with „WANO 2007 Performance Indicators" Report, the average value of indicators for reactors PWR type (analogous to the VVER) in 2007 is 0.55 manSv/unit.

The monitoring performed on gaseous and liquid releases into the environment shows a reduction in activity in comparison with 2007. The levels recorded from the measurement of the gamma-background at the radiation control points on the industrial site during the year are within the limits 0.07-0.16 μSv/h and there are no deviations from the natural values specific for the region of up to 0.21 μSv/h.

In order to improve monitoring on gaseous and liquid releases into the environment

the implementation of some major projects was begun in 2008.

With regard to VVER 440 – „Project on determination of carbon-14 and tritium in gaseous releases"; „Modernization of radioactive aerosols control systems and operational control on liquid releases"; „Supply of up-to-date laboratory equipment for content analysis of radioactive substances in releases".

With regard to VVER 1000 – „Modernization of operational control of liquid releases system" – (completed in August, 2008); „Project on determination of carbon-14 and tritium in gaseous releases"; „Project related to the online isotope gamma-spectrometric determination of radioactive noble gases in the gaseous releases".

In compliance with the Agreement between Bulgaria and the IAEA on the implementation of the safeguards to be observed concerning the Non-Proliferation Treaty (1972) and the Additional Protocol (2000), all nuclear facilities at the power station are subject to permanent control by the IAEA.

Fourteen routine inspections were conducted by the IAEA and BNRA in 2008 to review compliance with The Non-Proliferation Treaty, in 9 of which EURATOM inspectors took part as well. Neither violations nor non-compliances were found concerning amounts of nuclear materials declared and available during the reviews.

11 reports for inventory changes of nuclear materials were sent to BNRA – Inventory Change Reports (ICR) for IAEA, and 19 reports for the annual inventory of nuclear materials at Kozloduy NPP – Physical Inventory Listing (PIL) and Material Balance Report (MBR).

52 reports for inventory changes of nuclear materials were sent to Luxemburg plus 8 reports for the annual inventory of nuclear materials, required by Regulations № 302/2005 of the European commission on the implementation of the EURATOM safeguards.

The SNF at Kozloduy NPP is being stored in compliance with all requirements, concerning safety. In 2008 480 spent fuel assemblies from Units 1 and 2 were transported to Russia, as well as 96 SFA from Unit 5.

All low and medium radioactive waste, generated in the process of operation of the nuclear power plant is reprocessed in the State Enterprise Radioactive wastes – Kozloduy (SE RAW).

PHYSICAL PROTECTION, EMERGENCY PLANNING AND PREPAREDNESS

No violations regarding the physical protection of the nuclear plant were registered in 2008. The main conclusions from the reviews performed by the BNRA and the Ministry of Interior confirm that the physical protection system of Kozloduy NPP performs its basic functions and ensures the necessary protection against the Design Basis Threat.

In order to enhance efficiency of the physical protection, 7 technical decisions have been implemented throughout the years including those already in operation:

– A TV system to assess the alarm signals from the signalization protection systems within the perimeter protected zone around Electricity Production-1 and the Open-yard Switchgear;

– A TV system to control the emergency exits and transportation corridors from Reactor buildings of Units 5 & 6;

– A system to control access of vehicles and drivers to Electricity Production-2.

Within the PHARE programme in 2008 a RODOS Linux system was installed at the Accident management centre to predict the consequences of a nuclear and radiation accident. This kind of system is in operation in 24 EU member countries as well as in Bulgarian authorities related to the Kozloduy NPP Off-site Emergency plan. Thus the emergency activities management

group is still better facilitated to make timely decisions on the adequate protective measures with regard to staff and public.

In December, common emergency drills were performed according to a scenario that included a fire in the Low radiation waste storage facility in SE RAW. During the exercise the level of coordination between the emergency teams of SE RAW and Kozloduy NPP was proved.

The actions undertaken by the emergency teams were overseen by members of the Parliament commission on state policy for disasters and accidents. The Commission Chairman Venelin Uzunov highly appreciated the exercise and the level of safety of the NPP.

FIRE PREVENTION

Fire prevention measures were in place and no cases of fire were registered in the production installations on site of Kozloduy NPP in 2008. In order to maintain a high level of fire prevention, Kozloduy NPP has developed a set of organizational and engineering measures to ensure the reliable protection of facilities and they are targeted at minimizing the possibility for conflagration within the plant territory. Efficiency of the fire-alarm and fire extinguishing systems has been improved within the Modernization Programme of Kozloduy NPP units.

All reviews performed throughout the year by the control bodies confirmed the high level of fire prevention in Kozloduy NPP.

Kozloduy NPP policy on environment protection is strictly managed in compliance with the requirements of the normative regulations in force in the country.

In 2008, the NPP was granted a permit to operate in accordance with art. 104 of the Environmental Protection Act and a Permit for emission of greenhouse gases in accordance with art. 131 of the said Act. Thus Kozloduy NPP has been granted all the permits needed as envisaged within the normative documents regarding these activities. Three permits were renewed in the year for the utilization of underground water sources and changes were introduced into the wastes handling permit.

The implementation of the activities, related to protection of the environment is being controlled on a regular basis. Subjects of this control are the non-radioactive waste Depot, the temporary waste storage facilities, structural units that keep record logs or registers on the environment, hazardous chemicals substances, the waste water discharge locations including waste water discharge into KNPP sewage by outsourcing companies. In line with the programs Kozloduy NPP performs its own monitoring and waste water analyses of KNPP waste water, as well as waste water of the Non-radioactive waste depot and the underground waters on site of the NPP and the adjacent region. All analyses are performed by independent accredited laboratories.

Wastes at the NPP are collected in accordance with the established practice of separate collection. The recyclable wastes – metals, oils, paper, cardboard etc. are processed by outsourcing licensed organizations. Hazardous wastes that are not liable to recycling are submitted for neutralization to license holding companies engaged in such activities. In 2008, all discarded condensers, containing polychlorinated biphenyl, monitor kinescopes and unsold chemicals were handed over for neutralization.

RADIO ECOLOGICAL MONITORING

Radio ecological monitoring at Kozloduy NPP aims to build up a detailed assessment of the radiation status and locate the possible impact of the nuclear plant operation on the environment within the limits of the adopted norms. The parameters of the radio ecological monitoring at Kozloduy NPP are in compliance with the requirements of the national legislation and are in line with Article 35 of the EURATOM Treaty and are in full compliance with leading international experience and good laboratory practices in this field.

Control during 2008 included 3925 analyses of 2399 samples taken from various sites of the environment (air, water, soil, vegetation, milk, fish, cultivated crops etc.) throughout the year from the control points within the 100 km observed zone. The results obtained did not establish deviations from the radiation indicators above the admissible norms. Radiation gamma background is at the natural values specific for the region. The results obtained at the control points within the 100 km area and at the fence of the Kozloduy NPP are completely comparable.

Man-made activity in the atmospheric air is close to the background values

(^{137}Cs, 0.3 – 2.4 μBq/m^3), many times below the norms as specified in the Basic Norms for Radiation Protection – 2004. Long-lived total beta activity varies within the natural limits with the average value of 0.59 mBq/m^3.

The results of the total beta activity of the atmospheric sedimentations in the area under control around Kozloduy NPP varies within the scope from 0.014 to 2.05 Bq/(m^2.d), the mean yearly value of 0.37 Bq/(m^2.d). Data are close to those of previous years and are within the natural limits for that radiation parameter.

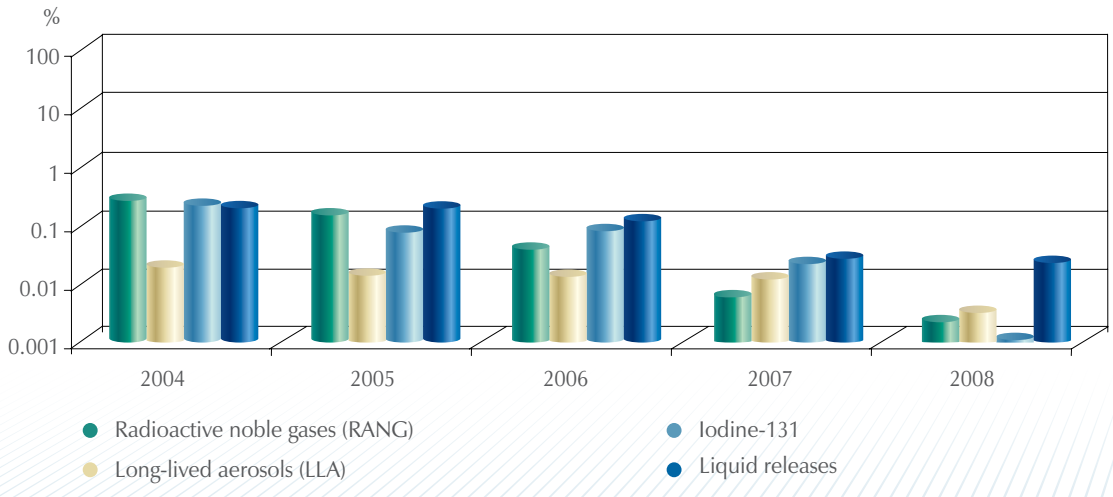
The total beta activity, as measured in the water of the open water basins of the Danube, Ogosta and Tsibritsa rivers as well as the Kozloduy dam is within the limits of 0.027 to 0.13 Bq/l, this being 17% of the norm determined of 0.75 Bq/l. No impact has been established by Kozloduy NPP operation on the radiation status of the natural water reservoirs.

Control on drinking water samples show the total beta activity varies within the limits of 0.019 to 0.13 Bq/l, those being much lower than the admissible norms on drinking water as determined by Regulation №9/16.03.2001 (2 Bq/l total beta activity and 100 Bq/l for tritium). No tritium content above the minimum detectable activity of 4.9 Bq/l was measured. No man-made activity was registered in soil within the 100 km monitored area generated by Kozloduy NPP. Man-made activity in the vegetation studied is within the normal limits – ^{137}Cs to 4.48 Bq/kg and ^{90}Sr – to 2.78 Bq/kg (dry weight).

Control on foods and food products, produced and yielded in the region around Kozloduy NPP is permanent. Milk from three farms and fish from the Danube River are examined on a monthly basis in the region (the town of Kozloduy, town of Oryahovo and the Harlets settlement). Each season cereals and forage crops, grown in the region are subjected to analyses. Results are within the typical values for the region.

The quality and reliability of the radio ecological monitoring performed at Kozloduy NPP were confirmed with four successful participations in the year into renowned international laboratory comparisons, organized by ALMERA – IAEA and BfS – Germany and NPL – Great Britain.

Total activity of gaseous aerosol (RANG, LLA, Iodine-131) releases in % of the admissible mean annual value



In 2008 the gas aerosol releases into the atmosphere were considerably below the admissible values for safe operation, determined by the BNRA.

Due to the efficiency of the special processing and cleaning of water from the technological cycle of Kozloduy NPP, the summarized and specific activity of the discharge water fed to the Danube River continues to be within values below the admissible limits, determined by the NRA and agreed on by the Ministry of Health and the Ministry of the Environment and Water.

POPULATION DOSE LOAD CONTROL

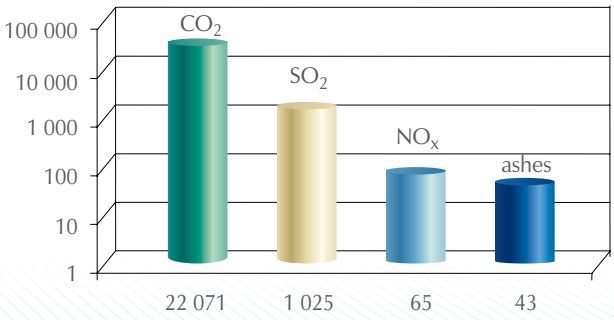
To assess the dose load of the population verified and validated models are applied, based on those adopted by the European Commission CREAM methodology. The maximum assessed individual effective yearly dose on the public, summarized from gaseous aerosol and liquid NPP releases into the environment is negligibly low (4 μSv/a) – below 0.2 % of the yearly natural irradiation background for the country (2.4 mSv). The maximum dose value is below the limit for release of control – 10 μSv/a (BNRP-2004).

The normalized collective effective dose of the public from gaseous aerosol effluents in the region is comparable with data, related to reactors of the same type worldwide. (According to data from the Scientific Committee on Nuclear Radiation Impact Studies with the UN – UNSCEAR).

CONTRIBUTION TO REDUCTION GREEN HOUSE GASES

Electric power production by NPPs contributes considerably to the preservation of the environment due to the lack of green house effect gases for a better future of the green planet. With the record breaking amount of electricity generated, only in 2008, Kozloduy NPP has saved the harmful impact of over 22 million tons of carbon dioxide (CO_2) equivalent, more than 1 million tons of sulphur dioxide (SO_2), 65 thousand tons of nitrogen oxides (NO_X) and 43 thousand tons of ashes, containing natural radioactivity.

Emissions of green house effect gases saved in 2008 by Kozloduy NPP compared to conventional coal fired plants (thousand tons)



IAEA FOLLOW-UP MISSION

An International Atomic Energy Agency (IAEA) Follow-up Mission was held in Kozloduy NPP from 10th to 20th November 2008. The ten-day mission was invited by the Nuclear Regulatory Agency and by the Bulgarian government at the request of Kozloduy NPP. The goal of the Follow-up mission was to assess the compliance of the implementation of the Modernization Programme of Kozloduy NPP Units 5 and 6 with the recommendations given in 1995 and 2000 by the IAEA for the upgrading of the 1000 MW Units 5 and 6.

IAEA Mission monitored the improvements made in five areas:

- Classification and Qualification of Equipment and Electrical Equipment;
- I and C (Instrumentation and Control and Automation) and Diagnostic Systems; Reactivity and in-core monitoring;
- Analyses;
- Systems;
- Fire, External and Internal Events, Probabilistic Safety Analysis, Seismic Design.

The team leader of the mission was Marco Gasparini. The other experts included in the IAEA team were Antonio Madonna, Peter Krš, Josef Mišak, Jiri Ždarek, Pierre Labbé and Peter Kelm. Detailed information was submitted to the IAEA team in the course of the review concerning the upgraded and newly-installed systems and facilities, among which were the system for control of critical parameters, the system for safety functions monitoring, Ovation control information system, primary circuit diagnostic systems; the control system for the mechanical status of the main circulation pumps, the systems for emergency and warning protection and the system for group and individual management of the control rod drive control system; the new safety valves of steam generators and the measures for feedwater and steam pipelines strengthening etc.

During the final meeting in Kozloduy NPP, the IAEA team assessed the working environment and the adequate cooperation with their counterparts from the Bulgarian Nuclear Power Plant as being of the highest level. Marco Gasparini, the team leader emphasized the professional skills and the commitment of KNPP management and specialists alike. In his speech he said: „The results of our review are excellent. We are impressed by the complexity and the amount of the activities implemented under the Modernization Programme. I think you should be proud of it. We have experience from many reviews in different plants and I can say you are among the best plants in the world.“ At the end of the review the draft report with the mission conclusions for the five areas reviewed was submitted to the Chairman of the Nuclear Regulatory Agency Sergey Tzotchev. The official report was submitted to the Bulgarian Nuclear Regulatory Agency at the end of the year.

The National Nuclear Regulatory Agency was engaged throughout the overall implementation of the Modernization Programme for the 1000 MW Units 5 and 6. BNRA Chairman said that the results from the implementation of the Modernization Programme along with the continuous process of modernization and improvement guarantee the future safe operation of these units.

INVESTMENT PROJECTS

In 2008, the investment projects implemented in Kozloduy NPP amounted to 104 847 thousand BGN, while the planned amount in the Company Investment Programme was 104 491 thousand BGN.

The funding from the plant's own resources reached 76 095 thousand BGN. The major part of the expense was designated to finance measures on the continuous improvement of operational safety and reliability of the 1000 MW units.

In 2008 the implementation of the Modernization Programme of Units 5 and 6 was reported. Nevertheless the modernization process for safety maintenance and enhancement in Kozloduy NPP is still going on. In the pursuance of the project for overall replacement of the safety control systems of Units 5 and 6 in 2008 the second safety system of Units 6 was replaced by the plant's own resources under the IP. The newly-commissioned system „System for operational monitoring and maintenance of main primary circuit water chemistry parameters of Units 5 and 6" ensures continuous access for operators to information that is extremely important for their work.

Activities for improvement of the Spent Fuel Storage Facility safety have been financed as well as activities for meeting the license conditions: implementation of measures for maintenance and enhancement of KNPP security and physical protection; modernization of equipment under the Programme on reliability enhancement of the Open yard switchgear (SG), including continuation of the step-by-step modernization of the control measurement transformers in the SG, imposed by the requirements for higher precision in power measurement; modernization of the relay protections by new generation microprocessor protection systems and establishment of an information system for collection and processing of the data from them and from the recording devices of electrical transient processes etc.

The implementation of measures, related to improvement of quality and efficiency of heat supply of the town of Kozloduy and the NPP continued throughout the year; improvement of the environmental parameters in accordance with the Programme on maintaining Kozloduy NPP activities in compliance with the norms and standards concerning the environment; activities, related to the social sphere – reconstruction of hostel No.1 and recreation facilities, property of the NPP.

The activities under the projects funded by external aid amount to 26 799 thousand BGN. 355 thousand BGN of this has been used for delivery and installation of equipment to improve the TV system for perimeter monitoring in order to strengthen the KNPP Physical Protection System. The project was funded by IAEA. 26 444 thousand BGN have been provided by the International Decommissioning Support Fund under the Framework Agreement for Gratuitous Grant by the European Bank for Reconstruction and Development (EBRD) and the Nuclear Facilities Decommissioning Fund.

In 2008 the total amount of long-term assets put in use was 82 921 thousand BGN, out of which 77 994 thousand BGN ensured by plant's own means and 1 959 thousand BGN were credits under Units 5 & 6 Modernization Programme and 2 968 thousand BGN from aids.

FINANCIAL STATUS

The successful fulfilment of the generation, maintenance and investment programmes of Kozloduy NPP in 2008 resulted in a maximum volume of additional revenues – 152 156 thousand BGN. Thus concluding the year with a profit of 70 110 thousand BGN after taxation as the planned profit was 27 012 thousand BGN.

The revenues of the company for 2008 total 835 564 thousand BGN. Due to these revenues the Company ensured its solvency and provided financial resources for all duties related to the plant activities.

The net income of sales amount to 777 153 thousand BGN. The income from financing total 58 411 thousand BGN, as 99% out of them are from international financing and 1% is from the State budget.

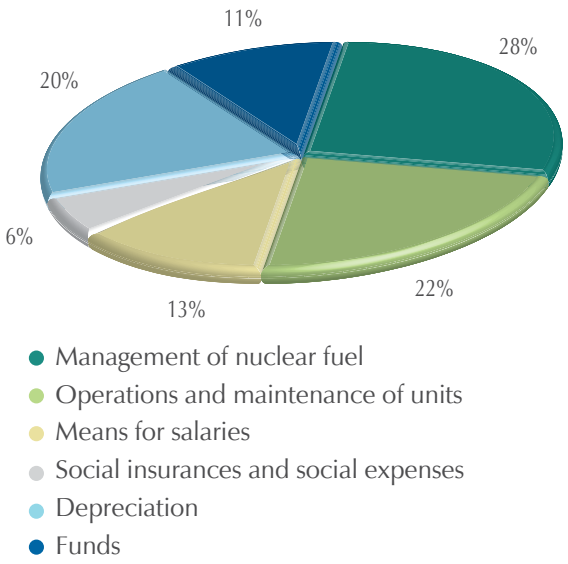
The costs of Kozloduy NPP in 2008 amount to 765 454 thousand BGN. The major part is regulated in according to national law, thus restricting the possibilities to reduce them.

The largest relative share are the expenditures for nuclear fuel management, depreciation, operation and maintenance of units.

The good financial results from the activity of the nuclear power plant ensured the possibility of repayment of the long-term loan ahead of schedule (expiry date 20.05.2020) from Rosexim bank, Russia, intended for funding the implementation of a group of measures under the Modernization Programme of Units 5 and 6. The overall remaining amount was paid, principal – USD 42.7 m., interests – USD 1.6 m.

Due to the payment of the loan ahead of schedule interests amounting to USD 18.2 m. were saved; the positive effect was achieved because the payment was made at a low value of the USD; the currency risk for the company has been considerably reduced. And last but not least the state guarantee for the loan has been released for the 2009 State budget.

Structure of Kozloduy NPP Plc expenditures in 2008



In pursuance of the Company commitments in compliance with the Strategy for Spent Fuel and Safe Radioactive Waste Management adopted by the Council of Ministers, three transportations of SNF have been financed totalling to 99 871 thousand BGN.

The Company financial stability allowed the servicing of obligations under the state-guaranteed credits for the modernization of Units 5 and 6 and the obligations to the Safe Management of Radioactive Waste Fund and Nuclear Facilities Decommissioning Fund. The contributions made to the two funds amount to 78 810 thousand BGN. The contributions made to the State budget now total 147 857 thousand BGN, the payments made for the personnel in social and health funds amount to 39 678 thousand BGN.

Regardless of the closed units, the dynamics of the economic environment, the difficulties in the process of transition to the liberalized market, regulation in the sector and other external factors, Kozloduy NPP kept maintaining an acceptable cost of the electricity generated.

BALANCE SHEET OF KOZLODUY NPP PLC KOZLODUY AS PER 31 DECEMBER 2008	Current year thousand BGN	Last year thousand BGN
ASSETS		
Non-current assets, incl.:		
Tangible fixed assets	1 182 196	1 234 755
Intangible assets	22 185	32 580
Financial assets	232	232
Investments in associates	1 161	1 229
Loans granted	12 225	-
Other non-current assets	105 464	114 632
Total sum of non-current assets	**1 323 463**	**1 383 428**
Current assets, incl.:		
Inventories	241 843	199 901
Trade debtors and other receivables	139 305	94 355
Cash and cash equivalents	121 350	169 283
Current tax receivables		5
Expenses for future periods	4 766	4 456
Total sum of current assets	**507 264**	**468 000**
Total sum of assets	**1 830 727**	**1 851 428**
Liabilities and Equity		
Equity, incl.:		
Share capital	101 716	101 716
Reserves	977 660	976 431
Financial results from previous years	7 042	4 347
Financial results from current period	70 110	3 459
Total sum of equity	**1 156 528**	**1 085 953**
LIABILITIES		
Non-current liabilities, incl.:		
Fixed bank loans	417 099	501 327
Deferred tax liabilities	48 075	48 660
Long-term provisions	11 154	7 887
Funding for FA	69 236	74 378
Total sum of non-current liabilities	**545 564**	**632 252**
Current liabilities, incl.:		
Trade and other payables	52 963	59 277
Current portion of long-term liabilities	31 624	30 390
Current tax payables	22 516	19 353
Short-term provisions	17 455	16 303
Funding current activities	4 077	7 900
Total sum of current liabilities	**128 635**	**133 223**
Total sum of liabilities	**674 199**	**765 475**
Total sum of liabilities and equity	**1 830 727**	**1 851 428**
Contingencies	40 167	910

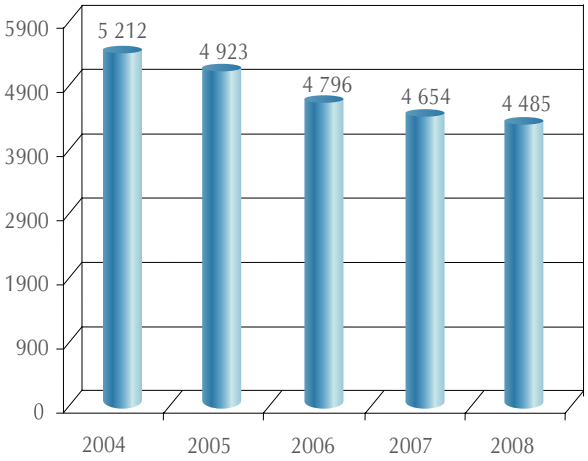
REVENUES STATEMENT OF KOZLODUY NPP PLC KOZLODUY FOR 2008	Current year thousand BGN	Last year thousand BGN
Profit from sales	777 153	596 865
Other revenues	58 411	37 292
Changes in the production balance and independent production	15 848	-4 200
Balance value of goods sold and long-term assets	-1508	-967
Capital own expenses	162	230
Expenses for liquidation of fixed assets		38
Expenses for materials	-140 360	-112 694
Expenses on hired services	-218 065	-172 552
Depreciation costs	-143 901	-140 904
Expenses on salaries /remunerations/	-94 117	-79 329
Insurance costs	-30 723	-26 671
Other costs	-116 655	-81 415
incl. provisions	-5 749	-1 009
Financial income/expenses	-27 352	-11 649
Income of associates	414	-
Profit /loss before taxation	79 307	4 044
Tax expenses	9 197	585
Profit /loss for the period	70 110	3 459

Human resources management is amongst the main strategic activities in the policy of Kozloduy NPP. It is focused on the establishment of high professional standards and working environment that result in competent, responsible and motivated employees. Joining a solid team, proven throughout the years and having established values, evolves the personal potential, encourages initiatives in search of the best results in order to achieve successfully the Company goals.

The gradual reduction of the number of personnel (by approximately 20% after the closure of Units 1 and 2 in 2002) was achieved after a detailed analysis and optimization of the pay-roll, separation of activities and encouragement of early retirement, without dismissing personnel.

By means of analysis of the need of the vacant positions, re-structuring of organizational units and separation of cleaning activities, at the end of 2008 the number of the pay-roll staff was 4 485. Compared to the end of 2007, the number of workers employed by KNPP has been reduced by 169.

Number of Kozloduy NPP personnel



WORKING CONDITIONS

Safe and healthy working conditions for the nuclear power plant workers and employees are maintained in compliance with the legal framework in Bulgaria harmonized with the European requirements effective in this area.

Reduction of exposure to professional risks is ensured by means of safety enhancement and applications of measures for health protection; laboratory measurements of parameters in the working environment; training and enhancement of personnel awareness on safety operation rules. Personal protective means are provided for the personnel of Kozloduy NPP, free wholesome food, reduced working hours, obligatory occupational hazard insurance.

A specific demonstration of the effectiveness of the policy for improvement of working conditions and of the measures undertaken in this direction is the steady trend of the low number of industrial safety accidents. The employee injuries coefficient at the NPP for the year is an extremely favourable value – 0.16, this being 15 times lower than the mean value for the industry – 2.39. There is no lethal accident recorded of in 2008 in Kozloduy NPP. Only one out of eight occupational injuries is directly related to production activity.

TRAINING

All conditions for up-to-date and qualitative training have been established in the plant Training Centre (TC). A total of 40 000 participations in training have been organized and carried out for the personnel in 2008 of different purpose, scope, subject and form of conducting, approximately 26 000 out of which have been in theoretical training.

The specialists whose activities are related to nuclear safety and radiation protection are being trained under separate training programmes developed according to the training and qualification system and in compliance with the License for specialized training. During the year a total of 84 such initial training programmes and 308 refreshing training programmes were developed. For their implementation, 97 training courses were accomplished in the area of normative requirements, radiation protection and nuclear safety, technology and operational modes, the implementation of information systems, human factor etc.

Senior operations personnel in Kozloduy NPP undertake the full scope initial and supporting simulator training required by the normative documents.

For the training of personnel outside the scope of the license in addition to the typical training programmes, 49 individual training programmes were accomplished and 58 synopses developed.

To provide access for all subcontractors to KNPP site and the individual working places the TC organized and conducted 348 courses and trained 6 479 people. Theoretical and practical training was organized and conducted for MEE employees in order to enhance their qualification.

In relation to an order from Worley Parsons, a specialized training was developed and conducted for 41 persons of their staff for which they have been granted the relevant certificates.

In compliance with the License granted, the TC conducts training and issues qualification certificates on activities with ionizing radiation sources to outsourcing organizations. 41 persons from different companies from all over the country acquired qualification for activities with ionizing radiation sources in 2008 and 14 persons, holders of such certificates, had a supporting specialized training.

Individuals applying for ionizing sources handling certificates should pass an obligatory check up at the Psycho-physiological laboratory at the Kozloduy NPP, entitled to grant a conclusion on their serviceability.

Keeping the good tradition of Kozloduy NPP to maintain tight relations with the educational institutions during the years,

the plant conducted training programmes and practices of students from various Bulgarian as well as foreign universities.

The performance of projects on keeping simulators in correspondence with the reference units continued throughout the year. It holds true to a large extent for FSS-1000 where significant modifications are performed ensuing from the implementation of the Modernization Programme for Units 5 and 6. The following models have been introduced at the simulator:

• Model of the group and individual control rod drive control system;

• Model of the Expanded safety parameter display system – XSPDS;

• Model of the system for emergency/ warning protection.

The implementation of the model of the control information systems Ovation as ACYT, YKTC and KIS is in the process of completion.

The use of simulators as tools for technical analysis and engineering tasks has been expanded. Except for the validation of the Symptom Oriented Emergency Procedures, another example of such an activity is the commissioning of XSPDS system, which was implemented first at the FSS-1000 and after that at the referent unit.

CAREER DEVELOPMENT

Kozloduy NPP has been making efforts for many years in career development of its specialists.

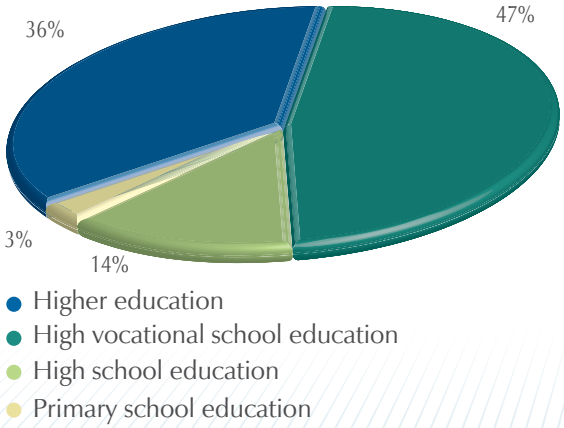
The possibility given to participate in the system for filling the vacancies is very good for the professional development. Applicants from the plant having the appropriate qualification and education gain advantage over the others. The efficiency of this approach is supported by the fact that out of 113 vacancies announced in 2008, 100 of them have been occupied by plant specialists after the selection.

Kozloduy NPP won a project for English language training under the operational programme 'Human Resources Development', funded by the European Social Fund. The project includes 90 employees and workers from the plant and is directed to the enhancement of the personnel competitiveness and adaptation to the new changing conditions on the labour market.

Kozloduy NPP has always encouraged its employees to enhance their qualification. During the year 82 specialists from the plant were granted permission to continue their education in higher schools with additional paid leave for the purpose.

Towards the end of 2008 36% of KNPP employees had higher education, 47% – high vocational school education, 14% – high school education, 3% – primary school education.

Distribution of Kozloduy NPP personnel according to education



FEEDBACK

In 2008 at the Psycho physiological laboratory of Kozloduy NPP two psychological studies of representative samples of plant workers and employees were carried out.

The psychological status, stress resistance and accumulated stress of 489 persons from the staff were examined in April. The aim was to measure and compare the levels of significant components of the psychological status of separate groups of Kozloduy NPP employees and workers differentiated by gender, age, education, work experience in the plant, structural unit, category of personnel and position occupied. The results have shown that the highest percentage values belong to the positive components of psychological status-being energetic, active and having mental comfort. In 84% of the cases studied the resistance to stress is within the norms, and in 83% there is no higher level of accumulated stress found.

Investigation of the motivation level of Kozloduy NPP Plc staff was performed for the third time in November. It included 468 employees from all structural units of the plant on the principle of the random sample. It was aimed to measure the attitude of the nuclear power plant workers towards 25 components of the working environment. In accordance with the results achieved, the highest percentage of people has been motivated by the following factors: safe labour conditions, health care, trust in team interrelations, line manager's leadership skills. The comparison of the levels of motivation for 2007 and 2008 of the corresponding factors shows a positive trend – growth in the percentage of highly-motivated workers and employees.

SOCIAL RESPONSIBILITIES

All Kozloduy NPP workers and employees benefit from a wide social package, including additional voluntary health insurance, additional voluntary pension security, high quality health services, possibilities to recover in a recreation centre etc.

Considerable is the care that Kozloduy NPP takes for the quality of health prevention, adequate recreation, varied cultural life and up-to-date sport conditions for the plant employees as well as for their families. Special attention is paid to the establishment of different possibilities for children to express their creativity.

The social responsibilities undertaken in the policy of Kozloduy NPP are focused not only on its own staff, but also to all young people in Bulgaria. As an expression of it we entered the Students' Summer Training Programme for the fourth time. The social commitments of Kozloduy NPP towards underprivileged children was substantiated by providing fuel to homes for children deprived of parental care through the support of the Bulgarian Christmas initiative etc.

The long-term tradition of active support for public significant projects of the local government was continued in 2008 with the participation of Kozloduy NPP in the urban development of the housing estates by establishing recreation areas, playgrounds, landscaping etc.

INTERNATIONAL COOPERATION

One of the major challenges Kozloduy NPP faces is to maintain and further develop international cooperation to strengthen its position, for the plant is reputed to be a secure and effective producer of ecologically friendly, clean energy.

Within the context of accomplishing its mission to be a safe, efficient, secure and environment friendly electricity and heat power supplier, Kozloduy NPP's international activities are directed to create conditions to develop, familiarize with and apply latest tendencies, methods, approaches and good practices in the operation of nuclear facilities as well as to comply with the international obligations related to the use of nuclear energy for peaceful purposes.

A continuous process of exchange of information and operational experience is in place at Kozloduy NPP through its active participation in the most renowned world organizations of the nuclear community – WANO, IAEA, EURATOM, FORATOM, ENS, WNA etc.

Amongst the most important events in the past year with regard to enhancement of safety and operational reliability of Kozloduy NPP were the Periodic Safety Review (PSR) performed on Units 5 and 6 (10-20 November), according to IAEA methodology „Periodic Safety Reviews for NPPs in operation" as well as the IAEA expert Follow-up Mission to review the implementation of Units 5 and 6 Modernization Programme. In 2008 a WANO - Moscow centre technical support mission was conducted in Kozloduy NPP

on Event Investigation based on a well-proven Root Cause Analysis methodology HPES (Human Performance Enhancement System) developed by INPO.

Amongst a variety of international events, the presentation of the well-known Bulgarian TV journalist Toma Tomov documentary „Restart Kozloduy" before MEPs and EU Commission representatives as well as the discussion on the Energy situation in Bulgaria and in the countries of the Balkan region might be earmarked to be of greatest importance.

In 2008 the Plant was visited by a number of foreign delegations, high ranking representatives of various international organizations and diplomats: a delegation of the NATO Parliamentary Assembly (May), His Excellency Etienne de Poncins – Ambassador of France to Bulgaria, representatives of the Department of Trade and Industry of Great Britain (March), of the Japanese Electric Power Information Centre, of the Hungarian Nuclear Society (April), etc.

Within the technical cooperation framework Kozloduy NPP experts took part in missions to foreign nuclear power plants such as the OSART mission in Balakovo NPP – Russia, the Peer review in Tianwan NPP – China, Peer review in Higashi-dori – Japan, Technical support and training mission in Darlington – Canada and Seabrook – the USA.

A series of specialized conferences and seminars were conducted with the support and most active participation of KNPP experts. Here are some of them: the European summit on economy, International conference „Nuclear power production in Bulgaria – national, regional and world power security"; International conference of the European Nuclear Society (ENS) on safety of nuclear installations; Working meetings of KNPP representatives with the Romanian regulatory body CNCAN related to a joint exercise to prevent terrorist actions in international waters; Session of the WANO MC managers; Meetings on preliminary consultations with representatives of Central Directorate „Energy and Transport" with the European commission on coordination of a protocol to the 1995 Agreement with the Russian federation on cooperation in the area of nuclear power and the Bulgarian proposal before the Uranium Enrichment International Centre (September). In addition KNPP experts took part in more than 30 technical meetings, seminars and working sessions organized by IAEA, WANO, EC, FORATOM etc.

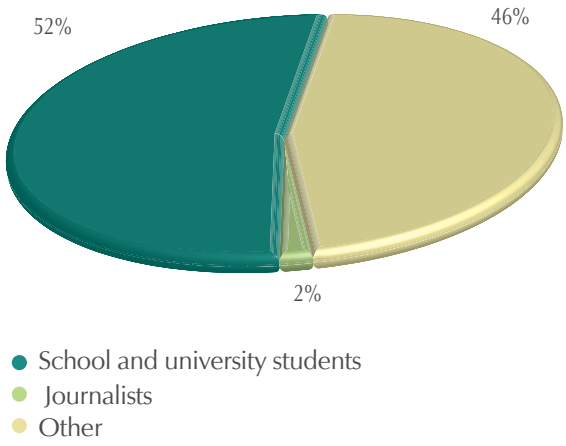
PUBLIC RELATIONS

Kozloduy NPP communication policy is governed by the principles of complete openness and transparency with regard to the operation of the NPP. The respectful and honest dialogue with all audiences extends the good practices as established in the previous years.

Throughout the year, mass media were timely and exhaustively informed on a regular basis of all developments by means of press releases and news bulletins. In response to the interest shown by Bulgarian as well as by foreign journalists the required information was promptly submitted and a number of press-conferences and interviews with KNPP managers and experts were organized. The already traditional yearly press conference of the Company managers' team was also organized on time.

Public interest in the nuclear power plant in 2008 brough 2 232 visitors from this country and from abroad, this number exceeding the number of visitors in 2007. It is worth mentioning that the Kozloduy NPP grants the possibility the visitors to familiarize themselves not only with the Information centre but also with the control rooms and machine halls of the nuclear reactor units. Staying with the tradition, the predominant part of the guests to Kozloduy NPP in 2008 were high school and university students, many of them coming from France, Russia, Serbia, Macedonia, etc. The year 2008 re-established the tendency where the number of guests to KNPP on the Open doors days was again record breaking. This twice a year initiative was taken advantage of by more than a thousand guests from all over the country who became acquainted with the operation of the Plant.

Visitors – structure 2008



Important sources of information with regard to public attitudes towards the further development of nuclear power in the country came from the enquiries raised by many adult Bulgarian visitors to the NPP. The inquiry performed in 2008 was for a second consecutive year and the participants were 12% more than those in 2007.

From the end of August, 2008 the newly modified Internet site of Kozloduy NPP welcomes visitors at www.kznpp.org. The site has now improved functionality to

respond to the contemporary tendencies and with completely refreshed design and incorporates new headings. All modifications introduced are to facilitate all those taking an interest in the nuclear plant to obtain information with the maximum of ease.

Among the printed editions of Kozloduy NPP – the annual report, handouts, leaflets, brochures etc. readers pay special attention to the „Parva Atomna" journal, which has been published 18 years in row now.

One of the indisputable 2008 priorities continued to be the further development of the communication system with regard to the internal audience groups. An important role in this process was attributed to the „KNPP news" daily radio emissions, prepared by the Information centre team, as well as the multiple headings on the Intranet page maintained, such as: the „Daily press review", „In the news", „Announcements", „Opinions" etc. Each of these is of great importance in the process of dissemination of information on the events, taking place on site and off site KNPP for personnel. The weekly Intranet inquiry „Subject of the week" is another way to maintain live feedback from staff to KNPP management team by means of assessments, opinions and recommendations on certain topical subjects.

During the IAEA Follow-up mission in November, a special Information bulletin was issued on a daily basis in order to involve staff on a wider scale in the aim to achieve the goals as set by the Company management. The Daily bulletin issued both on paper and electronically presented the objectives and scope and closely followed the entire performance of the mission. Nearly 80% of KNPP personnel assessed the initiative as very well accomplished.

TABLE OF CONTENTS

KOZLODUY NPP PLC
A SUBSIDIARY COMPANY OF THE BULGARIAN ENERGY HOLDING
Tel: +359 973 7 20 20, +359 973 7 20 00, Fax: +359 973 8 05 91, www.kznpp.org