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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the implementation of the work under the nuclear decommissioning assistance programme to Bulgaria, Lithuania and Slovakia in 2015 and previous years

1 INTRODUCTION

This report reviews the progress in 2015 and previous years under the European Union nuclear decommissioning assistance programmes in Bulgaria, Lithuania and Slovakia. It fulfils the reporting requirements of the relevant Council Regulations[1,2] and will be the basis for adopting the next annual work programmes under the assistance programmes.

Nuclear decommissioning assistance programmes — purpose, budget and scope

Upon their accession to the EU, Bulgaria, Lithuania and Slovakia committed to close down eight Soviet-designed nuclear power plants before the end of their scheduled lifetime. In exchange, the EU committed to provide financial assistance to the three Member States for decommissioning the designated power plants, namely:

- Kozloduy Nuclear Power Plant (NPP) units 1 to 4 in Bulgaria;
- Ignalina NPP in Lithuania; and
- Bohunice V1 NPP in Slovakia.

Since 2014, the scope of the nuclear decommissioning assistance programmes[1,2] is to assist the relevant Member States in implementing the steady process towards the decommissioning end-state whilst ensuring that the highest safety standards are applied.

In all three cases, the end-state is defined as brownfield: the nuclear reactor buildings will be dismantled as well as those auxiliary buildings that are not intended for re-use; near-surface repositories will be built or upgraded to dispose of low and intermediate level radioactive waste from decommissioning; and interim storage facilities will be commissioned for spent fuel and radioactive waste that cannot be disposed of in near-surface repositories. Beyond decommissioning the disposal of spent fuel and radioactive waste in a deep geological repository is developed by each Member State in its national programme for the management of spent fuel and radioactive waste as required by the relevant directive[3].

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1 Council Regulation (Euratom) No 1368/2013 of 13 December 2013 on Union support for the nuclear decommissioning assistance programmes in Bulgaria and Slovakia, and repealing Regulations (Euratom) No 549/2007 and (Euratom) No 647/2010 (OJ L346, 20.12.2013, p.1) & correction (OJ L8, 11.1.2014, p.31).

2 Council Regulation (EU) No 1369/2013 of 13 December 2013 on Union support for the nuclear decommissioning assistance programme in Lithuania, and repealing Regulation (EC) No 1990/2006 (OJ L346, 20.12.2013, p.7) & correction (OJ L8, 11.1.2014, p.30 & OJ L121, 24.4.2014, p.59).

3 Council Directive 2011/70/Euratom of 19 July 2011 on establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, OJ L199, 2.8.2011, p. 48-56.

The current assistance programme provides no new financial support for mitigation measures in the energy sector[4]; the implementation of existing projects will, however, continue for several years.

Article 2 of each of the two regulations[1,2] defines the main specific objectives of the decommissioning programmes for the 2014-2020 funding period. These objectives were further detailed in implementation procedures[5] adopted by the Commission in August 2014 and new baselines were established for each decommissioning programme up to the respective end-state.

Table 1 - Funds earmarked to decommissioning programmes by source as at 30/06/2015 (€ million)

	Union assistance			**National sources**	**Other sources**[7]	**Interests**	**Total**
	To end 2013[6]	**2014-2020**	**Total**				
Kozloduy	491	293	784	147	9	17	**957**
Ignalina	1 043	451	1 494	91[7]	22	36[8]	**1 643**
Bohunice	437	225	662	372	8	11	**1 053**
Total	1 971	969	2 940				

Table 2 - Main baseline figures and shortfalls

	End date	**Estimated cost** *(€ million)*		**Shortfalls**[9] *(€ million)*	
		to 2020	**Total to end**	**to 2020**	**Total to end**
Kozloduy	2030	800	1 107	None	150
Ignalina	2038	1 597	3 377	None	1 734
Bohunice	2025	996	1 246	None	193

4 In previous financial frameworks, EU financial assistance was established to support Member States to safely decommission reactors subject to early closure and to implement mitigation measures in the energy sector, such as replacement capacity, environmental upgrading, modernisation and energy efficiency.

5 Commission Implementing Decision of 7.8.2014 on the rules of application for the nuclear decommissioning assistance programmes for Bulgaria, Lithuania and Slovakia for the period 2014-2020 — C(2014) 5449 final.

6 Inclusive of funds that were not yet committed to grants from the International Decommissioning Support Funds.

7 As at 30 September 2015.

8 The new delegation agreement with CPMA signed in June 2015 for the framework 2014-2020 authorised reuse of interests for the Ignalina programme; as a consequence an additional amount of EUR 2 million is expected to be available in the near future.

9 The financial shortfall is calculated as the difference between the estimated cost of the decommissioning programme (Table 2) and the earmarked funds from the Union, the Member State, other sources and interests (Table 1).

2 PROGRAMME ADMINISTRATION

2.1 Method of implementation

The Commission implements the assistance programmes through indirect management. Since 2001 implementation tasks have been entrusted to the European Bank for Reconstruction and Development (EBRD), with contributions to three International Decommissioning Support Funds. In Lithuania since 2003 an increasing portion of the tasks have been entrusted to a national Central Project Management Agency (CPMA). Thus the Ignalina programme is managed through two channels.

In 2015, upon request of the Slovak Republic, the Commission services assessed the national Slovak Innovation and Energy Agency (SIEA) with the aim of establishing a new implementation channel for the Bohunice programme. The terms of a delegation agreement are currently under negotiation.

2.2 Annual programming and monitoring

The Commission encourages the move towards the full ownership of decommissioning at national level. Accordingly, each Member State appoints a Programme Coordinator (ministerial or state secretary rank) that is responsible for the programming, coordination and monitoring of the respective decommissioning programme at national level.

Programme Coordinators must submit annual work programmes to be approved and adopted by the Commission along with the financing decisions. Moreover, a monitoring committee is in place for each Member State to perform monitoring and reporting functions; the Commission is a member of these committees and co-chairs their meetings with the Programme Coordinators.

During 2014, the new procedural framework was progressively developed and implemented. In 2015, monitoring committees were fully operational in each Member State alongside the assembly of contributors of the relevant International Decommissioning Support Funds. The Commission services supported the beneficiaries in implementing an earned value management system[10] to measure progress and performance. This report is based on the output provided by the monitoring committees.

In 2015 the Commission services focussed their in-field monitoring on radiation protection systems, in line with the requirement to ensure application of the highest safety standards. The completion of this specific monitoring action is scheduled in 2016 and should bring additional indicators of safety related performance.

2.3 Audits and evaluations

The assistance programmes are subject to regular audits and evaluations.

[10] A project management technique for measuring performance and progress.

In 2015, the Commission's Internal Audit Service — as part of its own internal audit programme — undertook an audit of the governance and supervision of the assistance programmes. Following a critical finding concerning the assessment in 2014 of the ex-ante conditionalities stemming from the relevant regulations[1,2], Commission's Directorate General for Energy issued a reservation on the grounds of a non-systematic deficiency in the internal control system and launched an action plan to carry out in particular an in-depth assessment of the robustness of the financing plans in each relevant Member State for the safe completion of decommissioning.

The European Court of Auditors also initiated a performance audit, following its previous audit[11]. The new audit report is expected in 2016.

In 2016, the Commission services will start the necessary activities in preparation for the mid-term evaluation of the nuclear decommissioning assistance programmes.

2.4 Budgetary implementation

The Commission adopted the 2014 and 2015 annual work programmes and the associated financing decisions[12,13] on 30 October 2014 and 30 July 2015 respectively.

The relevant delegation agreements with the implementing bodies (EBRD, CPMA) were signed in June 2015. All funds earmarked for 2014 were committed under these agreements on 5 June 2015 (EBRD) and on 5 October 2015 (CPMA). The 2015 funds earmarked for Bulgaria and Lithuania were committed on 23 December 2015 (EBRD) and on 23 October 2015 (CPMA) respectively; for Slovakia, the 2015 commitment is pending finalisation of the delegation agreement with the SIEA, currently under negotiation.

The Commission has transferred funds to the EBRD and CPMA, based on forecast contract needs and progress in project implementation.

3 PROGRESS AND PERFORMANCE

All the reactors are shut down, with all but one core[14] defueled. Key milestones were reached; decommissioning licenses were issued in Bulgaria and Slovakia; in Lithuania the commissioning of the spent fuel and waste management infrastructures entered the cold trials stage. These achievements represent significant steps towards enhanced safety at the sites.

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11 ECA Special Report 16/2011 - *EU financial assistance for the decommissioning of nuclear plants in Bulgaria, Lithuania and Slovakia: achievements and future challenges.*

12 Commission Implementing Decision of 30.10.2014 on the adoption of the financing decision for the implementation of the nuclear decommissioning assistance programmes for Bohunice, Ignalina and Kozloduy in 2014 — C(2014) 8104.

13 Commission Implementing Decision of 30.07.2015 on the adoption of the financing decision for the implementation of the nuclear decommissioning assistance programmes for Bohunice, Ignalina and Kozloduy in 2015 — C(2015) 5211.

14 Ignalina NPP Unit 2.

Substantial progress has been achieved for all three decommissioning programmes; this is especially noticeable where dismantling activities have generated significant amounts of materials, mostly for clearance and then recycling.

At the reference date for reporting, 30 June 2015, the performance was generally in line with expectations, with some points of excellence and some residual risks.

3.1 Bulgaria — Kozloduy nuclear power plant

The Kozloduy nuclear power plant (NPP) units 1-4 are VVER 440/230 reactors: units 1 and 2 were shut down in 2002 and units 3 and 4 in 2006.

Units 1 and 2 have been under the control of the Bulgarian State Enterprise for Radioactive Waste (SERAW) since 2008. Units 3 and 4 have been free of fuel since July 2012 and were transferred from the power plant operator to SERAW in March 2013. Under the supervision of the Ministry of Energy, SERAW is the licence holder / operator in charge of the decommissioning of Kozloduy NPP units 1-4 and of the future National Disposal Facility (NDF).

Programme baseline

The Commission adopted the programme baseline in Annex 4 of the implementation procedures[6]. The baseline is substantiated in the Kozloduy NPP decommissioning plan, which was approved by Bulgarian authorities, as confirmed in the decommissioning licence. The plan complies with nationally defined requirements and meets International Atomic Energy Agency (IAEA) standards.

With reference to previous versions, the revised plan advances the end date of the programme by five years and the new (2013) cost estimate of EUR 1 107 million represents a decrease of 11 %.

Progress

The objectives that were due by the reference date for reporting were achieved on schedule according to the baseline.

The reactor cores and ponds are defueled and the decommissioning licence for Kozloduy NPP units 1-2 was issued in November 2014. In April 2015, SERAW submitted to the Bulgarian Nuclear Regulatory Agency an application for the decommissioning licence for Units 3-4; however the licence is not going to be issued in January 2016 as planned. Dismantling of the turbine hall has steadily progressed.

Performance

The overall performance was satisfactory. The amount of scrap metal produced in the turbine hall reached 83 % of the planned values. In contrast, demolished concrete in the turbine hall exceeded the target by 66 %.

The schedule performance was optimal for many decommissioning projects;[15] however delays to some projects could not be prevented. In particular major risks of delay had arisen from legal challenges on the environmental impact assessments associated with the realisation of the radioactive waste volume reduction facility and the decommissioning programme. These risks were removed with the rejection of final appeals by the Bulgarian Supreme Administrative Court.

Conversely, the schedule performance for the NDF projects was sub-optimal because of the need to repeat the relevant environmental impact assessment.

In the reporting period, the programme generally faced greater risks from administrative rather than technical causes. This is confirmed by the postponed issuing of the decommissioning licence for Kozloduy NPP Units 3-4. These risks represent a threat to the programme's critical path that needs to be addressed in the 2016 annual work programme.

In 2014 and 2015, the earned value of the projects was aligned with actual costs, demonstrating a satisfactory cost performance.

Co-financing

On 31 December 2014, Bulgaria's national sources of funding amounted to EUR 147 million, corresponding to about 13 % of the estimated cost of the decommissioning programme. On the basis of current available information, there is no financial shortfall to be expected until 2020. In June 2015 the financial shortfall for the period 2021-2030 amounted to about EUR 150 million (see Table 2), i.e. 14 % of the total estimated cost to achieve the decommissioning programme's end-state in 2030.

In the first semester 2015 a decrease of the financial shortfall was registered because of re-allocations from energy sector[16] to decommissioning in the Kozloduy IDSF. Bulgaria intends to increase the national contribution after 2020 with funds originating from the sale of electricity provided by Kozloduy nuclear power plants units 5 and 6, which are in the process of long term operation.

3.2 Lithuania — Ignalina nuclear power plant

The Ignalina NPP consists of two RBMK 1500 reactors: units 1 and 2 were shut down in 2004 and in 2009 respectively.

The Lithuanian state enterprise Ignalina Nuclear Power Plant (INPP) is the licence holder / operator in charge of the facilities under decommissioning and of the waste disposal facilities. It operates under the control of the Ministry of Energy.

[15] The Kozloduy programme is broken down into two sets; the decommissioning projects and the NDF projects.

[16] In particular the project for construction of a heat generation plant was cancelled; the associated budget was € 39 million.

Programme baseline

The Commission adopted the programme baseline in Annex 2 of the implementation procedures.[6] The programme baseline is substantiated in the final decommissioning plan, which was approved by the Minister of Energy of the Republic of Lithuania on 25 August 2014. The plan complies with nationally defined requirements and meets IAEA standards.

The August 2014 plan follows a major review of the previous version (July 2005), including a reorganisation of the work-breakdown structure and the cost structure and the inclusion of several activities that were initially omitted. This led to a doubling of the cost estimate and postponement of the programme end date by 9 years.

Progress

The objectives that were due by September 2015[16] were achieved on schedule according to the baseline.

The key projects for the accomplishment of reactor defueling have reached important milestones: in October 2015, installation works were completed in the spent fuel pond halls; and the cold trials for commissioning started.

Moreover cold trials started in August 2015 for the commissioning of the radioactive waste processing and interim storage facilities.

Decontamination and dismantling activities in the turbine hall progressed noticeably; physical progress is 97 % in unit 1 and 15 % in unit 2.

Performance

Up until September 2015, the overall performance was satisfactory. The amounts of equipment dismantled exceeded by about 40% the planned quantities; the overall quantity of radioactive waste processed and stored was in line with the plan (processing target exceeded by 5 %, storage 6 % below target) although the performance for individual categories of waste varied above and below the estimates.

The schedule performance needs to be improved in some areas; however, delays that occurred up until the reference date for reporting had no impact on the programme's critical path. A major success in reducing the managerial risk was achieved with the zero-cost resolution of a long-standing contractual dispute potentially affecting a critical project (interim spent fuel storage facility) which is key to the accomplishment of the EU's main objective for financial assistance in this financial framework, i.e. the removal of spent fuel from the reactor buildings.

The earned value of the projects was aligned with actual costs, demonstrating a satisfactory cost performance.

Co-financing

As at 30 September 2015, Lithuanian national sources had funded decommissioning projects and energy sector projects to the tune of EUR 91 million and EUR 90 million respectively. On the basis of the current information there is no financial shortfall to be expected until 2020. Since the beginning of this financial framework, the decommissioning programme financial shortfall for the period 2021-2038 has remained unchanged in substance and stands at EUR 1.73 billion (see Table 2), i.e. half of the total estimated cost to achieve the decommissioning programme's end-state in 2038. The aforementioned in depth assessment (see section 2.3) will examine the robustness of the financing plans. As per the relevant national legislation[17] in force, the Lithuanian government will negotiate for the provision of adequate additional EU aid after 2020. However the same law commits to charging the State budget for all costs where no other financing sources are found.

3.3 Slovakia – Bohunice V1 nuclear power plant

The Bohunice V1 NPP consists of two VVER 440/230 reactors: units 1 and 2 were permanently shut down in 2006 and in 2008 respectively.

The Slovak *Jadrová a vyraďovacia spoločnosť* (JAVYS) is a company under control of the state through the Ministry of Economy. JAVYS is the licence holder / operator in charge of decommissioning Bohunice V1 and waste disposal facilities.

Programme baseline

The Commission adopted the programme baseline in Annex 3 of the implementation procedures.[6] The programme baseline is substantiated in the detailed Bohunice V1 NPP decommissioning plan dated 22 October 2014.

The detailed decommissioning plan is aligned with the decommissioning licensing documentation and complies with nationally defined requirements and meets IAEA standards.

The detailed decommissioning plan builds on previous documents, namely the conceptual decommissioning plan (2006) and the stage 1 decommissioning plan (2010), and incorporates the stage 2 decommissioning plan (2014). The detailed decommissioning plan retains the original work-breakdown structure and the initial programme end date (2025), but re-evaluates the overall cost estimate with an increase of 9 %.

Progress

The objectives that were due by September 2015[16] were achieved on schedule according to the baseline.

[17] TAR, Jun 16, 2014, No. 7639, Amendment law XII-914, Jun 5, 2014

The reactor cores and ponds are defueled, and the Slovak nuclear regulator issued the licence[18] for stage 2 of the decommissioning of Bohunice V1 NPP in December 2014.

As planned, all systems but one in the turbine hall and auxiliary buildings of reactor V1 were dismantled.

In respect of radioactive waste management, it is worth highlighting the successful completion of project C7-B for the treatment of sludge and sorbents; more than 5 000 drums of solidified radioactive waste were produced and handed over for conditioning and disposal.

Performance

Up until September 2015, the overall performance was satisfactory with peaks of excellence (e.g. project C7-B). The amounts of produced conventional and hazardous (non-radioactive) waste exceeded the planned values by 27 % and 5 % respectively. The production of conditioned radioactive waste for final disposal reached 75% of the planned cumulative value since 2014, yet in line with the output of dismantling/clean-up projects and putting in place relevant technological options for waste volume optimisation.

The schedule performance was optimal for most projects; however, delays to some projects could not be prevented. Up to the reference date for reporting, such delays had no impact on the programme's critical path. In the last part of 2015, a major project (project D2 — decontamination of the primary circuit) was suspended in light of contractual issues. As a result, the programme critical path might be affected. This risk needs to be addressed in Slovakia's 2016 annual work programme.

The earned value of the projects was aligned with actual costs, demonstrating a satisfactory cost performance.

Co-financing

As at 31 December 2014, the Slovak Republic national sources of funding amounted to EUR 372 million, corresponding to about 30 % of the estimated cost of the decommissioning programme. On the basis of the current information there is no financial shortfall to be expected until 2020. In June 2015 the financial shortfall for the period 2021-2025 was about EUR 193 million (see Table 2), i.e. 15 % of the estimated cost to achieve the decommissioning end-state[19].

[18] As per the national regulations, decommissioning licences are staged; the first-stage decommissioning licence, authorising dismantling activities outside controlled areas, was issued in 2011 as planned; the second-stage decommissioning licence was issued in 2014, ahead of schedule, authorising reactor dismantling.

[19] In preparation of the Slovakia's 2016 annual work programme, the Slovak Republic informed that the national sources of funding were increased to about EUR 476 million as of 31 December 2015, decreasing the financial shortfall to EUR 89 million.

3.4 Energy sector projects

At the end of 2013, the nuclear decommissioning assistance programmes had contributed to projects in the energy sector in line with the respective national energy policies. A portion of the funds committed before 2014 is still to be spent on projects underway.

Bulgaria

Assistance was provided to projects for energy efficiency (e.g. in public buildings, street lighting, mining equipment), electricity transmission and distribution, and power generation. Two thirds of projects were completed and disbursements amount to 59 % of commitments.

Lithuania

The Ignalina International Decommissioning Support Fund has efficiently and successfully contributed to projects in support of the development of the Lithuanian part of the power interconnection between Lithuania and Poland.

Through the CPMA, assistance was provided to projects for energy efficiency (e.g. in public buildings and street lighting); disbursements amount to about 50 % of commitments.

Slovakia

The assistance programme contributed to measures in the transmission sector as well as to energy efficiency measures in public buildings. The latter set of projects was completed. Major projects were also completed in the transmission sector. Overall, 70 % of projects were completed and disbursements amount to 55 % of commitments.

4 CONCLUSIONS

The definition and endorsement of their respective decommissioning plans showed that Bulgaria, Lithuania and Slovakia are committed to assuming ultimate responsibility to decommission the nuclear power plants in question.

The financing needs for completion of the decommissioning programmes have been established, as gaps were identified between the needs and the already secured funds, for which the EU assistance programme is a major contribution. On the basis of the presently available information, no financial shortfall is expected in any of the 3 countries until 2020. The accomplishment of the objectives of the 2014-2020 financial framework will bring substantially improved safety conditions at all three sites. However, as at the end of 2014[20], the constitution of the required additional funds in the long term (after 2020) calls for a careful follow-up, especially in Lithuania.

[20] Report from the Commission to the European Parliament and the Council on the implementation of the work under the nuclear decommissioning assistance programme to Bulgaria, Lithuania and Slovakia in the period 2010-2014 — COM(2015) 78 final.

Significant progress has been made, not only in preparatory work and organisational changes, but also in the actual removal of buildings and equipment, and processing of radioactive waste.

The detailed objectives and indicators (proposed by the three Member States and approved by the Commission with the adoption of the procedures[6]) enabled precise monitoring of the work progress based on quantitative information. Moreover, in cooperation with the beneficiaries, the Commission services introduced the earned value management methodology in the three programmes (see Table B.2 in annex), so that the comparability of progress in implementation — and effectiveness of Commission monitoring — was improved.

Outlook

The issuing of licences in Bulgaria and Slovakia opened the way to starting the dismantling of core systems.

In Lithuania, the commissioning of the spent fuel interim storage facility enters into its final stage with the transfer of spent fuel to the dry storage facility starting in 2017.

In the coming years, the clean-up activities will generate an increased flow of materials being removed from the nuclear installations.

The mid-term evaluation - due by the end of 2017 - will provide a substantiated assessment of the overall progress, of the short-term outlook as well as of the planning up to completion.