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## 1. INTRODUCTION

*This report presents the implementation of the European Union nuclear decommissioning assistance programme to Bulgaria, Lithuania and Slovakia for the period 2010–2014. It fulfils the reporting requirements both of the current<sup>8,9</sup> and previous<sup>4,5,6</sup> assistance programmes.*

### **Purpose and legal base**

Upon accession, Bulgaria, Lithuania and Slovakia committed to close down early eight older Soviet design nuclear power plants before the end of their scheduled lifetime. In exchange the Union agreed to assist financially the three Member States to decommission the concerned power plants:

- Kozloduy (KNPP) units 1 to 4 in Bulgaria,
- Ignalina (INPP) units 1 and 2 in Lithuania and
- Bohunice V1 (V1 NPP) units 1 and 2 in Slovakia.

The timing for Lithuania and Slovakia (accession in 2004) differs from Bulgaria (accession in 2007).

The EU assistance was implemented in distinct periods:

- (1) Pre-accession period through the PHARE programme,<sup>1</sup>
- (2) Post-accession under the Protocols to the relevant Acts of Accession,<sup>2,3,4</sup>
- (3) Extension until 2013 as per relevant Council Regulations.<sup>5,6,7</sup>

Two Council Regulations<sup>8,9</sup> and their corrigenda have established a new legal base, providing further support to the decommissioning programmes for the period 2014-2020.

The previous implementation report<sup>10</sup> describes the fulfilment of their initial commitment by the three Member States and the implementation of the assistance programme until 2009. The present report describes the activities and results starting

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<sup>1</sup> Programme of aid to central and east European countries

<sup>2</sup> OJ L236, 23.9.2003, p.33 and p.944

<sup>3</sup> OJ L236, 23.9.2003, p.33 and p.954

<sup>4</sup> OJ L157, 21.6.2005, p.11 and p.38

<sup>5</sup> OJ L 411, 30.12.2006, p.10

<sup>6</sup> OJ L 131, 23.5.2007, p.1

<sup>7</sup> OJ L 189, 22.7.2010, p.9

<sup>8</sup> OJ L346, 20.12.2013, p.1 & OJ L8, 11.1.2014, p.31

<sup>9</sup> OJ L346, 20.12.2013, p.7 & OJ L8, 11.1.2014, p.30 & OJ L121, 24.4.2014, p.59

<sup>10</sup> Report from the Commission to The European Parliament and the Council on the use of financial resources during 2004-2009 provided to Lithuania, Slovakia and Bulgaria to support the decommissioning of early shut-down nuclear power plants under the Acts Of Accession COM(2011) 432 final

from 2010 and ending on 31 October 2014, except for financial data, which is reported on until 30 September 2014.

### **Budget and scope**

The EU financial assistance was established to support the Member States to safely decommission the reactors subject to early closure ("decommissioning window") and to implement mitigation measures in the energy sector such as replacement capacity, environmental upgrading, modernisation and energy efficiency ("energy window"). The scope of the new assistance programme focusses on the steady process towards the decommissioning end state. Correspondingly no new support will be granted to energy window projects in the new financing period (2014-2020), however the implementation of previously existing projects will continue for several years.

The financial assistance from the EU aims neither to cover the full cost of decommissioning nor to compensate for all economic consequences of early closure, but is rather an expression of solidarity between the EU and the Member States.

*Financial assistance to the decommissioning programmes (€ million)*

	<b>To end 2009 actually committed</b>	<b>2010- 2013 actually committed</b>	<b>2014-2020 in current prices</b>	<b>Total</b>
<b>Bulgaria (Kozloduy)</b>	566	300	293	1159
<b>Lithuania (Ignalina)</b>	875	492	451	1818
<b>Slovakia (Bohunice)</b>	364	248	225	837
<b>Total</b>	1805	1040	969	3814

## **2. PROGRAMME ADMINISTRATION**

### **2.1. Method of implementation**

The Commission (Directorate General for Energy) has implemented the EU financial assistance programme for all three Member States since accession using the indirect management mode. The budget is implemented through the European Bank for Reconstruction and Development (EBRD), with contributions to the respective International Decommissioning Support Funds (IDSF) and, for Lithuania, also through a national agency, the Central Project Management Agency (CPMA).

#### **International Decommissioning Support Funds**

In 2000 a dedicated fund was established for each of the three Member States. These multi-donor funds are managed by the EBRD. Since 2004 the EC is the only contributor and has provided more than 95% of all contributions over the funds' life.

In 2013 the Commission reassessed and confirmed the role of EBRD in the management of the IDSF for the period 2014-2020.

### **National Agencies**

Currently only Lithuania implements measures through a national agency, the Central Project Management Agency (CPMA). The agency, in operation since 2007, is the only implementation channel for new projects while EBRD continues for completion of on-going projects started prior to 2014.

In October 2014 Slovakia expressed its wish to implement the decommissioning assistance programme through a national agency, the Slovak Innovation and Energy Agency, and sent a formal proposal in this regard to the Commission. The Commission will examine the compliance with the Financial Regulation and take a decision in 2015.

To date Bulgaria has chosen not to set-up such a national channel.

## **2.2. Procedural framework and programme monitoring in the period 2010-2013**

Implementation for 2010-2013 continued with the existing framework, revised in 2010 due to the extension of assistance for Bulgaria.<sup>11</sup>

Each year the Member States prepared a programming document defining the overall objectives for the use of the EU assistance for the year ahead. Those documents were reviewed by DG ENER and submitted for the opinion of the Committee of Member States representatives.<sup>12</sup> The Commission committed funds to the three programmes by adoption of an annual Commission Decision on Financing to which the programming documents were annexed.

Detailed project proposals were presented individually to DG ENER for review and for opinion of the Committee, as part of the approval process. Funds were only allocated to individual projects on approval.

The Commission paid funds to the EBRD and CPMA on request, based on payment forecasts and progress in project implementation.

Implementation was followed by a monitoring committee for each implementation channel per country; in the case of the IDSF, the relevant Assembly of Contributors, or a dedicated committee for the CPMA in Lithuania. Although projects can be financed up to 100%, specific co-financing ceilings have been established for key projects, where the recipient is responsible for cost overruns.

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<sup>11</sup> Commission Decision on the procedures related to the programming and monitoring of the measures and financial assistance under the Bohunice and Ignalina and Kozloduy programmes for the period 2007 to 2013, C(2010) 6885

<sup>12</sup> Nuclear Decommissioning Assistance Programme Committee (NDAPC)

The assistance programme has been subject to regular audits and evaluations. The European Court of Auditors carried out an audit which gave recommendations for both the on-going programme and for future prolongation.<sup>13</sup> The EC contracted external financial audits on BIDSF, IIDSF and KIDSF, as foreseen under the respective Council Regulations. Recommendations from the audits are currently being implemented.

### **2.3. Revised implementation procedures and ex-ante conditionalities**

Based on lessons learned from the previous ten years of implementation and giving consideration to the recommendations from past audits the Commission adopted revised implementation procedures in August 2014 ahead of the Regulations' requirement.<sup>14</sup>

The revised procedures define for each decommissioning programme the objectives, expected results, milestones, target dates as well as the corresponding performance indicators and include detailed decommissioning plans covering the entire decommissioning programmes.<sup>15,16</sup>

To establish a sound base before starting the implementation of the new procedural framework 2014-2020, the Council Regulations define ex-ante conditionalities, i.e. pre-conditions for receipt of further assistance by each Member State.<sup>15,16</sup> Each Member State provided the Commission in due time the relevant information showing that they comply with the Union's *acquis* in the area of nuclear safety and that they had established a financing plan for the entire decommissioning programmes, as well as a detailed decommissioning plan.

### **2.4. Procedural framework and programme monitoring in 2014**

On 30 October 2014 the Commission authorised the use of funds for the three programmes by the adoption of a financing decision.<sup>17</sup>

The funds earmarked for 2014 will be actually committed through delegation agreements with the implementing bodies, EBRD and CPMA. These agreements are in preparation (situation as of 31 October 2014) and expected to be finalised in time to use the 2014 resources.

The Commission will transfer funds to the EBRD and CPMA, based upon payment forecasts and progress in project implementation.

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<sup>13</sup> ECA Special Report 16/2011 EU financial assistance for the decommissioning of nuclear plants in Bulgaria, Lithuania and Slovakia

<sup>14</sup> 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

<sup>15</sup> OJ L346, 20.12.2013, p.1 & OJ L8, 11.1.2014, p.31

<sup>16</sup> OJ L346, 20.12.2013, p.7 & OJ L8, 11.1.2014, p.30 & OJ L121, 24.4.2014, p.59

<sup>17</sup> 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.



During 2014 the new procedural framework has been progressively developed and brought into operation by all stakeholders, starting with the new projects. The revised implementation procedures, with their more detailed requirements on reporting, are also applicable to on-going projects started under the previous procedural framework as far as the new rules are not in conflict with existing formal arrangements.

The implementation of measures and financial assistance is followed by a monitoring committee for each country and implementation channel.

### **3. COUNTRY REPORTS**

Despite difficulties, the reactors remained closed, defueling continued, with all but one reactor defueled. In all decommissioning programmes significant progress has been achieved, and this is especially visible where turbine hall dismantling activities have generated, as planned, significant amounts of materials mostly for clearance and then conventional recycling or radioactive waste disposal.

#### **3.1. Bulgaria – Kozloduy Nuclear Power Plant**

##### **Closure commitment and evolution of funding**

Units 1-2 were under control of State Enterprise for Radioactive Waste (SERAW) from 2008. Units 3-4 have been free of fuel since July 2012 and were transferred from the power plant operator to SERAW in March 2013, putting SERAW in charge of all decommissioning activities.

A major benefit in relation to the EU assistance was the change in the decommissioning strategy in 2006 from "deferred dismantling" to "immediate dismantling". This reduces the timescale for decommissioning and makes best use of available staff and should decrease overall costs. The most recent update (2011) set the completion date as 2030. There have been delays to some projects but these have not impacted on the critical path, so the planned completion date can still be achieved.

The total EU assistance committed to Bulgaria to date is **€68 million**. Details of how the funds for Bulgaria have been allocated are set out in table 1 of the annex. At the end of the reporting period there was **€38 million** in outstanding payments from the EU (€68 million commitments minus €30 million actual transfer).

##### **Projects implementation**

Dismantling operations in the turbine halls of Units 1-4 are proceeding satisfactorily. The decommissioning licence for Units 1-2 is expected shortly from the competent authority. The need to repeat the Environmental Impact Assessment (EIA) for the National Disposal Facility increases the risk to delay the programme end date. On-going legal challenges on the EIA associated with the plasma melting facility and the decommissioning license constitute a continuing risk for delay and additional costs at the programme level.

By the end of 2013 the Kozloduy programme had allocated approximately 40% of committed funds to support key energy sector projects in line with Bulgaria's energy strategy.<sup>18</sup>

Progress in key projects supported during the reporting period are described in table 2 of the annex.

### **3.2. Lithuania – Ignalina Nuclear Power Plant**

#### **Closure commitment and evolution of funding**

The difficult political climate, with pressure to restart Unit 2 in 2012, has passed and Lithuania kept its accession commitments. Both units are safely maintained, and are under decommissioning; however Unit 2 remains only partially defueled.

The state enterprise INPP that was operating the reactors is now responsible for the safe maintenance and decommissioning of the two reactor units. The "change management" process, from electricity production to decommissioning organisation documented in the previous report has been fruitful, with Lithuania and INPP accepting ownership of the decommissioning process. The INPP management is pressing ahead for further modernisation of the company.

The total EU assistance committed to Lithuania to date was **€1367 million**. Details of how the funds for Lithuania have been allocated are set out in table 3 of the annex. At the end of the reporting period there was **€282 million** in outstanding payments from the EU (€1367 million commitments minus €1085 million actual transfer).

#### **Projects implementation**

Safe maintenance of the reactor units, preparation for decommissioning (including strategic documentation) and construction of waste treatment and storage facilities were identified for EU assistance. Since 2009 through successive governments there has been a greatly increased level of involvement in, and ownership of the decommissioning process by INPP and Lithuania.

Two key infrastructure investment projects, the "interim storage for spent fuel" and the "solid waste treatment and storage facility" accumulated disputes between INPP and the respective suppliers of both technical and commercial nature. Since 2013, the disputed issues are being actively addressed and progressively resolved, through an agreed framework. The situation however resulted in serious delays and an increase in costs: the completion of the decommissioning process is now foreseen for 2038 (originally 2030) and a commercial agreement was reached resulting in a cost increase of **€72.9 million**.

The activities executed with the INPP own workforce are concentrated on the dismantling of the turbine hall where visible progress have been achieved. The fragmentation and decontamination facilities in this building are now in routine

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<sup>18</sup> Bulgaria's Energy Strategy up to 2020, published in SG No 43 of 7 June 2011

operation. To assist in overcoming a backlog of material to be processed this equipment is being temporarily operated in 3 shifts.

By the end of 2013 the Ignalina programme had allocated approximately 25% of committed funds to support key energy sector projects in line with Lithuania's energy strategy.<sup>19</sup>

Progress in key projects supported during the reporting period are described in table 4 of the annex.

### **3.3. Slovakia– Bohunice V1 Nuclear Power Plant**

#### **Closure commitment and evolution of funding**

The V1 NPP consists of two VVER 440/230 reactors. State enterprise JAVYS is responsible for post-closure supervision and decommissioning of V1 NPP. Units 1 and 2 were permanently shut-down end 2006 and end 2008 respectively.

The total EU assistance committed to Slovakia to date was **€612 million**. Details of how the funds for Slovakia have been allocated are set out in table 5 of the annex. At the end of the reporting period there was **€250 million** in outstanding payments from the EU (€612 million commitments minus €362 million actual transfer).

#### **Projects implementation**

The first stage decommissioning licence, allowing dismantling activities outside controlled areas, was issued in 2011 as foreseen. Dismantling activities have proceeded in the relevant areas, such as the turbine halls and significant progress made. Preparatory works for decommissioning were performed. The decommissioning strategy was updated in 2012.

Delays to major projects did not impact on the critical path for decommissioning. The overall timeline remains on schedule, with completion of all activities foreseen for 2025.

The decommissioning programme showed clear progress: difficult projects (e.g. decontamination of primary circuits) have now reached an advanced stage of completion and the second stage decommissioning license, a key milestone, is expected before the end of 2014. Major calls for tender are being prepared concerning the dismantling of systems in the controlled area and reactor coolant system large components.

By the end of 2013 the Bohunice programme had allocated approximately 35% of committed funds to support key energy sector projects in line with the Slovak Republic energy strategy.<sup>20</sup>

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<sup>19</sup> Resolution on the approval of the national energy strategy 18 January 2007 No X-1046 Vilnius

<sup>20</sup> Energy Policy of the Slovak Republic approved by resolution of the government of the Slovak Republic No. 29 from 11 January 2006

Progress in key projects supported during the reporting period are described in table 6 of the annex.

#### **4. CONCLUSIONS**

The political difficulties set out in the previous report have been largely overcome, with all closure commitments being maintained. Accordingly the focus has passed irreversibly to decommissioning activities. This would not have been achieved without the decommissioning assistance programme.

**Lithuania, Slovakia and Bulgaria have built on their closure commitment by continuing the decommissioning works at the shutdown reactors. Whilst some delays have been experienced significant progress has also been made, not only in preparatory work and organisational changes but as well in the actual removal of buildings and equipment.**

The financing needs for the completion of the decommissioning programmes have been established. The financing plans identify the gap between the needs and the already secured funds, of which the EU assistance programme is a major contribution. The constitution of the needed additional funds calls for a careful follow-up.

##### **Decommissioning Window**

As detailed in the three decommissioning plans the emphasis is moving gradually from work of a preparatory nature to dismantling and treatment of related waste. Currently, the facilities necessary for decommissioning, treatment and storage of radioactive waste and spent nuclear fuel are under construction. The licensing documentation is prepared and dismantling has started. In Bulgaria and Slovakia the full decommissioning licences are expected shortly. Although delays occurred in some decommissioning projects, these are actively addressed to minimise their impact on the decommissioning end date, though in Lithuania delays to the overall timeline could not be avoided.

##### **Energy Window**

The energy sector has benefited with projects in line with the national energy policies. During the reporting period the focus shifted to decommissioning, though in Bulgaria a significant proportion of the assistance was allocated to the energy sector. The implementation of already started projects will continue for several years, but no new projects in the energy sector will be supported.

##### **Outlook**

The issuance of second stage decommissioning licenses in Bulgaria and Slovakia opens the way to the dismantling of core systems. This should translate next year in an increased flow of material being removed from the nuclear installation.

The detailed objectives and indicators defined in the implementation procedures will allow precise monitoring of the progression of the work with quantitative information.

In particular, the planned introduction of Earned Value Management (EVM)<sup>21</sup> methodology in the three programmes will support project management at local level and further enhance the effectiveness of the Commission monitoring and reporting. From 2015 a more detailed and quantitative description of the implementation of the work carried out with respect to the work programme will be based on reliable, consistent and comparable indicators.

The Commission services (DG ENER and its shared resource directorate) are preparing an audit of the proposed national agency in Slovakia and generally support the evolution towards full ownership of the decommissioning at national level.

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<sup>21</sup> A project management technique for measuring project performance and progress