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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 suppoer the decommissioning of early shut-down nuclear power-plants under the Acts of Accession

{SEC(2011) 914 final}

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1. INTRODUCTION

The report assesses the implementation status of the European Union financial assistance for the decommissioning of the early shut-down nuclear power plants in Lithuania, Slovakia and Bulgaria. It covers, in particular the implementation of the decommissioning programme during the period 2004 – 2009 although it also considers the financial assistance from the preceding period and recent progress made in 2010 in order to provide a consistent and comprehensive picture. The Communication is complemented by Commission Staff Working Paper SEC(2011)914 providing more detailed information.

1.1. Purpose and legal basis

Decommissioning of a nuclear installation can extend over a period of up to 30 years. It covers the activities from shutdown and removal of fissile material to the environmental restoration of the site. To ensure the safe decommissioning of nuclear installations and the management of waste, it is vital that the necessary financial resources should be available at the time of decommissioning.

At the time of the accession negotiations to the European Union (EU) the three EU candidate countries, Lithuania, Slovakia and Bulgaria, operated Soviet design nuclear reactors.

The international community, in line with the G7 multilateral programme of action adopted at the Munich G7[1] summit in 1992, concluded that these reactors could not be economically upgraded to the required western safety standards, and that these plants should be shutdown before their foreseen end-of-life. This recommendation established the early-closure dates which were detailed in the accession treaties of the three countries. The early shut-down and subsequent decommissioning of these nuclear power plants (NPP) was recognised as a significant financial and economical burden for the Member States, and did not allow the operators sufficient time to accumulate the necessary funds to cover the full costs of decommissioning. For this reason the individual Acts of Accession[2,3,4] as well as the subsequent Council Regulations[5,6,7] foresaw financial assistance to the respective new Member States.

The EU assistance programme is dedicated to the following NPPs:

Ignalina NPP (INPP) units 1 and 2 in Lithuania,

Bohunice V1 NPP (V1 NPP) units 1 and 2 in Slovakia and

Kozloduy NPP (KNPP) units 1 to 4 in Bulgaria

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1 France, Germany, Italy, Japan, the United Kingdom, the United States, Canada, the European Commission

2 OJ L236, 23.9.2003, p. 33 and p. 944

3 OJ L236, 23.9.2003, p. 33 and p. 954

4 OJ L157, 21.6.2005, p.11 and p.38

5 OJ L 411, 30.12.2006, p.10

6 OJ L 131, 23.5.2007, p.1

7 OJ L 189, 22.7.2010, p.9

1.2. Scope and Scheduling

The EU financial assistance is designed to support the effort of the Member States in the decommissioning of their Soviet-type NPPs and the related social consequences as well as measures in the energy sector to mitigate the loss of electrical generating capacity.

The EU assistance has been implemented in three specific periods. In the pre-accession period (up to 2004) Lithuania and Slovakia received assistance through the PHARE[8] programme, while between 2004-2006 assistance was provided under the Protocols to the Act of Accession and since 2007, Council Regulations for Lithuania and Slovakia ensured a continuation of assistance for the period 2007-2013.

In the pre-accession period (up to 2007) Bulgaria received assistance through the PHARE programme. Further assistance for the period 2007-2009 was then provided under the Protocol to the Treaty of Accession based upon the then "deferred" decommissioning strategy. In 2009 a formal request for a prolongation of the funding assistance was received in order to proceed with a revised "immediate" decommissioning strategy and a new Council Regulation was adopted in 2010 to ensure the continuation of the assistance until 2013.

1.3. Amounts

The assistance provided recognises the extraordinary burden placed on the new Member States arising from their early shut-down commitment. The assistance does neither aim to cover the full cost of decommissioning nor to compensate for all economical consequences, but rather represents an expression of solidarity between the EU and the Member States. The amounts committed to individual Member States represent the outcome of political negotiations, taking into account diverse social and economic aspects, and the different types and number of nuclear units to be dismantled.

Overview table of the financial assistance to the Member States from 1999 to 2013 (€ million) ***as anchored in the basic legal acts****:*

	1999-2003	**2004-2006**	**2007-2013**	**Total**
Lithuania	210	285	837	1332
Slovakia	90	90	423	603
Bulgaria	155	185	510	850
Subtotal	455	560	1770	2785

**Actual yearly commitments are adjusted for inflation.*

By the end of 2009 the actual committed amounts to the three countries were: €875,5 million for Lithuania, €363,7 million for Slovakia and €567,8 million for Bulgaria.

[8] Programme of aid to central and east European countries

2. PROGRAMME ADMINISTRATION

The General Directorate for Energy (former DG Transport and Energy) has implemented the EU financial assistance programme for Lithuania and Slovakia since 2004 and for Bulgaria since 2007.

2.1. Implementing channels

The legal bases for Lithuania and Slovakia offers the possibility of two alternative implementing channels for the EU assistance: A first via the European Bank for Reconstruction and Development (EBRD), with contributions to the respective **International Decommissioning Support Funds** (IDSF) and a second via a national channel for a direct support through a **National Agency** – in line with Council Regulation 1605/2002 on the Financial Regulation applicable to the budget of the European Communities[9].

For Bulgaria the legal basis only foresees the implementation of EU assistance via the EBRD, given the absence of an appropriate national implementation structure.

International Decommissioning Support Funds

The IDSFs were established in 2000 and are managed by the EBRD. Those funds are multi-donor in nature, of which the EC is the largest, and since 2004, the only contributor.

For each of the three Member States a dedicated fund is established: for Lithuania the Ignalina IDSF (IIDSF), for Slovakia the Bohunice IDSF (BIDSF) and for Bulgaria the Kozloduy IDSF (KIDSF).

National Agency

Only Lithuania has chosen to implement measures through a national agency in accordance with Articles 53(a) and 54(2)(c) of the Financial Regulation.

During the period of 2004-2006, the direct assistance to Lithuania was provided via the Programmed Instrument mechanism under the extended decentralised implementation system.

Since 2007 Lithuania is implementing this direct national support through the **Central Project Management Agency (CPMA)** as the appointed[10] National Agency under "centralized indirect management".

2.2. Procedural Framework and Programme Evaluation

Up until the end of 2006, there was only limited involvement and leadership from the individual Member States in the definition of the needs and the use of the EU assistance. In addition as regards Lithuania there was only limited coordination between the dual implementation channels of the EBRD and the CPMA.

To address these perceived weaknesses a revised **procedural framework** was established from 2007.

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[9] OJ L 248, 16.09.2002, p.1

[10] Letter dated 4 June 2007 from the EC to Lithuania: Nomination of the National Agency for the Ignalina Programme

The mechanism for implementing the financial assistance under the 2007-2013 financial perspective is laid down in the Commission Decision on the Procedures[11]. In accordance with the underlying legal basis, the European Commission (EC) established a Management Committee: the Nuclear Decommissioning Assistance Programme Committee, whose role it is to assist the EC in implementing the EU assistance. Since 2007 the procedural framework has been gradually improved with a revised Commission Decision on the Procedures established in 2010.

The EC commits funds to the three programmes by the adoption of annual Commission Decisions on Financing. Annexed to this financing decision are three respective annual Combined Programming Documents prepared by the concerned Member States. This document defines the objectives for the use of the EU assistance. The EC disburses funds to the EBRD and CPMA upon request based upon proven progress in project implementation.

The implementation of measures and financial assistance is followed by a monitoring committee established for each country and implementation channel. Although projects can be financed up to 100%, some specific co-funding ceilings have been established for key-projects (e.g. the CCGT project in Lithuania where the IIDSF finances up to 70% up to ceiling of €165 million – all cost overruns are thus borne by Lithuania).

The assistance programme has been subject to regular audits and evaluations which were in general positive and acknowledged the progress achieved. Improvement measures have been taken into account in redefining the procedural framework in 2007 and again in 2010.

3. COUNTRY REPORTS

Nuclear decommissioning can be considered in two phases. A first pre-decommissioning phase where preparatory works are executed, followed by a secondary decommissioning and dismantling phase.

During the first phase the decommissioning documentation is elaborated, providing the technical and financial information on the reasonable decommissioning alternatives. It assesses whether the future decommissioning process is technically feasible and in compliance with provisions of the Euratom Treaty and national law in the fields of nuclear safety and health, physical and environmental protection.

The early shutdown of the respective NPPs clearly had a negative impact on the security of electricity supply in the three Member States. To address this, the individual Acts of Accession covered measures to mitigate impacts in the energy sector in line with the EU energy policy.

The scope and nature of the projects realised to address this issue were defined considering the national policies, the state of the existing facilities and the energy sector needs.

[11] Commission Decision on the procedures related to the programming and monitoring of the measures and financial assistance under the Bohunice and Ignalina programmes for the period 2007 to 2013 and under Kozloduy programme for the period 2007-2009 – C(2007)5538

It is the Member States who propose how the available funds should be distributed between the three eligible–domains of *Decommissioning*, *Energy* and *Social consequences*, as a function of their overall needs and strategy.

The assistance was never intended to cover the full cost of decommissioning or to compensate for all economical consequences. For these reasons the legal base allows for certain flexibility in the use of the funds.

The construction of interim spent fuel storage facilities, national waste repositories and some radioactive waste (RAW) management projects are not part of the decommissioning. However, in certain justified cases such projects have been supported where failure to do so would have seriously compromised the decommissioning and dismantling process.

In such cases this support can be considered as an 'upfront' support to the Member States that should be taken into consideration in discussions on potential extensions of EU assistance.

3.1. Lithuania – Ignalina Nuclear Power Plant

3.1.1. Closure commitment and evolution of funding

Prior to accession Lithuania operated two RBMK 1500 reactors. The units are currently owned by INPP, a state owned enterprise which since 2009 has been under the responsibility of the Lithuanian Ministry of Energy. INPP is today responsible for the safe maintenance and decommissioning of the two reactor units.

Unit 1 was permanently shut down on 31 December 2004, and unit 2 on 31 December 2009.

The total EU assistance to Lithuania between 1999 and 2013 is foreseen to be €1367[12] million.

3.1.2. Decommissioning and Waste window

Safe maintenance of the two INPP units, preparation for decommissioning (including strategic documentation) and the construction of waste treatment and storage facilities were identified targets for EU assistance. In 2009 the new government significantly increased its level of involvement in, and ownership of the decommissioning process.

A selection of the key projects that were funded by the EU:

(Pre) Decommissioning

Safe maintenance of unit 1 and 2;

Support to the nuclear regulatory authority;

Preparation of a decommissioning database and planning tool;

Detailed decommissioning plans for specific building;

Provision of consultant support to INPP;

[12] Real commitments until the end of 2009 + forecast 2010-2013

Radiological characterisation;

Primary circuit decontamination;

Waste management

Interim spent fuel store (B1)

Solid waste management and storage facility (B234)

Free release measurement facility

3.1.3. Energy window

The Ignalina programme supported **key energy sector projects identified in the Lithuanian National Energy Strategy:**

Environmental upgrade of Lithuanian thermal power plant;

Construction of a combined cycle gas turbine, a compensatory shunt reactor and a heat only boiler station;

Replacement of gas-fired boilers and upgrade of district heating systems of Visaginas;

Energy efficiency upgrading of multi-apartment residential and public buildings;

Support to the feasibility study for an electricity interconnection between the Poland and Lithuania.

3.1.4. Performance

Out of the total amount **(€ 954,70 million)** of the funds available for IIDSF (€ 723,10 million) and CPMA (€ 231,60 million) the amount allocated to defined projects is of € **881,60 million.** The amount disbursed from EU is **€ 763,30 million** (to IIDSF € 592,60 million; to CPMA € 170,70 million). [13]

The programme evolved within a difficult political climate. Up to 2009 Lithuania campaigned strongly to postpone the closure of unit 2 until 2012. The lack of commitment to close impacted negatively on the progress towards decommissioning. Despite these difficulties, both units were finally shut down on schedule as prescribed in the accession treaty. Today they are safely maintained, and are in a decommissioning phase. As of today the reactor core of unit 1 has been completely defueled. No electricity shortages or black-out were experienced following the closures. Considering this difficult background, the performance towards decommissioning can be considered as satisfactory.

The change from an electricity producer to a decommissioning organisation required significant changes in the organisational structure, and human resources changes at INPP. Such a change, including the shift in mentality is not achieved overnight, and requires considerable efforts.

This necessary "change management" process, which was strongly recommended by the EC, is today "championed" by the new Lithuanian government (following the elections in 2008), with Lithuania and INPP accepting full ownership of the decommissioning process.

Serious delays and overspend have been experienced, with respect to planning and cost estimates, in two key infrastructure investment projects; Project B1, the spent fuel storage and

[13] Disbursement - chapter 3.3.1. and 3.3.2

management project, and Project B234, the waste treatment and storage project. Both projects are currently in their construction phases.

Approximately 30% of the EU assistance has been allocated to projects in the energy sector.

Although delays have been experienced in some of the decommissioning projects and have given rise to additional costs, these delays have not as yet had a direct impact on the critical path of the decommissioning. However, the project "slack" has been exhausted and significant efforts will be required in order to avoid major delays and additional cost increases.

3.2. Slovakia– Bohunice V1 Nuclear Power Plant

3.2.1. Closure commitment and evolution of funding

The V1 NPP comprises two VVER 440/230 reactors. The organisation responsible for the post-shut down supervision and for the decommissioning of V1 NPP is the state owned (via Ministry of Economy) company "Jadrová a vyraďovacia spoločnosť a.s." (JAVYS).

Unit 1 was permanently shut-down on 31 December 2006 and unit 2 on 31 December 2008.

The total EU assistance to Slovakia between 1999 and 2013 is foreseen to be €613[14] million.

3.2.2. Decommissioning and Waste window

Preparatory works for decommissioning were performed and the strategic decommissioning documentation has been elaborated.

A selection of the key projects that were funded by the EU:

(Pre) Decommissioning

Preparation of the V1 NPP Decommissioning 1st stage plan and documentation;

Reconstruction of an auxiliary boiler station and heating and steam distribution system;

Reconstruction of area protection system and modification of JAVYS power supply scheme after V1 NPP final shut down;

Implementation of the decommissioning programme using the human resources available at the Bohunice V1 NPP;

Consultancy support to JAVYS;

Waste management

Development of a RAW interim storage at Bohunice

Procurement of spent fuel storage casks

Treatment of historical waste – sludges and sorbents

[14] Real commitments until the end of 2009 + forecast 2010-2013

3.2.3. Energy window

The Bohunice programme has supported measures to mitigate some of the negative impacts on the Slovak energy sector in line with the "**Strategy of Energy Security of the Slovak Republic by 2030**".

A selection of the key projects that were funded by the EU:

Reconstruction of Križovany 400kV substation;

Modification in the transmission sector due to the final shut down of V1 NPP;

Energy efficiency in public buildings and sustainable energy financial facility;

According to data presented by the EBRD, the implemented actions in the energy window led to an equivalent compensation of almost 20 MWe of the lost electricity generation capacity following the closure of V1 NPP.

3.2.4. Performance

Of the total funds available within the BIDSF **(€ 385,807 million)** the amount allocated to defined projects is € **364,07 million.** The amount disbursed from EU to the BIDSF is € **157,80 million.**

Since the beginning of the programme several issues such as: the reorganisation of JAVYS, communication difficulties between the involved parties; the gas crisis in early 2009 have contributed to the complexity of the programme implementation and delays in some projects.

Despite these difficulties, both units were shut down on schedule, and have been safely maintained. They are now in the decommissioning phase. No electricity shortages or black-outs were experienced following the closure. As such the overall performance can be considered satisfactory.

Delays experienced in some projects might have a negative impact on issuance of decommissioning license (scheduled for mid 2011). The EC continues to monitor closely the progress towards the achievement of this key milestone.

As of 31 December 2009, the distribution of the funds allocated to "Decommissioning and Waste" and "Energy" windows is acceptable, with a priority being given to "Decommissioning and Waste" projects in the period up to 2013.

3.3. Bulgaria – Kozloduy Nuclear Power Plant

3.3.1. Closure commitment and evolution of funding

KNPP units 1-4 are reactors of the VVER 440/230 design. The owner and organisation responsible for the decommissioning of the KNPP units 1-2 is the State Enterprise for Radioactive Waste (SERAW) since both these units have been entirely defueled. For the units 3-4 the owner and responsible for the decommissioning is the state owned company Natsionalna Elektricheska Kompania EAD.

Units 1 and 2 were shut down on 31 December 2002 and units 3 and 4 were shut down on 31 December 2006.

The total EU assistance to Bulgaria between 1999 and 2013 is foreseen to be €867,78[15] million.

3.3.2. Decommissioning and Waste window

Preparatory works for decommissioning have been performed and the strategic decommissioning documentation has been elaborated. Units 1 and 2 were entirely defueled. The reactor cores of units 3 and 4 are defueled; however some fuel still remains in the reactor fuel ponds.

In 2008, Units 1 and 2 were separated from units 3 and 4 and the ownership of units 1 and 2 transferred to SERAW. This action was performed with the objective of accelerating the decommissioning of units 1 and 2.

A selection of the key projects funded by the EU:

(Pre) Decommissioning

Updated Decommissioning Strategy;

Support for the Implementation of the Decommissioning using the Human Resources available at units 1-4 of the KNPP;

Start of dismantling of non safety relevant systems and facilities;

Construction of a heat generating plant;

Waste management

Design of a National Disposal Facility;

Design of a very low level waste repository;

Decay storage site for transitional RAW and conventional waste;

Development of on-site waste treatment facilities;

Construction of a dry spent fuel storage facility including casks for VVER 440 spent fuel elements.

3.3.3. Energy window

The Kozloduy programme has supported measures to mitigate the consequences in the energy sector in line with the **Energy Strategy of Bulgaria.**

The following are a selection of the key projects that were funded by the EU:

Implementation and Management of the Rehabilitation of the Sofia District Heating Network;

Energy Efficiency and Renewable Energy Credit Line Framework Facility;

MARITSA EAST-2 - Installation of Gypsum Dewatering System and Rehabilitation of the Cooling Pump Station;

Refurbishment and Extension of the National Electricity Distribution System;

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[15] Real commitments until the end of 2009 + forecast 2010-2013

Construction of high pressure gas pipelines and gas regulation stations;

According to data from the EBRD, the implementation of the actions in the energy window led to the equivalent compensation of almost 500 MWe of electrical generating capacity following the closure of units 1-4.

3.3.4. Performance

Of the total funds available within the KIDSF **(€606,744 million)** the amount allocated to defined projects is € **540,875 million.** The amount disbursed from EU to the KIDSF is € **363,149 million.**

The decommissioning programme has progressed in a particularly unfavourable political context. In 2006 attempts were made to postpone the closures, and again, after 2006 to reopen the shutdown reactors. Despite these difficulties the overall performance of the programme can be considered satisfactory given that all units have been shut down as prescribed in the Accession treaty.

Units 1&2 are entirely defueled, the dry spent fuel storage is close to completion and first dismantling works have started. Waste treatment and storage facilities are under implementation. No electricity black-out occurred following the closure of the reactor units. The commitment of the current Bulgarian government, together with the separation of units 1&2 from 3&4 will support and impact positively on the timely progression of the decommissioning programme.

A major benefit realised in relation to the EU assistance is the change in the decommissioning strategy from one of "deferred dismantling" to "immediate – continuous dismantling". This reduces the overall time for decommissioning and makes best use of available staff to execute dismantling works. This will have a positive impact on the overall costs for decommissioning.

A substantial proportion of the funds have been allocated to energy projects to address consequences of the early-closure.

4. CONCLUSION

All designated nuclear units in Lithuania, Slovakia and Bulgaria have been safely shut down in line with their accession agreements. Decommissioning works are currently ongoing. This situation has been achieved as a direct consequence of the successful implementation of the EU assistance programme.

The EU assistance has been ongoing since before accession and the shut-down of the NPPs concerned. During this time the EU assistance Programmes have faced a variety of difficulties, at both the political and technical level. Considerable efforts were taken by Member States to renegotiate their political commitments, however through the EU`s expression of solidarity and the provision of appropriate financial assistance all countries respected their Accession Treaty commitments to shut down their reactor units.

The boundary conditions for each country are unique and impact upon the choice of technology, strategy and reasoning associated with the selection of projects. Therefore it is difficult to present a direct comparison of the effectiveness of the EU assistance provided to each Member State. An assessment of the needs and capabilities was undertaken prior to the

instigation of projects at each NPP. Identification and implementation of projects also benefited from a regular re-evaluation of the national strategies and decommissioning plans.

4.1. Performance

The scale of the problem encountered by each country was a function of the different reactor types to be decommissioned, the state of the existing infrastructure required to support the decommissioning and waste management challenges, the possibilities to replace the lost electrical generating capacity, the regulatory and political environment and the choice of decommissioning strategy.

Despite initial difficulties, the reactors were shut-down on schedule and the majority have been defueled as a first important step towards irreversible closure and decommissioning of the NPPs.

In each Member State the finances available for projects exceed the disbursements. The funds have been made available on an annual basis since 1999 at a time when Member States were not yet able to make full use of them. As a consequence, some funds have accumulated. More recently these funds have been utilised more effectively and efficiently and they will be fully absorbed within the next two years.

Significant progress has been demonstrated for the three programmes over the past years and up to the end of the reporting period with the majority of the decommissioning and energy sector-related projects having been identified or prepared and with a significant proportion already under implementation.

In all countries the majority of funding was directed towards decommissioning and RAW management related projects. Lithuania and Bulgaria used a significant portion for spent fuel storage and waste management. Currently, the facilities necessary for decommissioning, treatment and storage of RAW and spent nuclear fuel are under construction, the licensing documentation is elaborated and first preparatory dismantling works have started.

The energy sector has benefited where projects were in line with the EU and national energy policies. EU assistance was advanced from an early stage to the energy sector in order to address the loss of electricity generating capacity. This approach proved to be particularly beneficial and effective in the case of Bulgaria, in mitigating the effects of the recent energy and financial crises. Although delays occurred in some decommissioning projects, these are actively addressed to minimise their impact on the critical path of the decommissioning.

The countries' legal framework and management structures continue to be adapted taking into account the changes from electricity producing companies to decommissioning organisations.

4.2. Outlook

Measures in the decommissioning and energy windows will continue up until the end of the financing perspective as guided by the strategies identified. Decommissioning related projects will be prioritised above energy related projects where funds are limited.

The use of the EU assistance within the decommissioning window will be focusing on the completion of the necessary infrastructure, RAW treatment, the realisation of the necessary decommissioning licenses and on dismantling. New decommissioning organisation and

management structures will be instigated and reinforced to address the dismantling activities, while the execution of the dismantling works by plant staff continues.

Energy sector projects are well advanced. Actions in this area are currently considered to be sufficient. Although the final financial commitment will be made in 2013, the implementation of the works from these commitments will extend beyond this date.

The aim of the EU assistance has always been and remains to provide assistance to the Member States rather than the full financing of the decommissioning or the full compensation of closure consequences. The assistance provided shall be complemented by adequate national resources.