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**COMMISSION STAFF WORKING PAPER**  
**EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT**

*Accompanying the document*

**Proposal for Council Regulation**

**on Union support for the nuclear decommissioning assistance programmes in Bulgaria,  
Lithuania and Slovakia**

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## 1. PROBLEM DEFINITION

In the context of the negotiations for accession to the European Union, the three candidate countries Bulgaria, Lithuania and Slovakia took the commitment to close and subsequently decommission nuclear reactors that could not be upgraded to meet the minimum required safety standards at an economically acceptable cost by a commonly agreed date. This early closure represented an exceptional financial burden for the Member States which was not commensurate with the economic strength of the countries concerned. In recognition of this fact and as act of solidarity the European Union committed itself to continue to provide adequate additional financial assistance for decommissioning of these reactors. The closure commitment of the three Member States as well as the commitment of the EU to provide financial EU support was foreseen in the corresponding Accession Treaties.

Financial EU assistance is currently foreseen until the end of 2013 with a total of € 847.8 million (€ 367 million for Lithuania, € 113 million for Slovakia and € 367.8 million for Bulgaria). This financial EU support has effectively mitigated the economical consequences of the early closure and the decommissioning process is well engaged: dismantling of non-safety relevant systems and components in the nuclear power plants has started and the construction of the required waste management infrastructure such as spent fuel storage facilities and waste treatment and storage facilities are in an advanced implementation stage. Equally important activities that have been performed are the preparation of all required licensing documents as well as environmental impact assessments, where required. Nevertheless, since decommissioning of nuclear power plants is a long term process (20-30 years), the process will continue beyond 2013 and important safety relevant key projects are still to be implemented.

In order to allow for safe decommissioning, adequate financial resources should be available when required<sup>1</sup>. Although all three Member States have established national funds to set aside financial resources for decommissioning, those resources are for historical reasons insufficient. Therefore the immediate problem to be addressed is the funding shortfall to progress with safe decommissioning of the nuclear power plants, to ensure that the closure becomes irreversible<sup>2</sup> and at the same time stimulate the beneficiary Member States to gradually take over the responsibility with respect to the full financial cover and ownership. Public intervention is required to assist the Member States with additional financial EU support.

EU citizens and future generations as well as the environment are the main groups affected by the problem of funding shortfall and nuclear safety. Funding shortfall would jeopardize the safe maintenance of the shut down reactors until they are completely defueled and the seamless continuation of safe decommissioning, because of the risk that further decommissioning steps would be postponed to an undefined date, awaiting the availability of funds and transferring this liability and responsibility to future generations. It also bears the risk of reopening of the nuclear power plants. At most of the reactor units no major

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<sup>1</sup> Commission recommendation on the management of financial resources for the decommissioning of nuclear installations, spent fuel and radioactive waste. OJ L 330, 28.11.2006, p.31

<sup>2</sup> Closure to become irreversible means that decommissioning has progressed so far on a technical level, that it would economically no longer be advantageous to consider the re-opening of the concerned reactor units.

irreversible dismantling steps have been implemented. In case of an incident or accident this would inevitably also lead to an environmental degradation.

## **2. SUBSIDIARITY OF THE EU INTERVENTION**

The necessity for the EU intervention is the fact that adequate funds required for continuing safe decommissioning cannot be made available in due time through the respective national funds. Unlike other Member States in a similar situation but without being confronted to early closure of their plants, it was not possible for them to accumulate sufficient funds from operation of the plants.

It is therefore in the interests of the European Union to ensure that the concerned reactors remain closed and that they are defueled and dismantled in order to reduce the risk of negative consequences for the EU citizen and for the environment. The EU added value lies in the support of measures targeted to reach an irreversible state within the decommissioning process of the concerned nuclear reactor units, in accordance with their respective decommissioning plans, while keeping the highest level of safety. This will contribute to provide substantial and durable support for the health of workers and the general public, preventing environmental degradation and providing for real progress in nuclear safety and security.

## **3. OBJECTIVES OF EU INITIATIVE**

### **3.1. General policy objectives**

The general policy objective for providing additional EU funding beyond 2013 in support of the three Member States in their efforts to continue safe decommissioning is to progress in defueling and decommissioning of the concerned nuclear reactor units and to ensure that the closure is irreversible.

In order to achieve the above mentioned objectives in the given context, additional support of €500 million has been estimated for the period 2014 – 2020 in support of safe decommissioning.

### **3.2. Specific objectives**

The three specific objectives of the additional EU support programme are to

1. To reach an irreversible state within the decommissioning process. The main expected results/outputs for achieving this objective are:
  - Nuclear power plants are safely maintained in post shut-down mode until complete defueling;
  - Decommissioning license is in place;
  - Design for the dismantling of the reactor core/primary circuit is completed;
  - Dismantling in the reactor building has started.

2. To safely manage the radioactive waste: The main expected results/outputs for achieving this objective are:
  - All nuclear reactor units are entirely defueled and nuclear spent fuel is safely stored:
  - Decommissioning waste is part of a comprehensive waste management programme and safely treated and stored according to a detailed waste management plan.
3. To maintain the key expertise and knowledge: This is of benefit for safe decommissioning but equally important for addressing the social consequences of the early closure. The expected result for achieving this objective is the redeployment of plant personal for decommissioning activities.

The Logical Framework Matrix provided at the end of this summary provides an overview on the main aspects of the EU initiative (objectives, indicators, sources of verification and assumptions).

Additional financial EU assistance under the above objectives provides the seamless continuation of the support foreseen under the Accession Treaty dedicated to safe decommissioning. This further support is clearly to be understood as an expression of solidarity towards the three Member States concerned. The ultimate responsibility however for nuclear safety remains with the Member States, which also implies the ultimate responsibility for its financing, including the financing of decommissioning.

#### 4. POLICY OPTIONS

Three policy options were identified and assessed:

**Option 1:** Baseline option: No further financial EU assistance;

**Option 2:** Business as usual: EU financial contribution to decommissioning and consequential measures in the energy sector;

**Option 3:** EU partial financing of decommissioning only;

Under **Option 1** the implementation of the provisions of the accession treaty would end in 2013. No further financial EU assistance would be provided and consequently all three Member States would have to guarantee safe completion of their decommissioning programme with own national resources.

**Option 2** would entail a prolongation of the current funding programmes, similar in level of funding (current support: €258 million per year) and in scope (decommissioning and energy measures to further mitigate the economical consequences of the early closure).

**Option 3** is a clear political message that the three Member States should show a higher degree of financial responsibility and ownership and therefore additional funding is proposed to be reduced in amount (about €71.4 million per year) and limited in time (no EU support any more beyond 2020). Under this option, no further EU assistance would be made available for measures in the energy sector for mitigating the economical consequences of the early

closure. The EU support would only be focussed on key issues in order to progress on safe decommissioning. The EU support would need to be complemented by substantial additional national financial resources to meet the remaining funding gap for the completion of decommissioning.

Complementary to the policy options four possible delivery mechanisms can be considered for the implementation of options 2 and 3 (option 1 does not require any delivery mechanism). They are:

**Mechanism A:** Funding under joint management with the EBRD through the existing international multi-donor funds (current mechanism for all three Member States): This is the current system. It worked well in the period before Accession, but has since then started to show its limits. It is to be noted that the other donors have not provided any further support since years, making the EU the largest and since 2004 the only remaining donor (more than 95 % of current funds totals).

**Mechanism B:** Funding under joint management with the EBRD however through dedicated EC funds: This system would benefit from the EBRD's competence as financial institution under joint management, without the drawbacks of the multi-donor fund system.

**Mechanism C:** Funding under centralised indirect management through the existing national agency CPMA (current additional mechanism only for Lithuania) nominated by the Commission: With the completion of the main infrastructure investment projects, and the advancement in the decommissioning process with skilled own staff at the nuclear power plant, a tendency to move towards complete execution of the EU budget by CPMA is the ongoing trend.

**Mechanism D:** Funding integrated into the EU structural funds mechanism: This delivery mechanism would be entirely new and would put the decommissioning support programme under the General Regulation governing the Structural Funds.

## 5. ASSESSMENT OF IMPACTS

### 5.1. Economic impacts:

- Electricity prices for consumers:

Although it can be argued that up to now, the cost of electricity charged did not include all back-end costs (except Slovakia), there are high increases in electricity prices for end consumers due to the early closures. Options 2 and 3 would ease the effect, by offsetting partly the decommissioning costs and spreading the price rise due to increased levies on electricity over time.

- Electricity trade:

The early closure has led to diminished generation capacity in the three Member States, and hence diminished electricity trade (Bulgaria), or switches from being electricity exporter to importer (Lithuania and Slovakia). It is to be noted that Lithuania and the Baltic States in general are not connected to the European electricity grid, making them vulnerable to major electricity imports from one single source, Russia. Only option 2 would make a difference, as energy sector measures would then be financed.

- Competitiveness:

The Accession Treaties already recognise the extraordinary burden that is placed on the economies of the three concerned Member States following the early closure. The need to accumulate financial resources needed for the decommissioning process, especially given the context of early closure, might handicap the competitiveness of the three Member States during an extended period of time. Option 1 would therefore worsen the competitive status of the three concerned Member States. Options 2 and 3 restoring the competitive fair grounds as far as the amounts needed for decommissioning are concerned. However, given the time lapse since the closure and the mitigation measures already put in place until now, care must be taken in order not to go too far, especially relating to replacement capacity or equivalent savings. Such an action (option 2) could create distortion with other Member States who have to replace outdated power generation themselves, a position also shared by the European Parliament.

- Impact on the GDP:

The seamless implementation of the current decommissioning plans (option 2 and 3) will stimulate growth by accelerating the pace of decommissioning activities to be performed. Delaying decommissioning because of inadequate funding (option 1) would have a negative impact on the GDP, as investments would be shifted towards the future.

- Public authorities:

Option 1 will have a major budgetary impact for the beneficiary Member States. They would need to cover the full remaining funding for decommissioning from their national budget. Option 2 and 3 will limit the impact on the national budgets. Nevertheless, option 3 clearly emphasises the need for the three Member States to ensure a higher degree of financial responsibility and ownership. While providing a reduced support beyond 2013 this allows for a smooth transition to full Member State funding of decommissioning until the end of the process.

- Administrative burden:

For the implementation of the policy options (2 and 3 only) the burden depends on the selected delivery mechanism identified in section 4.

For mechanism A the decision systems are complicated, giving the EU only one vote amongst the donors, and are leading to a dilution of responsibilities. In case of difficulties in the implementation of projects, this mechanism has shown its limitations regarding the Commission's possibilities to intervene.

Under mechanism B the decision making process would be streamlined, as well as the monitoring flows improved, and administrative burden decreased. It would strengthen the Commissions management possibilities to intervene more efficiently in case of difficulties (delays and cost overruns) in the implementation of decommissioning project by the beneficiaries.

Implementation of the EU support via a dedicated national agency under delivery mechanism C has benefits for the future kind of projects of proximity for instance during tender processes and day to day follow up of the decommissioning works by local companies. Although this

mechanism is operating in Lithuania, a similar alternative is not investigated for Slovakia and Bulgaria, as no suitable structures exist at present to fulfil this role. Given the time needed to set up, verify and accreditate such new structures, a significant risk for delays would occur.

The inclusion of the decommissioning funds into the structural funds (mechanism D) would appear to be contrary to the overall philosophy of the structural funds, which are geared to growth objectives, notably in line with the priorities of the EUROPE 2020 strategy. Structural Funds operate on the basis of shared management. Member States design, select, implement and manage projects, in line with the priority axes laid down in operational programmes that are the subject of a Commission decision. The primary responsibility for monitoring and control of the project lies with Member States. The Commission is involved only on advisory basis and performs selective audits on the basis of a risk analysis. Specificities of the decommissioning support programme are not readily compatible with the shared management mode of the Structural Funds.

- Impacts on third countries:

Option 1 would lead to an immediate funding shortfall. This could have a potential major impact in and outside the EU as highlighted in the problem definition under section 2. Options 2 and 3 address the funding shortfall and will have a positive impact on citizens and environment in and outside the EU.

## **5.2. Social impacts:**

- Employment:

Currently a significant number of skilled people are employed at the concerned power plants. These skilled labour forces are needed for the safe maintenance of the closed down reactors, for the radiological characterisation and for some pre-decommissioning activities requiring their existing historical knowledge of the plant's operational life time. If no funding would be available (options 1), this would pose a serious threat to the payment of their salaries<sup>3</sup>. It would also affect whole towns, where the nuclear power plant is generally the main employer. Therefore many more people than only the direct staff would be affected in their future. In case of continued EU financing for decommissioning (options 2 and 3), the key staff with their expertise would be maintained as well as the historical memory, with the highest value for the decommissioning project.

- Security (accidents / terrorism / security of energy supply):

Without funding (options 1), less strict control and less maintenance are likely, leading to a higher risk of misuse. With the acceleration of the decommissioning process (options 2 and especially 3), this risk diminishes.

- Health:

Radiological risks for workers as well as for the general public are possible in case of accidents or lower safe maintenance. Safe treatment, storage and disposal of spent fuel and radioactive waste should be according to the highest safety standards but they require appropriate funding (options 2 and 3).

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<sup>3</sup> To be noted that not for all staff, salaries should be paid under decommissioning.

### **5.3. Environmental impacts:**

- Environment:

In case of insufficient safe maintenance, ageing monitoring equipment, incidents or accidents the environment risks to be deteriorated. It is important to ensure transparent monitoring, especially for possible EU wide effects. The risk for accidents, contamination, leaks etc increases with the lack of funding for safe maintenance and decommissioning. Option 1 entails a significant risk, which is much lower under options 2 and 3.

## **6. COMPARISON OF OPTIONS**

No further EU support under the baseline option would stop the decommissioning programmes and consequently jeopardize nuclear safety. The business as usual option would result in a much higher financial EU support with reduced added value. Further support to projects in the energy sector would lead to a distortion of competition and the continuing high level of financial Union support would not be a sufficient incentive for the Member States to take over the full financial responsibility for the completion of decommissioning.

EU partial financing for decommissioning only (option 3) is considered the most appropriate solution following a clear expressed political will. This option maximises the EU added value and supports the transition towards full Member State funding of the safe completion of decommissioning beyond the next multiannual financial framework. Option 3 provides for real improvement in nuclear safety and will help to achieve timely real physical progress in defueling and decommissioning and ensure that the closure is irreversible.

Option 3 combined with the implementation mechanisms B (for Bulgaria and Slovakia) and C (for Lithuania) will provide for a continued strengthening of the Commission's management for the effective, efficient and economical use of EU funds. The identified weaknesses under the current implementation mechanism (A) would be overcome and it would reinforce the Commission's management possibilities to intervene more efficiently in case of difficulties (delays and cost overruns) in the implementation of decommissioning project by the beneficiaries. The specific objectives being aligned with the proposed budget and based on revised/updated decommissioning plans (needs expressed by the Member States) together with the meaningful performance indicators are the basis for achieving the expected benefits from the further financial EU support after 2013. This approach is in full accordance with the recommendations from the European Court of Auditors.

## **7. MONITORING AND EVALUATION**

In order to be able to verify the success of the programme (meeting the general and specific objectives) SMART Objectively Verifiable Indicators have been identified (see details in the matrix below). The monitoring is based on the review of the identified indicators, measuring progress towards meeting the objectives.

At the current stage those indicators are generic to all three individual Programmes (Ignalina, Bohunice and Kozloduy Programme). For the implementation it is foreseen to adopt one annual work programme for all three individual Programmes specifying the objectives, expected results, related indicators and timeline for the use of funds under each annual financial commitment.



On a procedural level it is foreseen to adopt not later than 31 December 2014 detailed implementation procedures for the duration of the Programme. This decision will contain inter alia detailed monitoring and reporting requirements as well as the revised detailed decommissioning plans for all three individual Programmes that will serve as baseline for the monitoring of the progress and the timely achievement of the expected results.

The EU monitoring, reporting and evaluation arrangements will contain at least:

- Twice per year a monitoring committee meeting with EU on the spot to verify the advancement of the decommissioning works.
- Regular status and progress reporting from the beneficiary NPP as well as the implementing bodies (EBRD and CPMA).
- Yearly combined programming documents, annexed to the Commission Decision on financing reporting progress towards decommissioning.
- A mid term evaluation of the programme.
- Status reports to the European Parliament and Council on the implementation of the financial EU assistance.

Additionally, a monitoring system should be put in place by the beneficiaries, allowing for active day-to-day monitoring of the projects and tasks, and allowing for immediate operational feedback into the planning with corrective measures.

<b>LOGICAL FRAMEWORK MATRIX</b>				
	<b>Intervention logic</b>	<b>Indicators</b>	<b>Source of Verification</b>	<b>Assumptions</b>
<b>Overall Objective</b>	Support the Member States efforts in safe decommissioning.	Progress according decommissioning plan (tasks, costs, resources, timing);	Decommissioning plan; Regular monitoring meetings; Reporting by NPP and national authorities;	Stable political and regulatory framework; National funding forthcoming to meet the funding gap;
<b>Specific Programme Objectives Purpose</b>	To reach an irreversible state within the decommissioning process; To safely manage spent nuclear fuel and the radioactive waste; To maintain the key expertise and knowledge;	Dismantling according decommissioning plan;  Waste management according detailed waste management plan;  Use of staff from the nuclear power plants;	Decommissioning and waste management plan; Regular reporting and monitoring meetings;	Stable political and regulatory framework; No changes in decommissioning strategy;

<b>Outputs</b>  <b>(expected results)</b>	NPPs safely maintained; No environmental impact; Spent fuel safely stored; Nuclear waste safely stored; Decommissioning license in place; Design of core/primary circuit dismantling; Staff engaged on decommissioning;	Nb of incidents/accidents; Environmental monitoring data; Nb of fuel elements stored and Nb of waste packages stored according to the planning; License issued according to the time schedule; Design completed in time; Nb of staff employed; Earned value analysis;	Status and progress reports; Regular monitoring meetings; License issued by the regulator; Staff accountancy;	Efficient NPP management structure for decommissioning established and fully operational; Efficient decommissioning planning in place; Operational feedback effectively used; No changes in decommissioning strategy; Proactive project monitoring function in place;
<b>Activities</b>	Safe maintenance; Defueling; Dismantling works; Radwaste treatment and conditioning; Licensing docs; Engineering design core/prim circuit dismantling; Staff training and reallocation;	Planning of safe maintenance; Nb of fuel elements unloaded; Quantity of material/system dismantled; Quantity of rad waste treated and conditioned; Submission of licensing doc; Design feasibility and engineering studies; Nb of staff trained and reallocated;	Status and progress reports; Regular monitoring meetings; Detailed decommissioning work plan; Operational feedback to NPP planning department; HR plan;	Efficient NPP management structure for decommissioning established and fully operational; National funding forthcoming to meet the funding gap; Economic viability for using own NPP staff;