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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Accompanying the document

Proposal of a Council Regulation

establishing the nuclear decommissioning assistance programme of the Ignalina nuclear power plant in Lithuania for the period 2028-2034, and repealing Regulation (EU) 2021/101

{COM(2025) 476 final} - {SWD(2025) 256 final}

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Glossary

Term or acronym	*Meaning or definition*
CPMA	Central Project Management Agency (Lithuania)
EBRD	European Bank for Reconstruction and Development
ECA	European Court of Auditors
EVM	Earned Value Management
IIDSF	Ignalina International Decommissioning Support Fund
INPP	Ignalina Nuclear Power Plant
KPI	Key Performance Indicator
MFF	Multi-annual Financial Framework
NPP	Nuclear Power Plant
RBMK	Реактор Большой Мощности Канальный / Reaktor Bolshoy Moshchnosti Kanalnyy ("High Power Channel-type Reactor") is a class of graphite-moderated nuclear power reactor designed and built by the Soviet Union (e.g. Chernobyl nuclear power plant, Ignalina nuclear power plant)

1. INTRODUCTION: POLITICAL AND LEGAL CONTEXT

1.1. Scope and context

The present ex-ante evaluation relates to the Ignalina programme (the 'programme') whereby the European Union (EU) provides financial support to Lithuania to decommission the two RBMK-1500 reactors of the Ignalina nuclear power plant (NPP) located near the town of Visaginas, cf. Figure 1. The decommissioning of these reactors – same model as in Chernobyl – is a first-of-a-kind activity entailing technological challenges such as the dismantling of graphite cores and the subsequent management of important amounts of irradiated graphite.

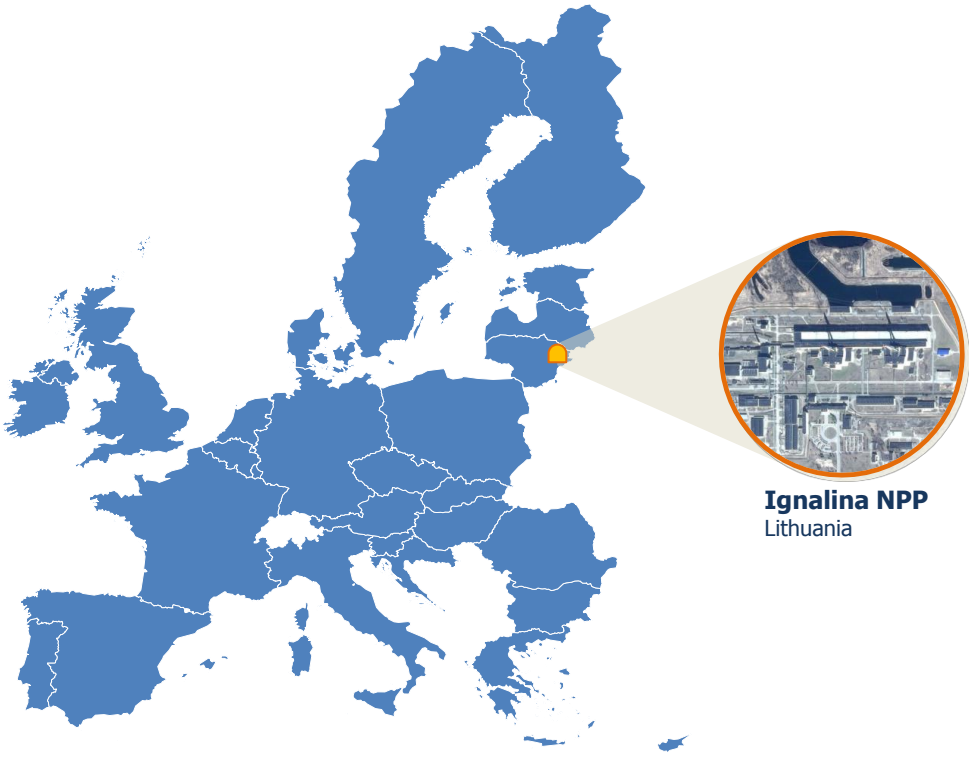


Figure 1 – Ignalina nuclear power plant site.

The programme originated in the context of the negotiations for accession to the European Union of Lithuania, which took the commitment to close and subsequently decommission the two Soviet-designed nuclear reactors by a commonly agreed date. As an act of solidarity, the European Union committed itself to provide financial assistance for the decommissioning of Ignalina Nuclear Power Plant. The closure commitment of Lithuania as well as the commitment of the EU to provide financial support was foreseen in the Lithuania's Accession Treaty[1] (Lithuania acceded in 2004).

Lithuania has fulfilled its accession treaty commitment to close its reactors in a timely manner[2]. Based on the provisions of Lithuania's Accession Treaty[3], the Council of the European Union has adopted as of 2006 successive Regulations[4,5] for the implementation of the decommissioning.

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1 OJ L 236, 23.9.2003, p. 33 and p. 944.

2 Ignalina NPP Unit 1 was shut down in 2004 and Unit 2 was shut down in 2009.

3 Article 3.1 'Recognising that the decommissioning of the Ignalina Nuclear Power Plant is of a long-term nature and represents for Lithuania an exceptional financial burden not commensurate with its size and economic strength, the Union shall, in solidarity with Lithuania, provide adequate additional Community assistance to the

This ex-ante evaluation is carried out in preparation of the next MFF, and it is based on the lessons learnt and progress achieved so far. The assessment of policy options is not strictly required for an ex-ante evaluation. However, a main purpose of this evaluation is to examine if the existing instrument should be:

(i) discontinued in the next MFF, or

(ii) merged into other shared management instruments, or

(iii) continued as a dedicated programme.

Originally and until 2013, the European Union assistance was designed to support Lithuania both in its efforts to shut down and decommission the concerned reactors, but also to address the consequences of early closure of its nuclear power plant installation. The assistance covered thus actions such as enhancement of security of supply and energy efficiency. This changed as of the MFF 2014-2020, when the scope of the programme was restricted to decommissioning activities only, i.e. on safety related measures. The disposal of spent fuel and radioactive waste in a deep geological repository was never part of the programme. This shift from financing a complex mix of energy and decommissioning projects towards a dedicated and focused effort on the decommissioning programme resulted in increased effectiveness and efficiency.

For the MFF 2021-2027, the programme objectives were specified as follows:

a. dismantling and decontamination of the reactor shafts top and bottom zones in accordance with the decommissioning plan;

b. the design for the dismantling and decontamination of the reactor shafts central zones (graphite cores);

c. safe management of the decommissioning and legacy waste up to interim storage or to disposal (depending on the waste category), including the completion of the waste management infrastructure where necessary, in accordance with the decommissioning plan;

d. downgrading of radiological hazards.

Under the implementing procedures[6] of the MFF 2014-2020 the baseline (decommissioning plan) of the programme was set out up to the respective end-state and specific objectives were provided.

The European Union financial assistance has been implemented by indirect management[7] since its inception. It has been made available through pillar-assessed entrusted entities in the form of contributions to:

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decommissioning effort beyond 2006.' Article 3.2 'The Ignalina Programme will be, for this purpose, seamlessly continued and extended beyond 2006. Implementing provisions for the extended Ignalina Programme shall be decided […] and enter into force, at the latest, by the date of expiry of the current Financial Perspective. […]' Article 3.4 'For the period of the next Financial Perspectives, the overall average appropriations under the extended Ignalina Programme shall be appropriate. Programming of these resources will be based on actual payment needs and absorption capacity.' (2003 Act of accession, Protocol No 4 on the Ignalina nuclear power plant in Lithuania (OJ L 236, 23.9.2003)).

4 Council Regulation (EC) No 1990/2006 of 21 December 2006 on the implementation of Protocol No 4 on the Ignalina nuclear power plant in Lithuania to the Act of accession of the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia, "Ignalina Programme" (OJ L 411, 30.12.2006, p.10).

5 Council Regulation (EU) No 1369/2013 of 13 December 2013 on Union support for the nuclear decommissioning assistance programme in Lithuania (OJ L 346, 20.12.2013, p.7). Council Regulation (EU) No 101/2021 January 2021on Union support for the nuclear decommissioning assistance programme in Lithuania.

6 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.

(i) the Ignalina International Decommissioning Support Fund (**IIDSF**) managed by the European Bank for Reconstruction and Development (**EBRD)** since 2001;

(ii) the Central Project Management Agency (**CPMA**) since 2003.

The total financial assistance from the European Union to Lithuania for the decommissioning of the concerned reactors as well as for mitigation measures in the energy sector until the end of 2027 will sum up to EUR 2.2 billion. Thereof, EU assistance earmarked for decommissioning activities of the two reactors until the end of 2027 will sum up to EUR 1.9 billion.

The current final decommissioning plan (baseline) was approved by Lithuanian government in 2020, and it is under revision in line with the national legislative framework. The plan sets out the schedule (covering a timespan longer than the MFFs) and the cost estimates for the decommissioning activities until the accomplishment of a well-established end-state. Funding provided in the MFF 2021-2027 is fit for effective and efficient accomplishment of the related objectives.

The EU budget should enable a Europe that is safe and secure, and this is a dimension where the Ignalina programme has contributed so far and may further contribute. The main positive impact to be achieved is indeed the progressive decrease of the level of radiological hazard for the workers, the public and the environment, in Lithuania but also in the EU as a whole and to achieve these goals nuclear decommissioning and waste management are key processes of a modern, clean and circular economy.

Like all existing EU instruments, the programme needs to undergo the EU value added test in line with the requirements set out by the EU Financial Regulation 2024/2509[8] and the Better regulation guidelines[9]. As reflected in the list of options, consideration is hereby given whether the programme remains indispensable or whether there is scope for merging programmes or modifying them with a view to budgetary flexibility and/or simplification, which are other key principles underpinning the next MFF.

The Ignalina programme attracted the attention of both the European Parliament and the Council of the European Union in the past. Both bodies intervened specifically on the programme after the publication of the dedicated ECA Special Report[10].

The European Parliament[11] underlined that nuclear safety is of prime importance, not only for Lithuania but for the population in the whole Union and its neighbourhood and called upon the Commission to perform a thorough assessment of the needs for continuation of the dedicated funding programme for nuclear decommissioning in Lithuania beyond 2020. It underlined furthermore that the closure of Ignalina nuclear power plant was a condition placed by the Union on the accession of Lithuania in exchange for Union support for its closure, decommissioning and mitigation of the social and economic impacts (as defined in Protocol No. 4 of the Accession Treaty[1]).

The Council[12] also recalled that the early closure and subsequent decommissioning of the two Soviet-designed nuclear reactors in Lithuania was one of the conditions for accession to the EU.

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7 Article 60, Regulation (EU, Euratom) 2024/2509 of the European Parliament and of the Council of 23 September 2024 on the financial rules applicable to the general budget of the Union (recast), OJ L, 2024/2509, 26.9.2024.

8 Regulation (EU, Euratom) 2024/2509 of the European Parliament and of the Council of 23 September 2024 on the financial rules applicable to the general budget of the Union (recast), OJ L, 2024/2509, 26.9.2024.

9 Better regulation guidelines, Commission staff working document, SWD(2021)305 final.

10 ECA Special Report 22/2016 – EU nuclear decommissioning assistance programmes in Lithuania, Bulgaria and Slovakia: some progress made since 2011, but critical challenges ahead.

11 Committee on Budgetary Control "Report on the Court of Auditors' special reports in the context of the 2015 Commission discharge" (2016/2208(DEC)).

12 Council conclusions on the ECA Special Report No 22/2016, adopted by the Council at its 3511th meeting held on 13 December 2016 (document n° 15534/16 ATO 68).

It further underlined the fact that this condition entailed a significant financial burden based on which the EU agreed to provide financial assistance. It also underscored the need for adequate supporting actions for the decommissioning of Ignalina nuclear power plant to ensure successful completion of the decommissioning processes whilst maintaining a high level of nuclear safety. Finally, it noted that any potential new EU funding beyond 2020 should include clear rules and the right incentives to pursue decommissioning, with regard to both financing and timing.

The decommissioning activities have steadily progressed. Nuclear safety remains of prime importance and the boundary conditions have not changed.

1.2. Lessons learnt from previous programme

An interim evaluation of the programme was conducted in line with the Better Regulation guidelines. The interim evaluation considered and assessed the results and impacts, the efficiency of the use of resources and its Union added value. The evaluation focused on the period 2021-2024 and considered, where relevant, also the previous financial framework (2014-2020).

For the interim evaluation the Commission gathered relevant information and data by extensively involving key stakeholders (i.e. Ministries, implementing bodies, decommissioning operators).

The main conclusions of the programme interim evaluation were:

Coherence with EU policies. The programme is **coherent with EU policies aiming at ensuring the highest level of nuclear safety**. The EU support ensures that the immediate dismantling strategy in Lithuania is steadily pursued and prevents that undue burden is transferred to future generations, while for historical reasons it partially derogates to the ultimate responsibility of the Member State to ensure adequate financial resources for nuclear decommissioning and radioactive waste management.

Progress. In line with expectations set for the MFF 2021-2027, **Lithuania** has **progressed effectively and efficiently in the decommissioning of its reactors** in line with the baseline (decommissioning plan); however, some delays are emerging due to challenges and setbacks due to the programme's complexity.

Safety. The analysis demonstrated that **substantially improved levels of safety** are going to be achieved at the site as a result of the Union funding in this MFF. All spent fuel was removed from the reactor building and safely stored in a state-of-the-art facility. Legacy and decommissioning waste materials are being treated and conditioned for disposal, in preparation for dismantling the irradiated graphite from the reactors' core, which is a first-of-a-kind project of unprecedented scale.

Financial scope. The decommissioning plan frames the scope, schedule, and budget of the programme. The plan is currently being revised with specific focus on the schedule, as a result of the conceptual design of the most critical project, i.e. the dismantling of reactor cores.

National contribution. The **achieved levels of national contribution appear fit to sustain proper efficiency** based on an adequate level of accountability at national level which is inducing economy-seeking behaviour on the part of beneficiary. Nonetheless, the definition of a minimum threshold for national contribution is a necessary but not a sufficient condition to set incentives for timely and efficient decommissioning. To this end, the explicit transfer of risks (cost overruns, delays) to the Member State would have a greater impact. This practice has been already introduced to a certain extent under the current MFF where possible.

Governance. The **governance setup has ensured effective and efficient implementation of the programme** and compensated for the uncertainties mentioned on the national contribution aspects. Main factors of success were clear definitions of roles and responsibilities as well as a

strengthened monitoring framework. The analysis has also identified areas for further improvement such as:

(i) increased involvement of the Member State for increased ownership together with stronger accountability of the decommissioning operator (final beneficiary);

(ii) streamlining of procedures to enhance the timeliness of the management cycle;

(iii) increased inter-comparability with other programmes' performance.

Objectives. The interim evaluation confirmed that the general objective[13] and the main specific objectives of the programme remain valid in the current MFF. Nevertheless, some of the expected results, milestones, target dates, as well as the corresponding performance indicators should be adapted in line with the latest updates of the decommissioning plan to enable effective monitoring for the period 2028-2034.

Knowledge gain. Finally, the interim evaluation highlighted that the experience gained so far from the projects implemented under the programme provides a solid base of knowledge in the EU for conducting ongoing and future decommissioning activities. This EU co-funded programme may aim at becoming a solid benchmark for governance related issues and management practices such as cost estimation methodologies or planning, and persisting technological challenges such as the dismantling of graphite-moderated reactors and the subsequent management of important amounts of irradiated graphite.

[13] The general objective of the programme is to assist the Member State concerned in implementing the steady process towards the decommissioning end state of the concerned NPP in accordance with its respective decommissioning plan, whilst maintaining the highest level of safety.

2. THE OBJECTIVES

2.1. Challenges for the programme in the next MFF

The key aim in nuclear decommissioning is the progressive removal of hazards inherently associated with the concerned installations. This process is stepwise in nature, mainly because the removal of major batches of radioactive materials is obtained over several stages. The safety measures and associated cost evolve likewise.

At this point in time the decommissioning operator is focussing on dismantling activities. After the removal of the spent nuclear fuel from the Chernobyl-type reactor buildings, dismantling and decontamination works are progressing in the reactor buildings upper and bottom zones.

The programme is on track to accomplish the specific objectives with the funding provided in the current MFF and a clear trend towards increasing efficiency was observed during the monitoring activities and confirmed by independent experts. However, important challenges remain both of technical and technological nature, as well as of financial nature for the next financial period in relation to dismantling of the reactor cores.

Safety challenges

Progress in the implementation of the programme has led already to an important decrease in radiological hazard to the general public but some important milestones are still ahead. With the funds already provided, the spent nuclear fuel was removed from the reactor-buildings and the dismantling works on the reactor building top and bottom zones did start. In parallel, all waste management routes have to be completed under the next MFF either for interim storage or disposal.

The technical challenges for the decommissioning of the Ignalina nuclear power plant are especially complex due to its first-of-a-kind nature especially in respect to the dismantling of irradiated graphite and to the fact that a large percentage of the equipment is contaminated. The Ignalina nuclear power plant is the first Chernobyl-type reactor to be decommissioned worldwide. This means there is no predecessor or experience that the decommissioning operator can rely on. Open questions remain in particular with regard to the management of irradiated graphite waste. Some useful experience can be derived from other graphite moderated reactors which are currently shut down but none of these has though been completely decommissioned to date. It is worth noting that in all cases (France, Spain, and Italy) SAFSTOR[14] strategies have been favoured.

In this respect the programme holds a high potential for the development of innovative technologies and solutions for the dismantling, conditioning and storage of irradiated graphite.

The availability of financing in a timely manner would prevent delays or even possible discontinuation of the decommissioning process. This is a crucial element for ensuring nuclear safety and the protection of the workers and the EU citizens. In case of insufficient funding, safe maintenance would be compromised, and loss of unique expertise would render the whole decommissioning process more risky, difficult and costly.

[14] SAFe STORage is one of the options for nuclear decommissioning of a shutdown plant. During SAFSTOR the de-fuelled plant is monitored for up to sixty years before complete decontamination and dismantling of the site, to a condition where nuclear licensing is no longer required. During the storage interval, some of the radioactive contaminants of the reactor and power plant will decay, which will reduce the quantity of radioactive material to be removed during the final decontamination phase.

Social challenges

The social impact in the region of Visaginas caused by the shutdown of the reactors was considerable, because the Ignalina nuclear power plant was the main economic operator in this remote region at the border between Lithuania, Latvia, and Belarus. After the shutdown the Ignalina NPP workforce has declined from 4 500 employees in 2003 (INPP in operation) to about 1 500 employees in 2024.

In pursuing the decommissioning programme, the Ignalina NPP is still the major employer and contracting authority in the region. However, the decommissioning programme has a limited duration, therefore the social challenges need to be anticipated and addressed by Lithuania. When doing so, Lithuania should consider a series of guidance documents such as the Council Recommendation towards climate neutrality[15], recommendations on the National Energy and Climate Plans (NECPs), the European Quality Framework for anticipation of change and restructuring[16], and the Proposal for a Regulation establishing a European Fund for economic, social and territorial cohesion, agriculture and rural, fisheries and maritime, prosperity and security[17].

Other available EU instruments may be deployed in the region ensuring this way synergies and complementarities.

2.2. Objectives of the programme in the next MFF

2.2.1. General objectives

The main general objective of the programme in the next MFF will be to **assist Lithuania in managing the radiological safety challenges of the decommissioning of the Ignalina nuclear power plant**.

As for the current MFF, the main general objective will be complemented by the aim to **disseminate knowledge** on the decommissioning process (generated by the programme) to all EU Member States and beyond, thus enhancing the EU added value of the programme. The programme will develop explicit knowledge products on decommissioning and waste management governance issues, managerial best practices, and technological challenges.

Finally, a key policy objective remains further increase of Member State's ownership of the decommissioning and waste management processes.

2.2.2. Specific objectives

The specific objectives need to be adapted to the actual progress of the decommissioning programme, the related challenges, and the need to foster knowledge sharing and potential synergies.

The decommissioning programme covers a timespan longer than the current and next MFFs and is properly defined in terms of scope, budget, and timeline within the decommissioning plan. The

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15 Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality, 2022/C 243/04, OJ C 243, 27.6.2022, pp. 35–51.

16 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, EU Quality Framework for anticipation of change and restructuring, COM(2013) 882 final.

17 Proposal for a Regulation of the European parliament and of the Council establishing the European Fund for economic, social and territorial cohesion, agriculture and rural, fisheries and maritime, prosperity and security for the period 2028-2034 and amending Regulation (EU) 2023/955 and Regulation (EU, Euratom) 2024/2509, COM(2025) 565 final.

abovementioned challenges are identified in the decommissioning plan and have to be tackled based on priorities dictated by radiological safety.

The disposal of spent fuel and radioactive waste in a deep geological repository is excluded from the scope of the programme and has to be developed by each Member State in its national programme for the management of spent fuel and radioactive waste as required by the relevant directive[18].

The following specific objectives reflect the need to progress in the removal of radiological hazards:

I. Dismantling of reactor shafts:
    1. completion of dismantling and decontamination of top and bottom zones (called R1 and R2);
    2. completion of Steam Drum Separators dismantling;
    3. graphite cores (called R3):
        a. *dismantling technology engineered and licensed;*
        b. *dismantling equipment installed and operational;*
        c. *dismantling and decontamination of the reactor shafts central zone in accordance with the decommissioning plan; progress has to be measured by the quantity and type of materials removed as well as through earned value);*
        d. *reactor waste interim storage facility in operation.*

II. The Ignalina nuclear power plant (INPP) reorganisation and proportionate reduction of workforce (employees) involved in the decommissioning programme. In view of the scheduled dismantling activities and considering the choice of the INPP to outsource the full dismantling of reactor shaft central zones, the reduction of the workforce involved in the decommissioning activities shall be at least one third compared to the number of full time equivalent (FTE) at the end of 2024. Progress has to be measured with respect to specific Key Performance Indicators approved in the implementing work programmes.

III. Safe management of the decommissioning and legacy waste up to interim storage or to disposal (depending on the waste category), including the completion of the waste management infrastructure, and near surface repository. It has to be accomplished in accordance with the decommissioning plan, in its final revision. Progress has to be measured by the quantity and type of waste safely stored or disposed of, as well as through earned value.

IV. Downgrading of radiological hazards. Progress has to be measured through the safety assessments of the activities and the facility, identifying ways in which potential exposures could occur and estimating the probabilities and magnitude of potential exposures.

3. PROGRAMME STRUCTURE AND PRIORITIES

The legal basis for the programme is Lithuania's Accession Treaty. Protocol No 4 and Article 56 of the 2003 Act of Accession (AA)[1] state that "*the decommissioning of the Ignalina Nuclear Power Plant with two 1 500 MW RBMK-type reactor units inherited from the former Soviet Union is of an unprecedented nature and represents for Lithuania an exceptional financial burden not commensurate with the size and economic strength of the country*" and that this decommissioning is of a long-term nature.

[18] 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 L 199, 2.8.2011, p. 48–56.

The actions to be funded post-2027 will be derived from the latest version of the decommissioning plan and are responding to the safety objectives. Having achieved the complete defueling of the reactors (which accounts for 99% of radioactivity removed), dismantling of the graphite cores has the highest priority in the next stage as it represents the next in line major removal of radiological hazard. It is also a first-of-a-kind activity that will serve as a benchmark for decommissioning programmes in other Member States (Germany, Spain, France, Italy) and worldwide (Russia, UK, Ukraine, US). Additionally, the safe management of decommissioning and legacy waste (e.g. bituminised waste) needs to be finalised, i.e. up until the interim storage or disposal depending on the waste category.

In order of importance, the priorities for the programme are:

(i) sharper focus on safety (nuclear safety, protection of workers, public, and the environment);

(ii) incentivised and enhanced performance through increased ownership and optimisation of workforce;

(iii) dissemination of knowledge for the EU nuclear decommissioning market;

(iv) simplification and synergies;

(v) solidarity.

Based on the good practice already established, the focus of the assistance programme is on decommissioning only, and it should further focus on activities strictly related to the achievement of the main safety objectives and to the delivery of EU added value, i.e. removal of radiological hazards and creation of relevant knowledge. The decommissioning plan will continue to serve as the baseline, defining the precise scope for EU assistance. At the same time, taking into account the ECA's recommendations[20], incentives to pursue decommissioning should be embedded in the funding mechanism, including time limitations and appropriate levels of national contribution from the beneficiary Member State. Accordingly, in order to accomplish the programme general and specific objectives avoiding cost overrun and undue delays, the Ignalina NPP envisages to reorganise their staff, aiming at a reduction of the workforce involved in the decommissioning activities; the target is a reduction of at least one third compared to the number of full time equivalent at the end of 2024.

The solidarity principle is enshrined in the Lithuania's Accession Treaty, calling the Union to support the Member State in dealing with this Soviet era legacy. This aspect deserves the right level of political attention, because it underpinned the agreements between Lithuania and the Union when the decision to shut-down the Ignalina nuclear power plant earlier than initially planned was taken.

Hence, it is important that the programme be prioritised for further EU support in the next MFF (2028-2034) as it has the potential for achieving notable EU-added value both in terms of safety and knowledge gain.

4. DELIVERY MECHANISMS OF THE INTENDED FUNDING

The interim evaluation showed that the performance monitoring framework for the Ignalina programme is generally in line with best practice, given that a results-based performance monitoring is in place. In this respect the programme could be improved by linking additional funding to the achievement of pre-defined targets.

The programme seeks to ensure strong national ownership of project implementation through early buy in and strong Member State involvement. Member State is involved early in the development of the projects or programmes and has input at key phases.

The current programme offers a fully multi-annual framework for programming and has in place an annual cycle for programming and commitments.

The following three policy options should be considered in assessing the impact of the Ignalina programme in the next MFF:

(i) Policy option 1 – Discontinuation of the Ignalina programme;

(ii) Policy option 2 – Ignalina programme implemented via shared management instruments;

(iii) Policy option 3 – Ignalina programme as dedicated spending programme.

4.1. Policy option 1 – Discontinuation of the Ignalina programme

Under Option 1 the implementation of the provisions of the Accession Treaty would end in 2027. No further financial EU assistance would be provided and consequently Lithuania would have to guarantee safe completion of the decommissioning programme with own national resources.

In case of insufficient funding, there is a risk of rendering the whole decommissioning process more risky, difficult and costly as well as result in possible safety implications and risk of loss of unique expertise.

Compared to the Bohunice (SK) and Kozloduy (BG) programmes where significant decrease in radiological hazard to the general public was accomplished and the funding for programmes completion fully committed, the Ignalina programme is evidently at an earlier stage of this process and further important milestones need to be met before achieving the same level of risk reduction.

Given that a national policy and programme are in place in application of Council Directive 2011/70/Euratom, key safety objectives were met already, and the national economy appears generally fit for bearing future charges (though with certain negative impact), the discontinuation option may appear viable in some respect.

However, in such a scenario the Union would have no more leverage on the timely execution of the remaining safety actions within the timescale set out in the approved decommissioning plan. There is a high risk that the necessary funding for the programme will not be provided in accordance with the plan, with obvious delays in the progressive decrease of the level of radiological hazard.

Moreover, the discontinuation of the Ignalina programme could seriously harm the reputation of the EU in Lithuania as they had to shut down the Ignalina nuclear power plant on request of the EU at the time of the accession negotiations. Lithuania was relying on Union support for the decommissioning as well as for measures mitigating the important effects to its economy due to the loss of inland energy production[19]. Lithuania communicates regularly that it counts on EU solidarity regarding the completion of decommissioning of the Ignalina nuclear power plant.

These risks should be assessed also in view of the increased programme's effectiveness and efficiency obtained during the current and past MFF.

[19] Ignalina NPP Unit 2 accounted for 25% of Lithuania's installed electricity generating capacity and supplied about 70% of Lithuania's electrical demand.

4.2. Policy option 2 – Ignalina programme implemented via shared management instruments

Cohesion policy is the Union's main investment policy, aiming to strengthen economic, social and territorial cohesion and reduce disparities among regions. It is a major driver of job creation, sustainable growth and innovation in Europe's diverse regions.

As a result of a performance audit on the Ignalina programme, in 2016 the ECA recommended[20] discontinuing the dedicated spending programme after 2020 and considering access to other instruments for nuclear decommissioning activities. This recommendation was made with the aim to create the right incentives to pursue decommissioning and adhere to the strict rules on co-financing applicable under other instruments. The Commission partially accepted this recommendation holding over its prerogative to decide based on an impact assessment (replaced by this ex-ante evaluation) in line with the requirements of the financial regulation and better regulation agenda with regard to proposals of new initiatives.

It is worth recalling that in preparation of the MFF 2014-2020 the Ignalina programme was already revised to exclude all measures which were not strictly related to the decommissioning of the concerned facilities. As a consequence, support to energy related projects was taken out of programme as they could be supported through other EU funded measures.

Currently, decommissioning of nuclear power stations is explicitly excluded from other instruments, which are mostly geared to growth objectives. Therefore, a possible funding of decommissioning under share management instruments would lead to a fundamental change in their philosophy.

The inclusion of the decommissioning programme under other instruments may bring the following benefits:

(i) simplification and reduction of administrative burden;

(ii) well-established, proven and cross-cutting management and control systems;

(iii) increased Member State's ownership of the decommissioning programme, with clear requirements for national contributions;

(iv) budgetary flexibility transferred to the Member State.

In other words, implementation under the shared management mode could increase the Member State's ownership of the decommissioning programme and would allow the Member State to prioritise decommissioning projects among other eligible projects.

However, these advantages are offset by two substantial drawbacks:

(i) making decommissioning an eligible activity under shared management programmes, will create a precedence that goes against the principles set by the Council Directive 2011/70/Euratom on the safe and responsible management of radioactive waste and spent fuel, whereby the costs for the management of these materials shall be borne by those who generated those materials; and

[20] Recommendation 5: dedicated funding programmes for nuclear decommissioning in Lithuania, Bulgaria and Slovakia should be discontinued after 2020. If a clear need for the use of EU funds beyond 2020 is established, in one or more of the three Member States, any future EU funding proposed by the Commission and agreed by the legislator should include the right incentives to pursue decommissioning, including by being time limited and by being based on appropriate levels of Member State co-financing. One way to do this would be to consider widening access to the European Structural and Investment Funds to allow nuclear decommissioning activities to be covered, fulfilling these conditions.

(ii) shifting of budget between priorities is possible during the entire lifetime of the programme, therefore there is a risk of de-prioritisation of decommissioning in favour of other activities.

In the case of Lithuania, a possible inclusion of decommissioning under shared management instruments would result in a relevant percentage of its allocation being concentrated solely on one area and one region. This would be disproportionate vis-à-vis other priority areas and other regions in Lithuania that are equally in need for reducing disparities.

4.3. Policy option 3 – Ignalina programme as dedicated spending programme

Safety remains at the heart of the Union policy priorities. The fundamental need of safety has been the basis for the Ignalina programme since its inception, i.e. since the pre-accession time. Clearly this need is still the main driver for continuing the Ignalina programme under nuclear safety policies.

As a result of the programme interim evaluation the current governance setup has proven to ensure effective and efficient implementation of the programme. Main factors of success are the clear definitions of roles and responsibilities as well as the strengthened monitoring framework.

The Member State appoints a Programme Coordinator to be responsible for the programming, coordination and monitoring of the decommissioning programme, thus ensuring at national level the comprehensive oversight of the programme and enhancing access to information by the Commission in its supervisory role.

A Committee with monitoring and reporting functions is in place, co-chaired by a Commission representative and the Programme Coordinator. The Committee is well equipped with a dashboard of key performance indicators and detailed targets, in order to steer the Ignalina programme through a well-informed assessment and decision-making process. The detailed objectives and indicators (proposed by the Member State and approved by the Commission) provide quantitative information to measure progress towards the specific objectives. Moreover, the Earned Value Management (EVM) methodology enhances the Commission's supervision on both effectiveness and efficiency with a positive trickle-down effect at national level.

Beside the described programme governance structure, a specific steering mechanism was set for the governance of the project for reactor cores dismantling (R3D project), given the relevance of the activity both in terms of cost and schedule, and its first-of-a-kind nature. Dedicated coordination meetings are co-chaired by the Commission representative and the Programme Coordinator to follow up and monitor the project, to steer or take decisions on strategic issues, and to ensure proper project risk management.

From a legal viewpoint, the base for the continuation of the programme in Lithuania is well identified. Nonetheless the analysis and the benchmark have also identified areas for further improvement to be achieved in the establishment of a new Regulation for the next MFF, should this policy option be selected.

In particular on the EU co-financing issue, a well-defined co-financing rate was set and accomplished during the current MFF. Likewise, further increase of Member State's ownership as well as stronger incentives can be devised in a dedicated spending programme, such as limitation in time for the funding. Finally, the Ignalina NPP should reorganise their work structure to optimise the decommissioning workforce.

The Ignalina programme is currently implemented by the EBRD as well as by the national agency (CPMA). The implementation via the national agency was established upon request by Lithuania in view of increasing ownership. Continuing the implementation of the programme through the established entrusted entities would ensure stability in the safe decommissioning process.

The progress achieved under the dedicated programme was significant. The existing monitoring tools ensured that any occurring issue were addressed in a timely manner, however improvements are needed to increase the programme implementation efficiency.

4.4. Policy options benchmark

The risks associated to policy option 1 (discontinuation) are: EU would waive leveraging on the safety objectives of the programme as well as on exploiting the knowledge gained in favour of other EU Member States; moreover, from a political standpoint, the solidarity principle underpinning the programme thus far would be disregarded by the Union with negative effect on the European sentiment in Lithuania.

Policy options 2 and 3 are mainly differentiated in terms of theme (cohesion vs. safety) and delivery mechanism (merge with other programmes vs. dedicated spending programme).

Both solutions are fit for addressing the substantial needs of increased ownership by the beneficiary Member State and of stronger incentives to pursue decommissioning in a timely and efficient manner. However, policy option 3 responds more effectively to the needs of:

(i) EU leveraging on the safety objectives;

(ii) maximising knowledge gain for the decommissioning of nuclear reactors across the EU and beyond.

5. HOW WILL PERFORMANCE BE MONITORED AND EVALUATED?

The nuclear decommissioning programme is complex and long-lasting (flowing through several subsequent MFFs). Objectives are thus specifically defined for the short term (e.g. year, MFF) under the framework of a multiannual programme aimed at accomplishing the general objective.

5.1. Programming, monitoring, reporting and evaluation

Under policy option 3 the programming, monitoring and control system will be further improved and streamlined with respect to the existing one; lessons learnt from the interim evaluation will be used in order to ensure continuous improvement.

As far as programming is concerned the multiannual nature of the decommissioning programme will be reflected in the adoption of a multiannual work programmes, submitted by the Programme Coordinator.

The Commission would continue entrusting the implementation of the programme's budget to the pillar-assessed entrusted entities (indirect management).

A Committee with monitoring and reporting functions is in place, co-chaired by the Commission representative and Programme Coordinator. Entrusted entities (EBRD, CPMA) monitor on a day-to-day basis. In addition, the Commission services closely follow project implementation through desk and on-the-spot reviews on a biannual basis.

Presently the regular programming, monitoring and control cycle is supplemented by thematic verifications based on risk reviews. This practice will continue in the next MFF.

5.2. Performance indicators

The present Regulation has defined SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) specific objectives for the progress to be achieved in the funding period; those specific objectives have been further detailed with targets and indicators within the detailed implementation procedures[6].

Several output-based physical progress indicators are suitable both for defining specific objectives and for monitoring the performance (i.e. effectiveness) of decommissioning programmes; for example, amounts of systems dismantled, materials released from regulatory control, radioactive waste processed, conditioned and stored or disposed of.

Another important category of indicators is project-based; for example, milestones i.e. significant events in a project properly budgeted and scheduled. Moreover, project management techniques are essential such as critical path analysis and the Earned Value Management that provide robust project-based KPIs enabling the managers to control delays and cost-increases. Accordingly, these indicators are used to assess the efficiency of the process.

The combination of output-based and project-based indicators has proven to have a high potential for programmes such as nuclear decommissioning. Output-based indicators put very specific activities under the spotlight; the information they provide is sharp and clear, but also limited in that the full picture is not covered. Complementarily, the Earned Value Management KPIs provide a complete view of the progress of individual projects/work packages and can be aggregated to inform the general state of play of the overall programme, both time-wise and cost-wise.

Such set of indicators (fully quantitative) enables control on short-term as well as on long-term challenges, providing the managers (up to supervisory organisations) the tools to enact corrective or mitigation measures at the earliest time possible.

The programme interim evaluation has shown that this comprehensive toolkit of performance indicators has supported effective and efficient implementation as demonstrated by the deeds, i.e. accomplishments. Therefore, the performance monitoring and evaluation for the future MFF can be profitably built on both the existing system and the lessons learnt to ensure continuous improvement.

Under policy option 3 other indicators are needed to reflect safety related achievements in an even stricter manner and to match with the new explicit EU-wide knowledge sharing objective.

Progressive and stepwise removal of radiological hazards posed by the facilities under decommissioning will have to be measured based on the safety cases prepared by the decommissioning licence holder.

As far as the EU-wide knowledge sharing objective is concerned, the following key items should be monitored without prejudice to the competitive advantage of the decommissioning licence holder having created such know-how:

(i) decommissioning cost estimates and estimations methodologies;

(ii) radiation protection and industrial safety issues;

(iii) identification of proven processes;

(iv) irradiated graphite management (from dismantling to storage).

5.3. Preliminary evaluation criteria

For the programme, the main EU co-financed endeavour for the next MFF period (2028-2034) is the dismantling of the two reactor graphite cores, including all preparatory tasks. This activity is a true first-of-a-kind one, therefore the schedule and the budget are subject to uncertainties which call for a strict monitoring and control (and fully justify the Union solidarity).

Given the above, the current cycle of programme evaluations should be maintained, i.e. an interim evaluation has to be scheduled as well as the mandatory final evaluation.