

Nuclear decommissioning assistance

In a nutshell

Following the 1986 Chernobyl disaster, the EU launched several nuclear decommissioning assistance programmes (NDAP) to help Bulgaria, Lithuania, and Slovakia safely close and dismantle their early Soviet-designed reactors while acceding to the EU. The NDAPs provide financial assistance for decommissioning, dismantling and waste management projects; energy-sector projects aimed at mitigating the consequences of reactor shutdowns; and projects addressing the socio-economic consequences of decommissioning. The European Commission estimates that between 1999 and 2020, financial support for the NDAP programmes will total approximately **€3.8 billion**.

EU Multiannual Financial Framework (MFF) heading and policy area

Heading 1a (Competitiveness for Growth and Jobs) – Energy

2014-2020 financial envelope (in current prices and as % of total MFF)

Commitments: €969.26 million (0.09%)

2016 budget (in current prices and as % of total EU budget)

Commitments: €135.6 million (0.09%)

Payments: €150.0 million (0.10%)

2017 budget (in current prices and as % of total EU budget)

Commitments: €138.4 million (0.09%)

Payments: €150.1 million (0.11%)

Methods of implementation

Indirect management (European Bank for Reconstruction and Development; Member State national agencies¹).



In this briefing:

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EU role in the policy area: legal basis

The main legal basis of the programme is Euratom, the Treaty establishing the European Atomic Energy Community, signed on 25 March 1957 together with the Treaty establishing the European Economic Community. Euratom underpins the promotion and facilitation of nuclear research in Member States, sets basic standards for the protection of employee and public health against risks associated with ionising radiation, and specifies rules for facilitating coordinated investments in the nuclear field. On the basis of the Euratom Treaty, a number of legislative acts have been approved at European level over the years. Among them, the 2009 [Nuclear Safety Directive](#) is aimed at ensuring the safety of nuclear power plants, which are supervised by independent national regulators. The 2011 [Radioactive Waste and Spent Fuel Management Directive](#) requires all EU countries to have a national policy and to draw up national programmes for the disposal of nuclear waste. The directive also requires that all relevant information on radioactive waste and spent fuel be made available to the public, and imposes strict conditions on the export of radioactive waste to countries outside the EU. A number of safety standards have been established by Euratom through the 2013 [Basic Safety Standards Directive](#), which ensures, inter alia, the protection of workers exposed to ionising radiation, members of the public and medical patients.

Country-specific Nuclear Decommissioning Assistance Programmes

The legal basis of the Nuclear Decommissioning Assistance Programmes (NDAP) varies depending on the country. In the case of Lithuania, the 2003 [Accession Treaty](#) explicitly included the possibility that decommissioning operations would receive further financing beyond 2006. Conversely, for Bulgaria, Article 30 of the Protocol to the 2005 [Accession Treaty](#) limits financial support to 2007-2009, while for Slovakia the 2003 Accession Treaty limits funding to 2004-2006. In other words, for Bulgaria and Slovakia, the accession treaties do not provide a specific legal basis for further financing beyond 2009 and 2006, respectively.

Deadlines for the closure of nuclear reactors

Protocols attached to the above-mentioned accession treaties also set deadlines for closing the respective nuclear reactors. For Lithuania, [Protocol No 4](#) committed the government to closing Unit 1 of the Ignalina Nuclear Power Plant before 2005, and Unit 2 by 31 December 2009 at the latest. Bulgaria's [Protocol](#) said that Units 1, 2, 3 and 4 of the Kozloduy Nuclear Power Plant should be shut down between 31 December 2002 and 31 December 2006. [Protocol No 9](#), for Slovakia, stipulated that Unit 1 of the Bohunice V1 Nuclear Power Plant should be shut down by 31 December 2006, and Unit 2 by 31 December 2008.

Council regulations on nuclear decommissioning

All three countries have obligations regarding the subsequent decommissioning of their nuclear power plants with EU financial support. Therefore, at the end of the period specified in the protocols, the appropriate legal basis for further financing support had to be considered under Article 203 of the Euratom Treaty. According to this article, 'if action by the Community should prove necessary to attain one of the objectives of the Community, and this Treaty has not provided the necessary powers, the Council shall, acting unanimously on a proposal from the Commission and after consulting the European Parliament, take the appropriate measures'.

In line with the provisions of Article 203 of the Euratom Treaty, the Council of the EU has adopted two further regulations: [Council Regulation 1368/2013](#) on EU support for the

nuclear decommissioning assistance programmes in Bulgaria and Slovakia, and [Council Regulation No 1369/2013](#) on EU support for the nuclear decommissioning assistance programme in Lithuania.

NDAP objectives

The NDAPs were launched in 1986, after the Chernobyl disaster,² which persuaded the EU that high-power channel-type reactors and first-generation Soviet-designed nuclear reactors could not be upgraded to the safety standards in place in Western countries at reasonable cost. Therefore, it was decided that these reactors should be shut down before their planned end of life.

During this period, three countries that would later become candidates to join the EU – Lithuania, Slovakia and Bulgaria – operated Soviet-designed nuclear reactors, at Ignalina, Bohunice and Kozloduy, respectively. Recognising that shutting down and decommissioning these reactors in a safe and efficient way would involve a significant financial and economic burden, the EU created the NDAPs to support the three countries' national governments in this process. The Commission emphasises that the assistance is not meant to cover the full cost of decommissioning or provide compensation for all economic consequences; rather, it is an expression of solidarity² between the EU and its Member States.

The NDAPs fund three main types of project:

- projects on decommissioning and dismantling, and on waste management (for instance, design and construction of radioactive-waste treatment plants);
- energy-sector projects aimed at mitigating the consequences of shutting down reactors (for instance, replacing lost electricity-generation capacity);
- projects for mitigating the social consequences of dismantling (for instance, employment-creating initiatives).

The importance of nuclear decommissioning in the European Union

The decommissioning of a nuclear installation involves everything related to ending its lifecycle, ranging from removal of nuclear waste to restoration of the site on which the installation is located. According to Commission estimates, by 2025 over a third of the EU's currently operational reactors will be at the end of their lifecycle and will therefore need to be shut down. As of October 2015, 89 nuclear power reactors have been permanently shut down in Europe, but only three reactors have so far been completely decommissioned.³ A group of experts – the Decommissioning Funding Group – provides technical expertise to the Commission on all aspects related to decommissioning costs and the management of available funds. The group is also tasked with suggesting solutions for harmonising the EU's nuclear decommissioning legal framework.

Funded actions

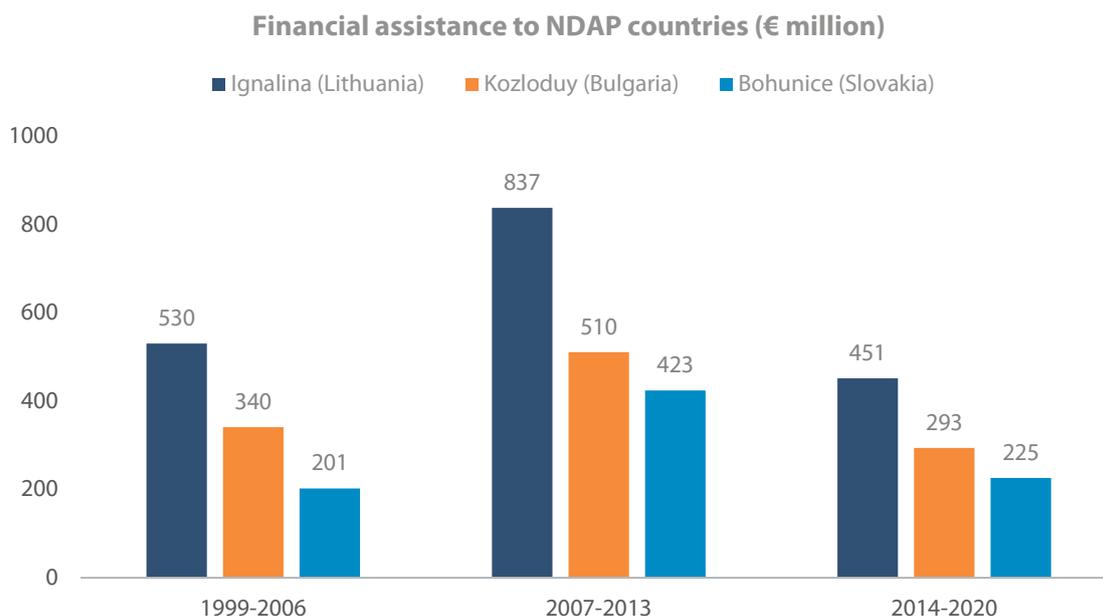
Financing before and after accession to the EU

EU financial assistance provided to the three countries through the NDAP has been implemented over four periods. During their first **pre-accession period** (up to 2004), Lithuania and Slovakia received funding through the Phare programme. One of the main EU instruments for pre-accession assistance to central and eastern European countries, Phare was later replaced by the Instrument for Pre-accession Assistance. Financial assistance over the **second period** (between 2004 and 2006) was provided under the protocols to the countries' accession acts. Since 2007 (the **third period**) Council

regulations have ensured the continuation of assistance for the Slovak and Lithuanian governments. The fourth period began in 2014 and will run until 2020.

Bulgaria's later entry into the EU meant its first and second funding periods were slightly different. Over its pre-accession period (up to 2007), Bulgaria received financing through Phare. For the 2007-2009 period, assistance to the country was provided under the protocol to the accession treaty. Following a formal request for the prolongation of the funding assistance presented in 2009, the Council adopted a new regulation to ensure the continuation of assistance until 2013. Similarly, assistance continues under the current 2014-2020 MFF.

For the period 2014-2020, the financial envelope allocated to the decommissioning of Ignalina in Lithuania is set at €450.8 million, for the decommissioning of Kozloduy in Bulgaria at €293 million, and for the decommissioning of Bohunice in Slovakia at €225.4 million. Prior to the current MFF period, Lithuania had received €1.37 billion in NDAP support, Bulgaria €850 million, and Slovakia €624 million. By the end of the current MFF, total EU NDAP support for the three countries since 1999 is expected to total approximately €3.8 billion. In the chart below, the first bar cluster combines the final year of the EU's second 'Financial Period' (the predecessor to the EU's current Multiannual Financial Framework) with the entirety of the third Financial Period. The second and third bar clusters align with the fourth Financial Period and the current Multiannual Financial Framework respectively.



Source: European Court of Auditors [Special Report No 22/2016](#).

Work continues now that the reactors have been shut down

All three reactors were shut down by the deadlines set in the three countries' accession protocols, but decommissioning, dismantling and waste management projects continue, which is why the EU continues to provide funding from the EU budget. Although this work is scheduled for completion only in 2025 (Bohunice), 2030 (Kozloduy) and 2038 (Ignalina), the Commission reports that no further EU financial assistance is planned beyond 2020. Moreover, since the end of the 2007-2013 MFF, the three countries have not received any further support for mitigation measures concerning their energy supply.

A [report](#) by the engineering consultancy Vuje explains that decommissioning of Bohunice in Slovakia is taking place in two stages. With the reactor cores and ponds now defueled, the second stage will involve decontamination work. The Lithuanian state enterprise Ignalina Nuclear Power Plant [reports](#) that the decommissioning of Ignalina is taking place in three stages: first, cleaning and decontamination; second, dismantling, which includes the trialling of radioactive waste processing and interim storage facilities – currently taking place; and third, demolition of the buildings.

In Bulgaria, the country's Decommissioning [Strategy](#) provides for two stages now that all four units of the Kozloduy reactor have been shut down and defuelling of units 3 and 4 has been completed. Further work includes dismantling the turbine hall, decontamination of areas and equipment, and environmental clean-up.

All three plans provide for the creation of brownfield sites at the end of the decommissioning process, enabling their reuse and redevelopment subject to certain restrictions.

Assessment of the programmes

In 2013, the Commission published a [communication](#) on the use of financial resources earmarked for the decommissioning of nuclear installations, spent fuel and radioactive waste. Another Commission [report](#) published in 2016 set out the programmes' implementation in 2015 and previous years. That report notes that, following criticisms by the Commission's own Internal Audit Service of financial management shortfalls in 2015, the Commission was assessing in detail the robustness of the financing plans in each of the Member States in question for the safe completion of decommissioning.

Also in 2016, the European Court of Auditors published a special [report](#) assessing NDAP spending in the three countries. The report estimated the cost of decommissioning at the three plants, including EU and non-EU financing, at €5.7 billion in total (and double that if the cost of final disposal is included), and pointed to previous delays, recommending that the Member States improve their project management procedure and develop local expertise and capacity.

Another Commission [report](#) from 2016 focused on the investments related to post-Fukushima safety upgrades and highlighted the estimated financing needs related to nuclear power plants' decommissioning and to the management of radioactive waste and spent fuel in the EU. In the report, the Commission estimates that €253 billion will be needed for nuclear decommissioning and radioactive waste management across the EU by 2050, (€123 billion for decommissioning and €130 billion to deal with spent fuel and radioactive waste), though the vast majority of this will need to be paid for by the Member States.

Other EU programmes and actions in the same field

Another EU programme focused on nuclear energy is the Instrument for Nuclear Safety Cooperation, which was created to guarantee nuclear safety through cooperation with third countries, with priority given to accession and neighbouring countries. In the 2014-2020 MFF, this programme has been allocated €225.32 million.

Endnotes

¹ In Lithuania, some tasks are assigned to a national Central Project Management Agency (CPMA). In Slovakia, the Slovak Innovation and Energy Agency (SIEA) took over management of the Bohunice Programme in 2016 following the conclusion of a delegation agreement with the European Commission.

² On the Chernobyl disaster, see D. Bourguignon, N. Scholz, [Chernobyl 30 years on. Environmental and health effects](#), European Parliamentary Research Service, 2016, and P. Perchoc, [Chernobyl 30 years on](#), European Parliamentary research Service, 2016.

³ See European Commission, [COM \(2016\) 177 final, Nuclear Illustrative Programme](#), 2016.

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