Nuclear energy: Bohunice V1 nuclear power plant in Slovakia, implementation of the Protocol No 9 annexed to the Accession Act 2004

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The Commission presents a report on the use of financial resources provided to Lithuania, Slovakia and Bulgaria to support the decommissioning of early shut-down nuclear power-plants under the Acts of Accession. The report assesses the implementation status of EU financial assistance, particularly covering the implementation of the decommissioning programme during the period 2004 – 2009. It also considers financial assistance from the preceding period and recent progress made in 2010 in order to provide a consistent and comprehensive picture.

It recalls that 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.

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, which 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.

Lithuania-Ignalina Nuclear Power Plant: Unit 1 was permanently shut down on 31 December 2004, and unit 2 on 31 ecember 2009. The total EU assistance to Lithuania between 1999 and 2013 is anticipated to be EUR 1367 million.

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 closure 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. 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.

Slovakia– Bohunice V1 Nuclear Power Plant: 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 EUR 613 million.

Since the beginning of the programme several issues such as: the reorganisation of JAVYS (the state-owned organisation responsible for the post-shut down supervision and for the decommissioning of V1 NPP), communication difficulties between the 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 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 EU continues to monitor closely the progress towards the achievement of this key milestone.

Bulgaria – Kozloduy Nuclear Power Plant: 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 anticipated to be EUR 867.78 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.

Conclusion: 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 regarding replacing 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 de-fueled 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 radioactive waste (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.

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 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.