

The Ukrainian nuclear power plant safety upgrade project and the EBRD's contribution to extending outdated Soviet reactors

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CEE Bankwatch Network's mission is to prevent environmentally and socially harmful impacts of international development finance, and to promote alternative solutions and public participation.

In November 2010 the EBRD and the EU's Euroatom announced their plan to support EUR 1.2 billion nuclear power plant (NPP) safety upgrade project (SUP) for Ukraine. The loan from the EBRD and Euroatom is expected at **EUR 800 million**. The SUP includes upgrades to all 15 Ukrainian nuclear reactors and should be completed by 2017.

The EU presents the project as a timely initiative to improve nuclear safety in the region. However a closer inspection into Ukraine's nuclear development plans shows rather that the participation of the EBRD in the project would contribute in fact to higher nuclear risks, as the proposed project is a part of the programme to extend the lifetime of Soviet-era reactors.

Operating beyond reactor lifetime

Twelve of fifteen nuclear units currently in operation were designed to finish operations before 2020. Two units were supposed to be taken off the grid in 2010 and 2011 but received licenses to operate for an additional 20 years. The SUP is therefore designed for nuclear reactors that face the end of their designed lifetime. In spite of the overwhelming safety considerations that should dictate the decommissioning of these units, the Ukrainian nuclear operating company Energoatom that designed the SUP and the Ukrainian Government do not consider any options other than keeping the old units in operation. However, strong evidence supports the idea that when operating nuclear reactors beyond their intended lifespan, the number of incidents rises sharply with the age of the units¹.

While the justification for extending reactor lifetime is based on electricity demand projections outlined in Ukraine's 2006 'Energy strategy until 2030', these projections are proven to be exaggerated and the current draft revised Energy strategy decreases the prognosis of electricity demand from 395 billion kilowatt hours in 2030 to 272 billion kilowatt hours. Economic considerations also suggest that it would not be feasible to keep all current installed generating capacities running as this necessitates significant costs to modernise, maintain and fuel the reactors, at the same time exacerbating the existing problem of treating radioactive waste and spent nuclear fuel.

¹ Meyer, N., D. Rieck, and I. Tweer. *Alterung in Kernkraftwerken*. Greenpeace, Hamburg, 1996 (revised version 1998)

Public funding for lifetime extension

A careful assessment of the EBRD NPP SUP reveals that **more than half of the proposed activities are necessary for lifetime extensions** to enable the operation of the reactors for another twenty years. Priority II activities of Energoatom's Complex (Consolidated) Nuclear Power Plants Safety Upgrade Programme "*...are planned as part of the lifetime extension preparatory programme with the possible completion of the project after the end of operation...*"² However the final EIA report prepared as per EBRD due diligence requirements omits this objective of the SUP and downplays the pivotal role that SUP activities will play in the process of lifetime extension. "*The SUP involves safety improvements at existing NPPs, with no new construction, no capacity increase and no life extension*".³

All Priority II activities are part of the project proposed by Ukraine for EBRD and Euroatom financing and are listed in technical annexes to the 'Ecological Assessment Main Report' ⁴.

These activities are 57 percent of the total number of activities planned under the SUP. In the case of South Ukrainian NPP Units 1 and 2 that reach the end of their lifetimes in 2012 and 2015 respectively, 68 percent of SUP activities are designed as parts of the lifetime extension program.

The SUP will also **endorse the decision to prolong the operations of expired reactors** by facilitating compliance with nuclear regulatory conditionalities. One of the obligatory conditions for granting licences for the operation of Rivne NPP Units 1,2 is the "implementation of measures envisaged by the "Complex (Consolidated) Nuclear Power Plants SUP in Ukraine."⁵

Strategic environmental assessment

The EBRD and EC have requested a strategic environmental assessment (SEA) for the SUP project⁶. However as early as the project's scoping stage, the public was informed that EBRD staff and **Energoatom agreed only to an ecological assessment (EA) for the project** with procedures outlined in European SEA Directive 2001/42/EC regarding public participation.

The final EIA report was released on October 12, 2011, and the assessment lacks a number of important principles of strategic environmental assessment. The SEA should outline "the relationship with other relevant plans and programs"⁷ and analyse the potential impacts resulting from such relationships.

² Complex (Consolidated) Nuclear Power Plants Safety Upgrade Programme in Ukraine, page 14. (emphasis added)

³ Ecological Assessment Main Report (version 30.09.2011), p. 9.

⁴ Ecological Assessment Main Report (version 30.09.2011), p. 241–252, table 65.

⁵ *State Nuclear Regulatory Committee of Ukraine (SNRCU)* Board Resolution #15, December 10, 2010.

⁶ See the procurement notice at <http://www.devex.com/en/projects/235147/print>.

⁷ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001.

The linkages between the SUP and lifetime extension plans were raised throughout the whole EIA preparation process, and as a result, Energoatom concedes this relationship and acknowledges the impacts of these two programs considered together⁸ “*SUP implementation will impact only the future scope of works concerning the lifecycle extension of the operating power units, but will not influence the decision of life extension*”. At the same time, **it is nearly impossible for Energoatom to secure funding for lifetime extension, while it is more feasible to secure financing of the part of works through SUP with EBRD and EU money** to enable the plan for lifetime extensions possible.

Correspondence with the EBRD shows that the bank understands the connection between SUP and lifetime extension plan: “*It is EBRD’s understanding that the Ukrainian Government has already taken its decision to continue operating the units which EBRD is considering for the safety upgrade project*”⁹. In this respect, it is even more surprising to see that **the final assessment report does not provide any comprehensive assessment of the impacts and potential risks from updating reactors operating for another 20 years. Moreover the final EIA report does not provide any comprehensive analysis of alternatives.** There is some mention of “no–project alternative” and “*the only alternative to the SUP would have been not to include all identified measures in the SUP and subsequently to lower the level of safety improvements*” (p. 23). **The most logical alternative proposal for the SUP – excluding those measures necessary only for enabling a reactors’ lifetime extension – was not analysed.**

The EBRD’s stance on the project contradicts its own notion of basic nuclear safety needs. The independence of the nuclear regulatory agency is an essential component of nuclear safety. Yet by accepting the Ukrainian’s government decision to extend reactor lifetimes before the Ukrainian regulatory agency issued a licence both the **EBRD and government have contravened the very function of the nuclear regulatory agency.** This is a major safety threat in and of itself and undermines the very idea of improving nuclear safety. In a previous instance, EBRD conditioned its financial support for the nuclear industry in Ukraine on „the necessary independence and resources to the nuclear regulatory authority to enable it to ensure the regulation and supervision of the safe operation of nuclear power plants in the country“¹⁰.

⁸ Ukraine NPP SUP Ecological Assessment Main Report (version 30.09.2011), p. 20.

⁹ EBRD letter to CEE Bankwatch Network from July 29, 2011.

¹⁰ Guarantee agreement between Ukraine and EBRD, 7.09.2005.

EBRD and Energoatom: a rocky history

The outcomes of EBRD nuclear safety programmes in Ukraine are mixed. In 2004 the EBRD approved financing for post-construction upgrades at the K2/R4 reactors. The EBRD concluded that one of the outcomes of the project would be Energoatom's ability to mobilise finance for safety measures at other reactors.

"The safety level of 13 operating VVER units will be upgraded over the next six to seven years using K2 and R4 as a benchmark. The safety upgrades of these units will be performed in accordance with the Upgrade Package developed by Ukrainian and Western experts, reviewed and agreed by Riskaudit and approved by the [State Nuclear Regulatory Committee of Ukraine]. The financial provisions for the Upgrade Package will be annually reflected in the [electricity] tariff."

Yet seven years later most of those upgrades are still pending and Energoatom has not secured the money for these upgrades. Again Energoatom now approaches public European institutions to finance the modernisation of Ukraine's nuclear reactors.

Demands

We urge EBRD not to finance the Ukrainian NPP Safety Upgrade Project in its current design. In order to genuinely improve safety, decrease the risks and long-term effects of the Ukrainian nuclear industry, European institutions are recommended to do the following:

1. **Conduct meaningful strategic assessment of the Ukrainian nuclear industry** that would provide feasibility assessment of different scenarios of its development, and include calculations of full decommissioning and spent nuclear fuel utilization costs.
2. Require implementation of the conditions attached to the previous Energoatom loan for ensuring that its tariffs generate sufficient funds for the management of spent fuel and radioactive waste, safety upgrades and decommissioning of reactors after closure;
3. Focus EU and IFI support **solely on the safe closure and decommissioning of old reactors**;
4. The EBRD should not consider NPP SUP before the Ukrainian nuclear regulator licenses the units' operation beyond the designed lifetime.

Annex 1. Overview of reactors facing expiration of their designed lifetime

Reactor (NPP)	Type of reactor	Installed capacity, MW	Life time (designed) expires in the year	License for extended lifetime
Rivne 1	VVER-440/213	420	2010	Issued in 2010 to expire in 2030
Rivne 2	VVER-440/213	415	2011	Issued in 2010 to expire in 2030
South Ukrainian 1	VVER-1000/302	1000	2012	
Zaporizska 1	VVER-1000/320	1000	2014	
South Ukrainian 2	VVER-1000/338	1000	2015	
Zaporizska 2	VVER-1000/320	1000	2015	
Rivne 3	VVER-1000/320	1000	2016	
Zaporizska 3	VVER-1000/320	1000	2016	
Khmelnitsky 1	VVER-1000/320	1000	2017	
Zaporizska 4	VVER-1000/320	1000	2017	
South Ukrainian 3	VVER-1000/320	1000	2019	
Zaporizska 5	VVER-1000/320	1000	2019	
Zaporizska 6	VVER-1000/320	1000	2025	
Rivne 4	VVER-1000/320	1000	2034	
Khmelnitsky 2	VVER-1000/320	1000	2034	