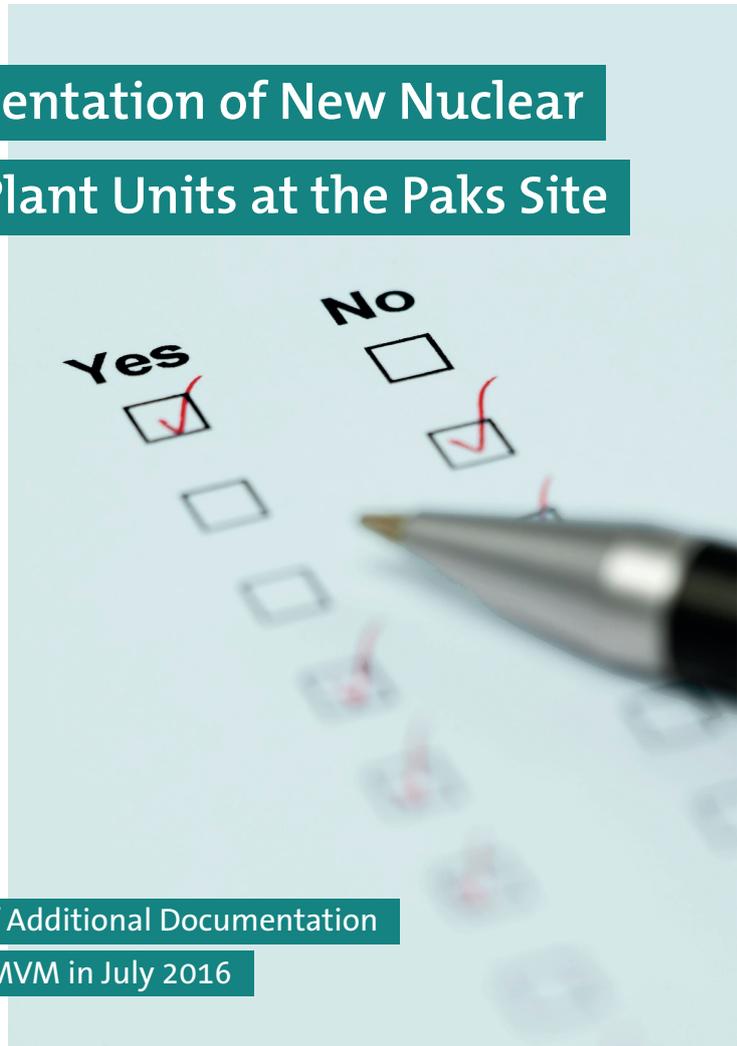


# Implementation of New Nuclear Power Plant Units at the Paks Site



Evaluation of Additional Documentation

Provided by MVM in July 2016





# IMPLEMENTATION OF NEW NUCLEAR POWER PLANT UNITS AT THE PAKS SITE

## Evaluation of Additional Documentation Provided by MVM in July 2016

MVM Paks II Nuclear Power Plant  
Development Private Limited Company

Technical Report  
ENCO FR-(16)-23



REPORT  
REP-0586

Vienna, 2016

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## DOCUMENT REVIEW AND APPROVAL COVER SHEET

**PROJECT TITLE:** Expert opinion on the evaluation of the Environmental Impact Assessment Report for PAKS II development project, plus any consultation

**PERFORMED BY:** ENCONET Consulting Austria

**TASK:** 3 – Evaluation of additional documentation provided by MVM in July 2016

**DELIVERABLE:** Report

**PREPARED BY:** ENCO

**PREPARED FOR:** Umweltbundesamt

DATE released	REVISION	PREPARED/ REVISED by:	REVIEWED by:	APPROVED by:
21.07.2016	0	(signature on file) Z. Bricman Rejc E. Fruehwirt Date: 21.07.2016	(signature on file) B. Tomic Date: 21.07.2016	(signature on file) B. Tomic Date: 21.07.2016
22.07.2016	1	(signature on file) Z. Bricman Rejc E. Fruehwirt Date: 22.07.2016	(signature on file) B. Tomic Date: 22.07.2016	(signature on file) B. Tomic Date: 22.07.2016



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## 1 EVALUATION OF ADDITIONAL DOCUMENTATION PROVIDED BY MVM IN JULY 2016

Following the Expert Statement on Environmental Impact Study (EIS) (ref. [1]), the issuance of the Consultation Report (ref. [2]), the review of seven additional documents concerning the Paks II EIS, ENCO performed the review and evaluation of additional documentation, which was provided by MVM in July 2016 in the scope of Espoo Convention on transboundary Environmental Impact Assessment (EIA) for PAKS II nuclear power plant (NPP).

Since the submission of the EIS in 2014, the Russian partner of MVM made some changes to the initially proposed technical solutions for Paks II. The provided documentation contains clarification of these changes and adjusts the data contained in the EIS to take into account the new solutions. The topics of the documentation are focused on the relocation of units' buildings to the north, on the changed location of the Paks II substation and the length of the 400 kV and 132 kV back-up feeder lines and on the installation of a new open surface canal parallel with the existing hot water canal for Paks NPP. The topics are in most cases primarily of interest for the population in the vicinity of the planned power plant. None of the topics provides any information, which would address the issues raised and the recommendations provided within the Expert Statement (ref. [1]) and in the Consultation Report (ref. [2]). Therefore it was concluded, that the revision of the Expert Statement and the Consultation Report **is not needed**.

## 1.1 Document Clarification of Certain Technical Solutions presented in the EIA EN (ref. [3])

<b>MVM File name</b>	CLARIFICATION_OF_CERTAIN_TECHNICAL_SOLUTIONS_PRESENTED_IN_THE_EIA_EN
<b>MVM Title</b>	Information On the clarification of certain technical solutions presented in the Environmental Impact Assessment procedure on the implementation of the new nuclear power plant units at the Paks site and the assessment of the environmental impacts thereof
<b>Date</b>	06.07.2016

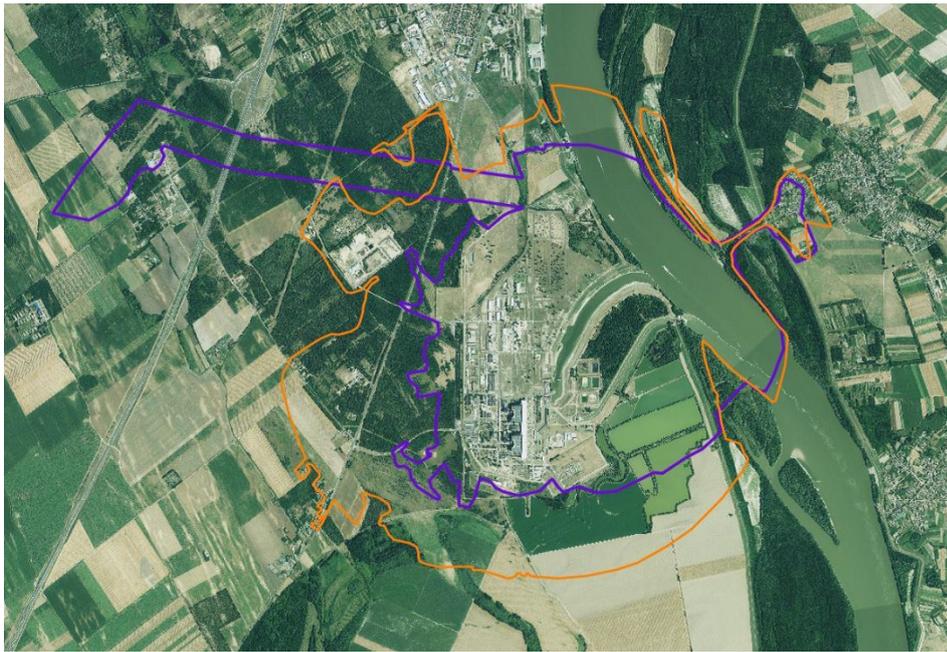
### This document provides new/updated information for the following topics:

- 1 BACKGROUND
- 2 CLARIFICATION OF THE TECHNICAL SOLUTIONS PRESENTED IN THE ENVIRONMENTAL IMPACT ASSESSMENT ON THE IMPLEMENTATION OF THE NEW NUCLEAR POWER PLANT UNITS AT THE PAKS SITE AND THE ASSESSMENT OF THE ENVIRONMENTAL IMPACTS THEREOF
  - 2.1 Clarified technical solutions
- 3 ASSESSMENT AND EVALUATION OF THE ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE TECHNICAL SOLUTIONS CLARIFIED
  - 3.1 Review of the impact elements, processes and impact factors concerned by the clarifications of the technical solutions
  - 3.2 Geology and groundwater at the site
  - 3.3 Ambient air
  - 3.4 Noise control
  - 3.5 Environmental radioactivity – radiation exposure of the population living near the site
  - 3.6 Biosphere, ecosystem
  - 3.7 Cumulative impact areas determined on the basis of the clarified technical solutions
- 4 SUMMARY

### Evaluation:

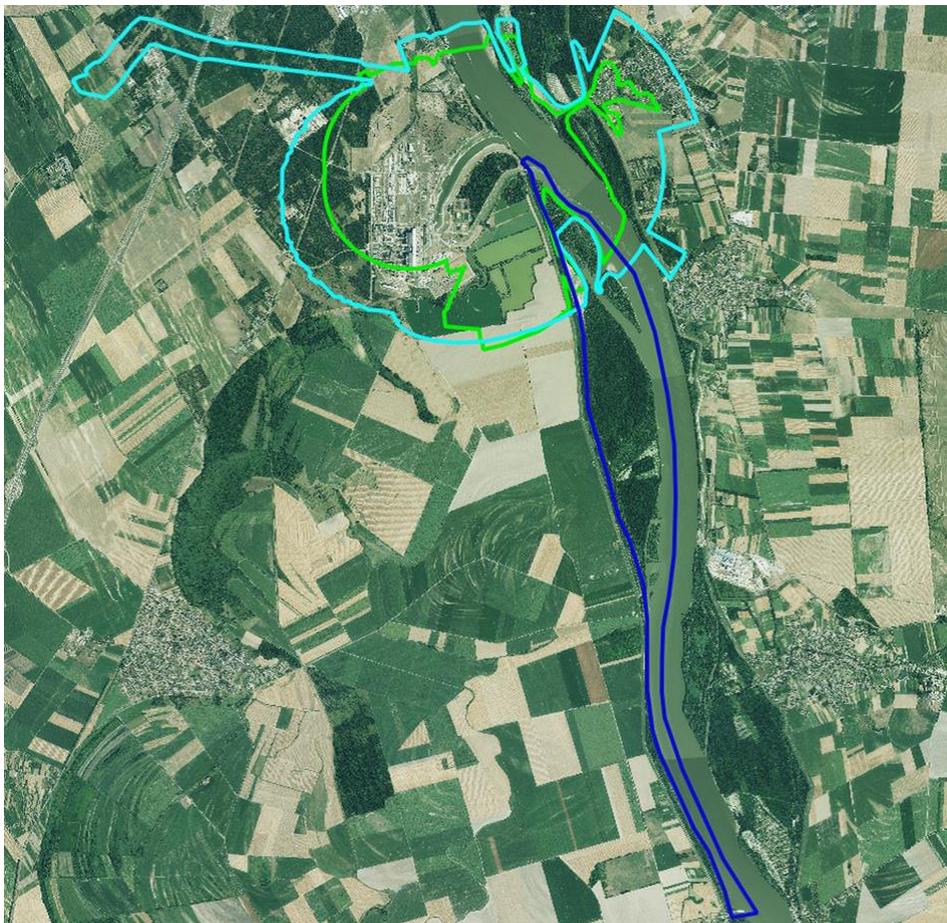
Since the submission of the EIS in 2014, the Russian partner of MVM made some changes to the initially proposed technical solutions. With this report, MVM is adjusting the data contained in the EIS to the new situation. The planned changes concern the following areas:

- The units' buildings shifted to the north and their size increased, the new size and position of the operational and staging areas of the new units within the industrial economic area (GIP area) are described;
- The location of the Paks II substation has been modified, the length of the 400 kV unit lines and the 132 kV back-up feeder line will be reduced;
- The warmed up cooling water will be discharged in a new open surface canal parallel with the existing hot water canal of the Paks Nuclear Power Plant.



*Cumulative impacted area of construction phases according to the EIS in 2014 (purple) and based on the assessment of the specified technical solutions in 2016 (orange) (Source: [3]; 06 July 2016)*

With the new technical solutions the spatial extent of the impacted area of the constructions increased with respect to plant site, while it decreased with respect to 400 kV unit lines and the 132 kV back-up feeder lines.



*Cumulative impacted areas of the operation according to the EIS in 2014 (light blue), based on the assessment of the specified technical solutions in 2016 (light green) and the combined impacted area of thermal load caused by emissions of cooling water from Paks and Paks II (dark blue) (Source: [3]; 06 July 2016)*

The spatial extent of the impacted area of the operation decreased with respect to the site and the transmission lines compared to the impacted areas presented in the EIS in 2014.

In addition to the above presented impacts of the new solutions, the document also presents the results of the updated evaluation for several other aspects: geology and groundwater, ambient air, noise, radiation exposure of the population living near the site, biosphere and ecosystem. All updated evaluations are related to the close vicinity of the site.

The document also addresses the one year shift in the construction schedule for Paks II. Start of the commercial operation of block #6 is now planned for 2026 instead of 2030. Therefore, the parallel operation of the existing blocks #1-#4 together with the new blocks #5 and #6, will take place between 2026 and 2032. Next page contains the original 2014 versions of the schedules against the updated schedules from 2016.

***Conclusion:***

All topics addressed are only of interest for the municipalities in the surrounding area of the planned NPP. Issues raised by Austria are not concerned.

## OVERALL SCHEDULE

### EIS in 2014

Activity	Paks II	
	Unit 1	Unit 2
Start of environmental licensing	2014	
Demolition on the implementation site	2017-2022	
Preparation of construction and implementation plans for licensing	2018-2019	
Landscaping, earth moving	2018-2019	
Obtaining the permits and licenses required for the start of implementation	2018-2020	
Start of implementation	2020	2025
Foundation work	2020-2021	2025-2026
Building and fitting structures	2022-2023	2027-2028
Tests and commissioning	2024	2029
Insertion of the first charge	2024	2029
First grid connection	2024	2029
Test run start date	2025	2030
Start of commercial operation	2025	2030

### New situation 2016

Activity	Paks II.	
	Unit 5	Unit 6
Initiate the environmental licensing procedure	2014	
Demolition works at the construction area	2018-2019	
Preparation of license applications and construction drawings	2015-2017	
Levelling of the ground	2018-2020	
Obtaining permits needed for the commencement of construction works	2015-2018	
Start of construction works	2018	2019
Foundation work	2018-2021	2019-2021
Building and fitting structures	2020-2023	2020-2024
Tests, commissioning	2020-2024	2020-2025
Test run start date	2024	2025
Start of commercial operation	2025	2026

## START OF COMMERCIAL OPERATION

### EIS in 2014

Activity	Paks II	
	Unit 1	Unit 2
Start of commercial operation	2025	2030
End of the 60-year life	2085	2090

### New situation 2016

Activity	Paks II.	
	Unit 5	Unit 6
Start of commercial operation	2025	2026
End of 60-years operational lifetime	2085	2086

## PARALLEL OPERATION

### EIS in 2014

Activity	Time interval
Simultaneous operation of units 1 to 4 of the Paks Nuclear Power Plant and unit 1 of Paks II	2025-2030
Simultaneous operation of units 1 to 4 of the Paks Nuclear Power Plant and units 1 to 2 of Paks II	2030-2032
Final shutdown of units 1 to 4 of the Paks Nuclear Power Plant when the extended operating time of units 1 to 4 ends	2032-2037
Simultaneous, separate operation of units 1 to 2 of Paks II after the shutdown of units 1 to 4 of the Paks Nuclear Power Plant	2037-2085
End of the operating time of unit 1 of Paks II	2085
Following the shutdown of unit 1 of Paks II Stand-alone operation of unit 2 of Paks II	2085-2090
End of the operating time of unit 2 of Paks II	2090

### New situation 2016

Activity	Time interval
Parallel operation of Units 1-4 in Paks Nuclear Power Plant and Unit 5 of Paks II.	2025
Parallel operation of Units 1-4 in Paks Nuclear Power Plant and Unit 5 and Unit 6 of Paks II.	2026-2032
End of commercial operation of Units 1-4 in Paks Nuclear Power Plant after reaching the end of the extended lifetime thereof	2032-2037
Parallel operation of Paks II. Units 5 and 6 after the shut-down of Units 1-4 of the Paks Nuclear Power Plant	2037-2085
End of planned operational lifetime for Paks II. Unit 5	2085
End of planned operational lifetime for Paks II. Unit 6	2086

## 1.2 Document Clarification Executive Summary DE (ref. [4])

<b>MVM File name</b>	<b>CLARIFICATION_EXECUTIVE_SUMMARY_DE</b>
MVM Title	Präzisierung der in dem Umweltverträglichkeitsverfahren des Projektes Paks II. Bekanntgegebenen Daten der technischen Lösungen und ihrer Wirkungen auf die Umwelt – Zusammenfassung
Date	11.07.2016

This document is the German summary of the document presented in Chapter 1.1 and it provides no additional information.

## 2 CONCLUSIONS

After reviewing the documents it can be concluded that the additional documents do not provide any new information which would make the revision of the Expert Statement on EIS or the Consultation Report necessary.

### 3 REFERENCES

- [1] UMWELTBUNDESAMT (2015): “Expert Statement on the Environmental Impact Study on NPP Paks II” REPORT REP-0533, Umweltbundesamt GmbH, Vienna, 2015, ISBN 978-3-99004-344-8.
- [2] ENCONET (2015): “Expert opinion on the evaluation of the Environmental Impact Assessment Report for PAKS II development project, plus any consultation, Task 2 – Participation to consultations with Hungarian Delegation – Consultation Report, ENCO FR-(15)-40, December 2015.
- [3] MVM PAKS II. (2016a): “Information – On the clarification of certain technical solutions presented in the Environmental Impact Assessment procedure on the implementation of the new nuclear power plant units at the Paks site and the assessment of the environmental impacts thereof”, Document ID: P2\_KHT\_kieg\_tajekoztato\_EN\_20160706, Date: 06 July 2016.
- [4] MVM PAKS II. (2016b): “Präzisierung der in dem Umweltverträglichkeitsverfahren des Projektes Paks II. bekanntgegebenen Daten der technischen Lösungen und ihrer Wirkungen auf die Umwelt”.

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