

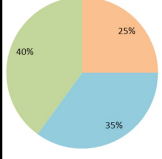
The framework of the Hungarian Paks II. Project

Prof. Dr. Attila Aszódi
Secretary of State for the maintenance of the capacity of the Paks NPP

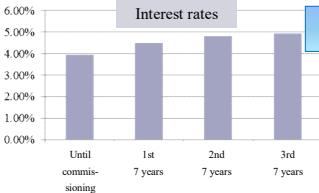
Workshop, Dukovany, 4th October 2018

Legal framework of the project


- Paks NPP: extension on the agenda since the 80's
- 2008: New energy policy, including new nuclear units
- 30th March, 2009: decision-in-principle of the Hungarian Parliament about new units
- 2011: Parliamentary resolution on NES 2030
- 2012: establishment of MVM Paks II. Nuclear Power Plant Development Ltd. (since 2017: Paks II. NPP Ltd.)
- January 2014: Intergovernmental agreement on the peaceful use of nuclear energy by Russia and Hungary
 - Two VVER-1200 type reactors at the Paks site
- March 2014: Financial Intergovernmental Agreement on financing the NPP construction:
 - Loan: up to 10 bn. EUR, for financing 80% of the project costs
 - Repayment in 21 years



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The EPC Contract

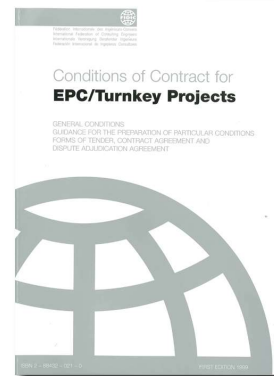
Concluded on 9th December 2014.

Main principles of the EPC contract

- **TURN-KEY:** The project shall be implemented in Paks (according to the IGA), in a so called „turn-key” manner with all the necessary equipment and components (fixed scope).
- **FIXED PRICE:** The Contract Price is fixed.
- **GUARANTIES:** Comprehensive framework of guarantees ensured by the EPC Contract.
- **SAFETY:** The technological safety shall be as high as it is reasonably achievable according to the international, EU and Hungarian standards and legal requirements.
- **FIXED DEADLINE:** The Contractor shall complete the project until a deadline fixed in the EPC Contract.



Construction of the Leningrad II. NPP,
Source: Titan2.ru



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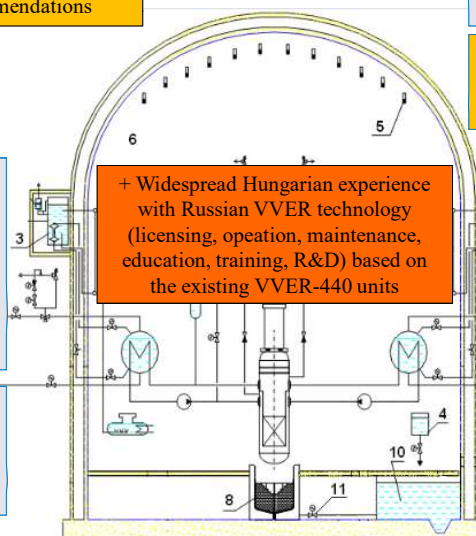
VVER-1200, Hungarian requirements

Special requirements, based on Hungarian Nuclear Safety Code, EUR, IAEA, WENRA recommendations

Nuclear safety is the main priority!

The reactor has to comply with the Hungarian requirements (NSC) and the international standards

Feedback from the Fukushima lessons
⇒ Fukushima-proof design



+ Widespread Hungarian experience with Russian VVER technology (licensing, operation, maintenance, education, training, R&D) based on the existing VVER-440 units

The probability of accidents shall be minimized

The early and large releases have to be **practically eliminated**

Special safety features to cope with DBAs and Design Extension Conditions (passive and active safety systems; core catcher)

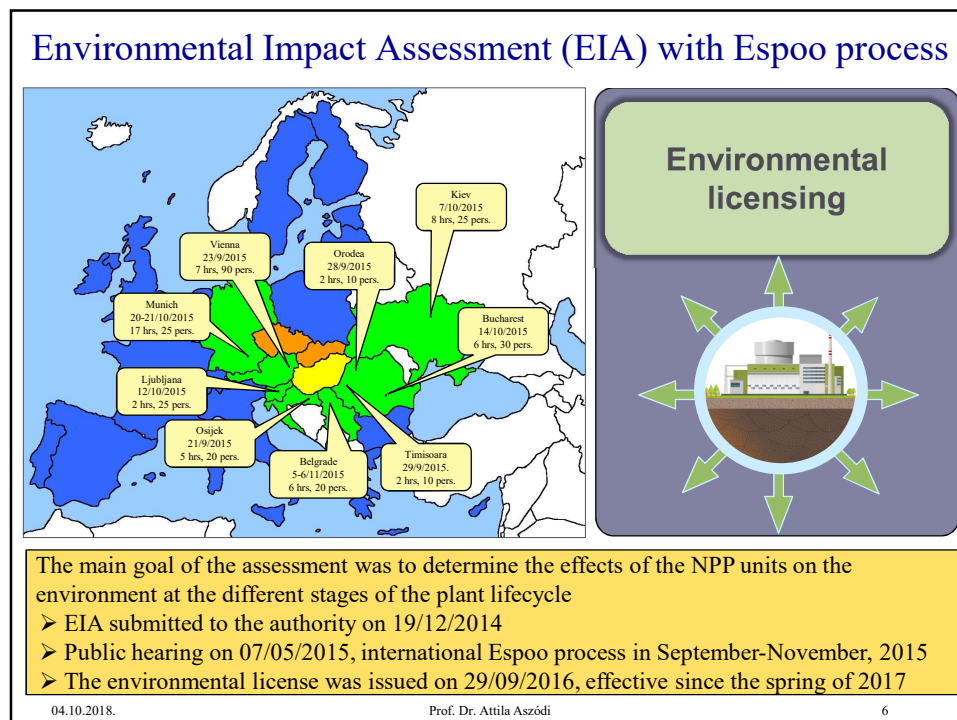
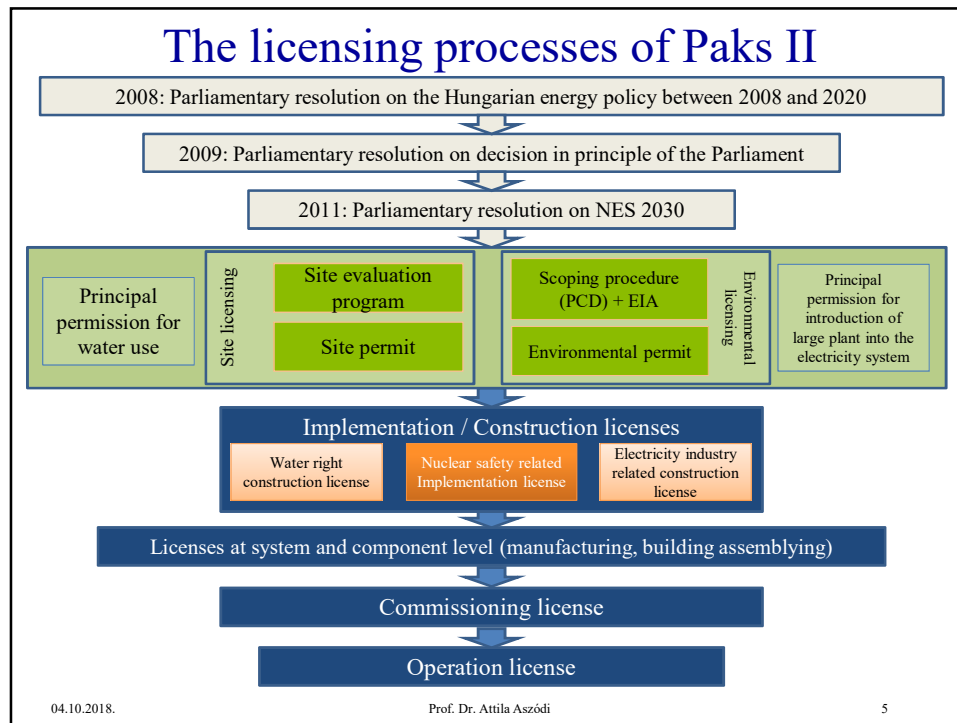
Robust full hermetic double wall containment

Designed to withstand large passenger airplane crash

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Site licensing Evaluation of man-made and natural hazards

Areas of evaluation:

- Site description,
- Anthropogenic external hazards,
- Geological investigation and evaluation,
- Geotechnical, hydrogeological investigation and evaluation,
- Hydrology,
- Meteorology,
- Site-specific parameters affecting radioactive releases,
- Site-specific parameters affecting emergency preparedness and response.



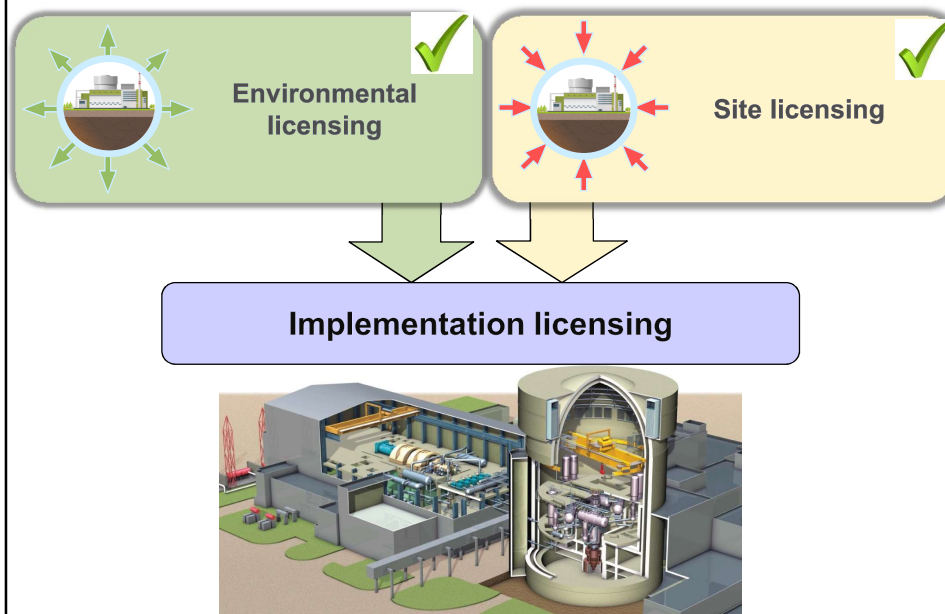
- Application for the site license was submitted to the HAEA on 28/10/2016
- Public hearing held on 13/12/2016 in Paks city
- Effective site license since 30th March 2017

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Main licensing processes



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Paks II negotiations with the EU – since years

- Signature of the Intergovernmental Agreement (IGA):
14th Jan 2014
 - Negotiations with the Commission since end of 2013
- **All of the topics are closed with COM**
 - 1) COM informed HU about „no objection” against IGA (Jan 2014) ✓
 - 2) Co-signature of **fuel supply contract** (by ESA in April 2015) ✓
 - 3) COM replied to the **notification** according to **Art 41** of Euratom Treaty: Paks II. fulfills the objectives of the Euratom Treaty (Sept 2015) ✓
 - 4) DG ENVI: 5. § in Paks II. Project act (access to specific information) – Legislation amended in March 2016 – COM accepted. ✓
 - 5) DG GROWTH: Tendering ✓
 - Case dropped in Nov 2016
 - 6) DG COMP: State aid ✓
 - Accepted in March 2017
 - Detailed decision published on 16th October 2017



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The financing of the project is compatible with the internal market

Final conclusions:

- The financing of the project is compatible with EU law.
- The revenues of the new units will cover the CAPEX of the project, fuel, O&M and waste management costs and all other variable costs.
- There is state aid in the project, which means only that the projected internal rate of return is 7.35% p.a., a private market investor would have requested 7.88% from a similar project.

- According to the European Commission the implementation of the Paks II. project contains state aid, however:

- 1) *It aims to achieve a well-defined objective of common interest (EURATOM Treaty)* ✓
- 2) *It is targeted for an improvement that the market alone cannot deliver* ✓
- 3) *It is an appropriate policy instrument* ✓
- 4) *It has an incentive effect* ✓
- 5) *It is proportional to the needs based on which it is deployed* ✓
- 6) *It does not unduly distort competition and trade between Member States* ✓



Treaty on the Functioning of the European Union

„Article 107
(1) Save as otherwise provided in the Treaties, any AID GRANTED by a Member State or THROUGH STATE RESOURCES in any form whatsoever which distorts or THREATENS TO DISTORT COMPETITION by FAVORING CERTAIN UNDERTAKINGS or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market.”

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EU requirements

- Paks II. and MVM Group are independent, and they remain legally and structurally independent.
 - Changing name and image of Paks II.
- Power output trading strategy of Paks II. will be a commercial profit-optimizing strategy.
 - At least 30% of its electricity output will be sold in HUPX (day-ahead, intraday, future markets)
 - The rest: on transparent auctions (conditions shall be determined by MEKH)
- Paks II will not retain extra profits beyond what is strictly necessary to ensure its economic operation and viability.



Source: European Commission, C(2017) 1486 final, p. 62

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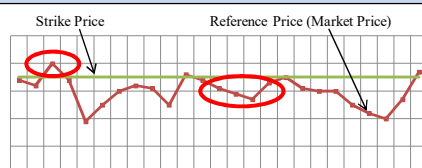
HPC and Paks II. project state aid differences



Hinkley Point C

HPC:

- Contract for Difference: 92.5 £/MWh guaranteed for 35 years
- **If the price of the electricity is higher the operator pays the difference to the state, and if lower the state pays the difference up to the Strike Price**



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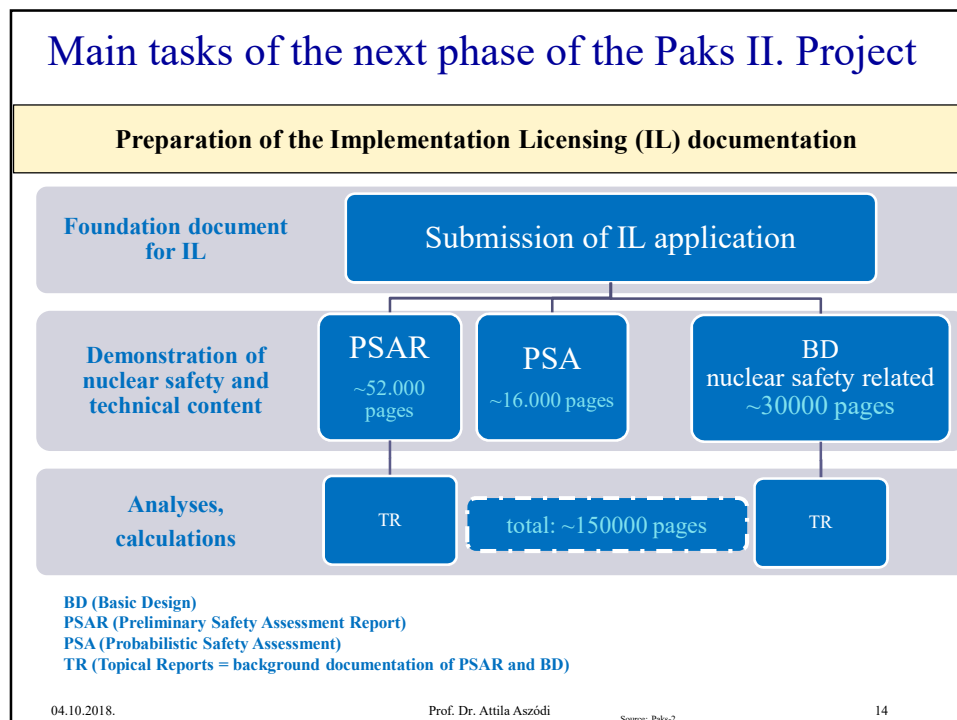
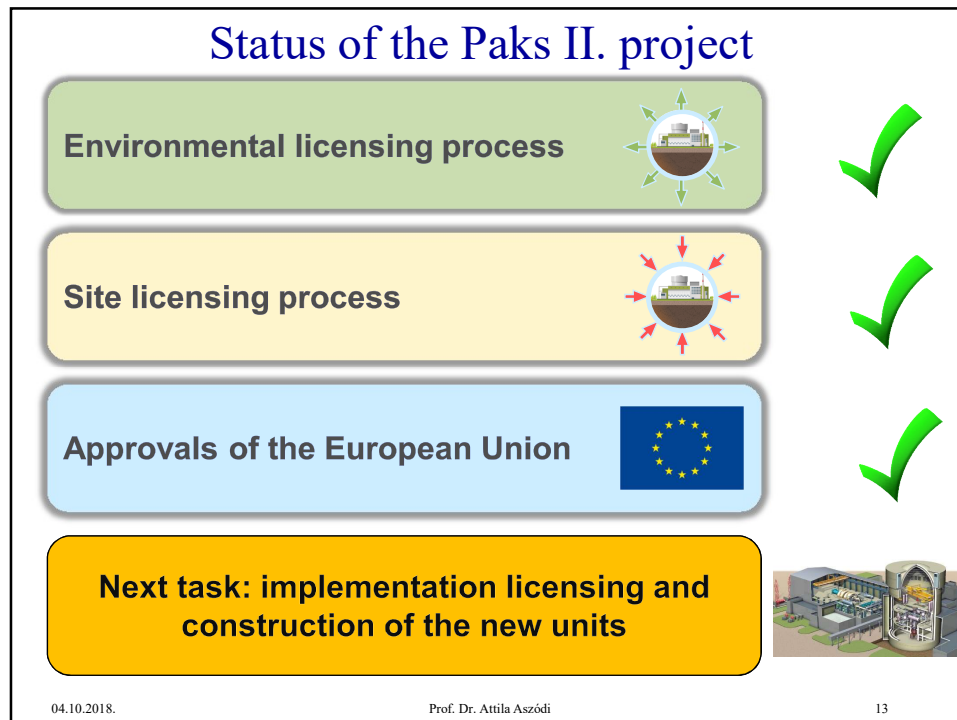
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Paks II.

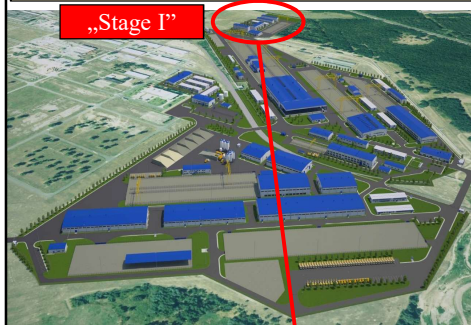
Paks II.:

- No guaranteed feed-in tariff, the electricity is sold on the market (30% stock exchange, 70% transparent auctions)
- The profit is going to be paid back to the state
- After commissioning the Paks II. company is not going to receive any operation subsidy, the company will be run under market conditions



Main tasks of the next phase of the Paks II. Project

Construction of Construction and Erection Base Stage I.



The Construction and Erection Base



Handover of Sub-site 1. February 27, 2018



Administrative and amenity building

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Source: Paks II. presentation – Atomex 2017

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Start of physical works

- 22/11 kV transformer station
- Electricity supply for the Construction and Erection Base buildings and structures
- Construction site provided on 7 May 2018
- Physical works started on 29 May 2018 (Construction in the Owner's Scope)



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Source: Paks II. Zrt.

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