

# Atomenergia és megújulók

2017. december 8.

# Felhatalmazás volt – mire?

## Törvények és OGY határozatok

Az oldalon a joganyagok közlönyállapota érhető el. Egységes szerkezetű, naprakész szöveget az új [Jogtáron](#) talál.

Időállapot: közlönyállapot (2009.IV.2.)

## 25/2009. (IV. 2.) OGY határozat


**az atomenergiáról szóló 1996. évi CXVI. törvény 7. §-ának (2) bekezdése alapján, a paksi atomerőmű telephelyén új atomerőművi blokk(ok) létesítésének előkészítését szolgáló tevékenység megkezdéséhez szükséges előzetes, elvi hozzájárulás megadásáról<sup>1</sup>**

1. Az Országgyűlés előzetes, elvi hozzájárulást ad az atomenergiáról szóló 1996. évi CXVI. törvény 7. §-ának (2) bekezdése alapján - összhangban a 2008-2020 közötti időszakra vonatkozó energiapolitikáról szóló 40/2008. (IV. 17.) OGY határozat 12. f) pontjával -, a paksi atomerőmű telephelyén új blokk(ok) létesítését előkészítő tevékenység megkezdéséhez.

2. Ez a határozat a közzététele napján lép hatályba.

# Az előkészítés elengedhetetlen része Paks 1 üzemidő vizsgálata

USA

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## Subsequent License Renewal

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### Introduction

The Nuclear Regulatory Commission (NRC) staff has defined subsequent license renewal (SLR) to be the period of extended operation from 60 years to 80 years. The "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report" will provide guidance for SLR applicants, contain the NRC staff's generic evaluation of plant aging management programs, and establish the technical basis for their adequacy.

The "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants" (SRP-SLR) will provide guidance to NRC staff reviewers in the Office of Nuclear Reactor Regulation. These reviewers will assess the technical aspects of a plant in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." The principal purposes of the SRP-SLR are to ensure the quality and uniformity of NRC staff reviews and to present a well-defined base from which to evaluate applicant programs and activities for the subsequent period of extended operation.



# Franciaország

"We think we can replace almost every component in a nuclear power plant," said Jan van der Lee, director of the Materials Ageing Institute (MAI), a nuclear research facility inaugurated this week in France and run by the state-owned nuclear giant EDF.

"We don't want to wait until something breaks," he said. By identifying components that are wearing down and replacing them, he said, suddenly nuclear plants will find that "technically, there is no age limit."

Indeed, as U.S. regulators begin considering the extended operations of nuclear plants -- the Nuclear Regulatory Commission (NRC) expects the first application for an 80-year license could come within five years or less -- perhaps the largest lingering question is one of basic science: How do heavy doses of radiation, over generations, fundamentally alter materials like steel and concrete?

"It's taken many years for us to understand the problem," said Gary Was, the director of the University of Michigan's Phoenix Energy Institute and an expert in aging materials. "Thirty years ago, we didn't have techniques to see these changes."



# Oroszország

## Lessons in modernity

7 July 2016



*Russia and some of its closest trading partners have embarked upon a programme of substantial modernisation and plant life extension. Alexey Zhukov, Andrey Dementyev, Vitaly Gilev, Vyacheslav Vityazev and Vladimir Bredov provide an insight.*

In the Russian Federation, projects for operational life extension (OLE) have been implemented at 24 nuclear units totalling 16,242MWe of installed capacity.

The power units whose operating loads have been extended have so far generated over 600TWh of electricity. These include four nuclear units with VVER reactor units - units 3, 4 and 5 at Novovoronezh, units 1-4 at Kola, unit 1 at Kalinin, and unit 1 at Balakovo. Three nuclear plants that have RBMK-type reactors have also undergone life extension. These are units 1-4 at Kursk, units 1-4 at Leningrad, and units 1 and 2 at Smolensk. In addition, units 1-4 at Bilibino (which employs small EGP-6 reactors), and unit 3 at Beloyarsk (where there is a sodium-cooled fast reactor), have also had their operating lives extended.

Five further life extension projects, units 2, 3 and 4 at Balakovo, unit 2 at Kalinin, and unit 3 at Smolensk, will be carried out between 2016 and 2023.

Decisions around preparing a nuclear plant unit for life extension, and the planned period of extended operation, are made taking into account various technical and economic factors. These include:

- the ability to ensure and maintain safety during the period of extended operation;
- the availability of temporary storage for additional amounts of used nuclear fuel arising, or the ability to transport it from the site for storage elsewhere;
- the ability to increase the level of safety through modernisation and replacement of equipment;
- ensuring that the remaining lifetime of obsolete or otherwise irreplaceable components at the unit will satisfy the regulatory requirements;
- ensuring the safe handling of all additional radioactive waste generated during the period of extended operation; and
- the economic viability of life extension for the unit.

The programme to prepare a unit for life extension is drawn up and implemented according to the regulatory requirements of the Russian Federation. It includes the following:

- Modernisation of the unit systems and equipment;
- Replacement of components that have reached the end of their



Decrease in probability of core damage following life extension		
Nuclear unit	Before	After
Novovoronezh 5	2,242-04	0,402-05
Novovoronezh 3	4,484-04	3,668-05
Kola 3	7,200-05	6,300-05
Kola 4	1,200-04	7,400-05
Leningrad 3	1,900-04	1,240-05
Leningrad 4	1,900-04	9,170-05
Kalinin 1	6,000-05	5,570-05
Balakovo 1	4,900-05	3,900-05
Kursk 1	1,800-04	7,700-05
Kursk 4	1,800-04	9,300-05
Smolensk 1	1,840-04	4,410-05
Smolensk 2	2,400-04	9,100-05



An Armenian NPP



Novovoronezh NPP



The inside of an Armenian NPP

# Mit hoz a konyhára?

+1 év termelése: 16.054 GWh azaz 175 Mrd Ft.

+5 év üzemidő hosszabbítás: mintegy 3 Mrd EUR

+10 év üzemidő hosszabbítás: mintegy 6 Mrd EUR

# A rossz előkészítés tapasztalatai a világban



# Soha nem kapcsolták be az osztrák atomerőművet, mert a polgárok ellenezték



**PINTÉR BENCE**

2017. április 12., szerda 11:21, frissítve: szerda 14:02



A soha nem használt erőmű irányító központja

Fotó: Joe Klamar / AFP

# Bulgaria Quits Belene Nuclear Power Plant Project

Business » ENERGY | March 28, 2012, Wednesday // 13:39 | Views: | Comments: 0



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Members of several environmental organizations recently protested against the government`s plans to build second nuclear plant near town of Belene. EPA/BGNES

Bulgaria's **Belene Nuclear Power Plant** will not be constructed, the country's Deputy Finance Minister Vladislav Goranov announced on Wednesday.

A natural gas power plant will be built in the **Danube** town of **Belene** instead, Goranov told reporters after Wednesday's Council of Ministers sitting.

The nuclear reactor already assembled by **Rosatomb** subsidiary **Atomstroyexport** and originally meant for **Belene** will be placed in Bulgaria's sole **nuclear power plant**, Kozloduy.

On Thursday, Bulgaria's newly appointed Economy and Energy Minister **Delyan Dobrev** will travel to **Moscow** in order to inform **Russia** of his country's decision to scrap the project.

# *U.S. Nuclear Comeback Stalls as Two Reactors Are Abandoned*

By BRAD PLUMER JULY 31, 2017



The V.C. Summer nuclear project near Jenkinsville, S.C. The owners, Santee Cooper and South Carolina Gas & Electric, announced Monday that they were abandoning two unfinished nuclear reactors rather than saddle customers with additional costs.

# A megújuló energia termelés várható trendjei



# Szélerőművek támogatás nélkül

Mérföldkőnek számított, hogy az idén áprilisban északi-tengeri szélfarmokra kiírt németországi pályázatokon a DONG és az EnBW nem kért állami támogatást három projektre sem – először az ágazat történetében. A dán cég máris arról beszél, hogy 13–15 megawattos szélkerekeket állít majd üzembe. A szélfarmok a legkorábban 2024-ben kezdik el az energiatermelést, és az üzemeltetők azt remélik, addigra az áram nagykereskedelmi ára is megemelkedik annyira, hogy a beruházások rentábilisak legyenek. 2023-ra ugyanis az összes német nukleáris erőmű leáll.



Szélerőművek Németország partjainál. A méret a lényeg.

# Napelemek várható hatásfoka

The current world-record efficiencies for modules (the term “module” is interchangeable with “panel” – the product sold by PV manufacturers) and cells (the constituent building blocks of a module) are shown in Figure 1. We see that the world record efficiencies for mono-crystalline silicon devices are 25.6% and 21.3% – for cells and modules, respectively – and for multi-crystalline silicon, the corresponding values are 23.8% and 19.5%. Interestingly, even though this plot is less than 1 year old, it is already out of date: the record for mono-crystalline solar cells **is now 26.6%**!

The difference observed in Figure 1 between module and cell efficiency is not only true for record devices: modules are – at least for now – typically less efficient than individual cells. This can be due to a number of reasons including i) the fact that modules typically contain so-called dead space – areas that don’t produce power – such as the module frame and space between cells and ii) the fact that electrical losses occur along the connections joining individual cells.

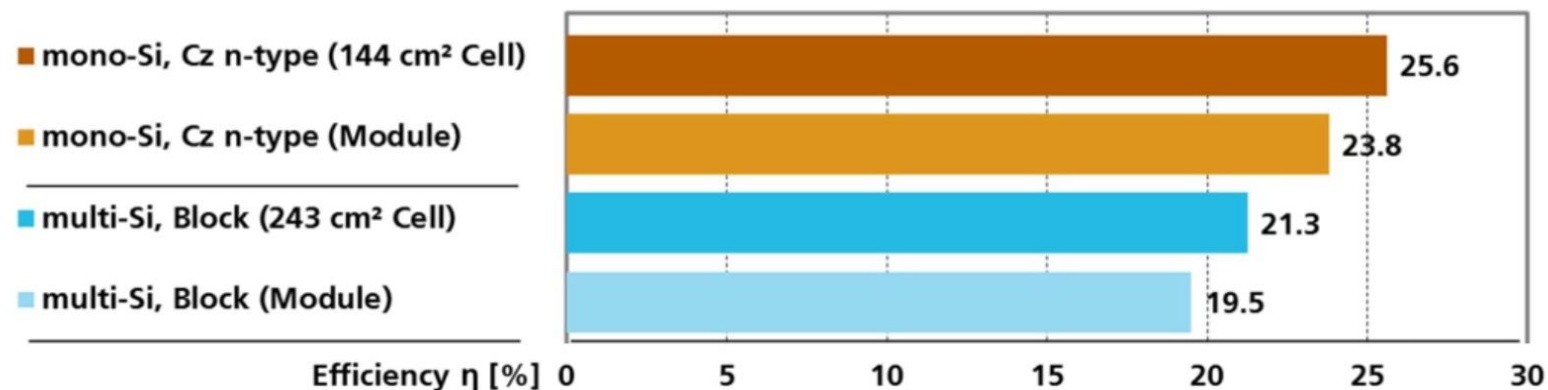


Figure 1: The record power conversion efficiency for mono-crystalline and multi-crystalline silicon cells and modules. Image adapted from slide 24 of the Fraunhofer ISE 2016 Photovoltaics Report.