

**ROAD
TO THE
FIRST
CONCRETE**

We are building
a nuclear
power plant



PAKS II. LTD.





Dear Reader!

We are building the Paks II. Nuclear Power Plant in an international cooperation, using state-of-the-art technology.

More than two thirds of the electricity generated in Hungary is still produced in a sustainable way, the majority of which comes from Paks. The environmental footprint of nuclear power plants over their entire life cycle is at least as favourable as of other carbon neutral technologies. In addition, according to UN calculations, nuclear energy has lower carbon emissions, land and raw material requirements than renewable energy sources.

The construction of the two new Paks units will allow us to remain among the 20 countries in the world that are increasing their economic indicators while reducing their emission.

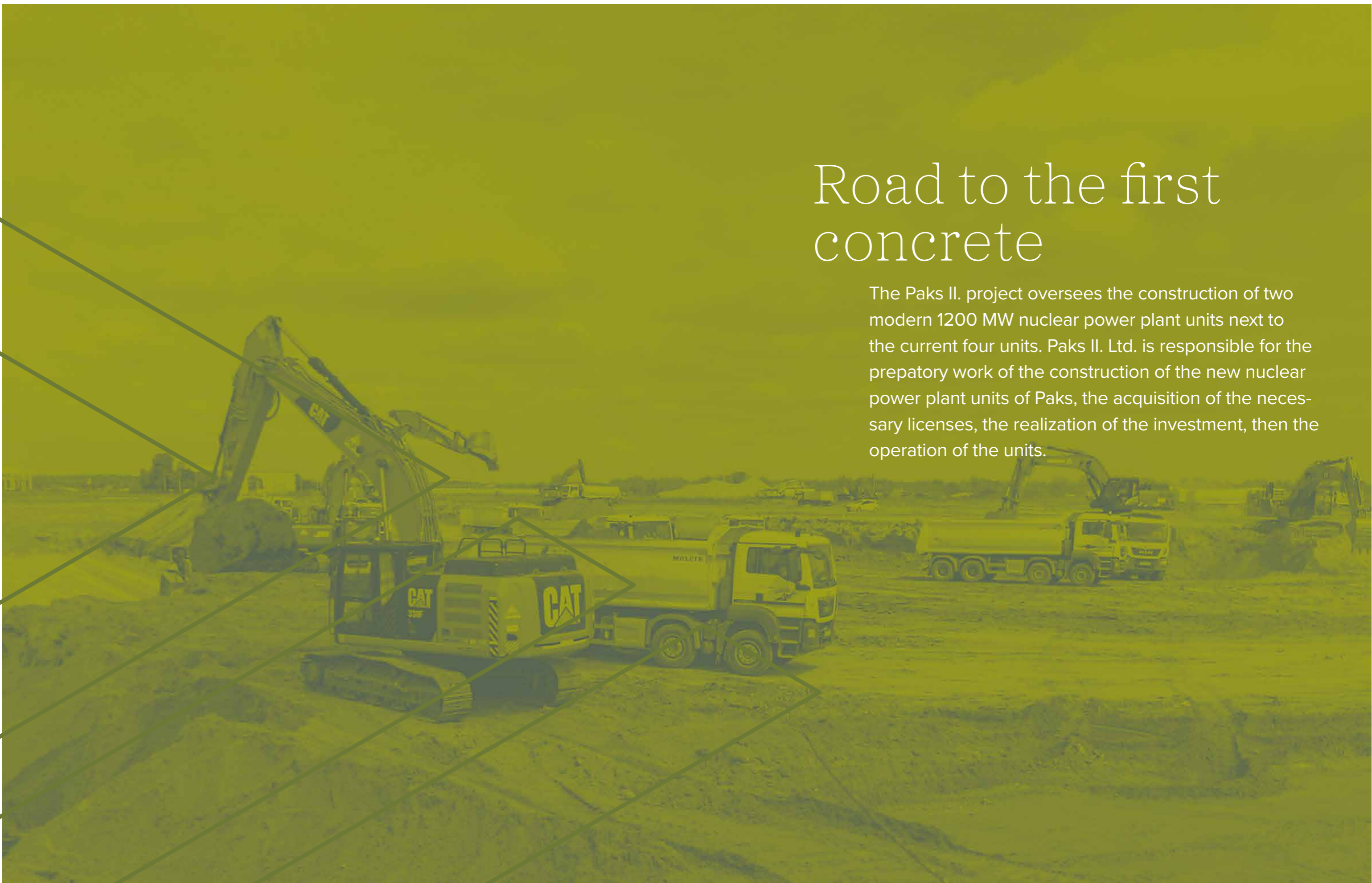
Nuclear energy is the only way to generate electricity in large quantities, safely, affordably and sustainably.

We are about to reach another important milestone – the first concrete pour.

Gergely Jákli
Chairman-CEO
Paks II. Ltd.

Road to the first concrete

The Paks II. project oversees the construction of two modern 1200 MW nuclear power plant units next to the current four units. Paks II. Ltd. is responsible for the preparatory work of the construction of the new nuclear power plant units of Paks, the acquisition of the necessary licenses, the realization of the investment, then the operation of the units.





The Hungarian government has signed an agreement for the construction of the Paks II. Nuclear Power Plant with strong legal guarantees. The Contractor for the project is the Atomstroyexport company, part of the Rosatom group.

The Paks II. project entered into its impressive, spectacular phase in 2023. The first stage of soil excavation was completed, the cut-off wall was finished and soil improvement started. Following this, the first concrete can be poured, symbolically marking the start of the construction of the nuclear power plant itself.

The two new VVER-1200 units will be built to the north of the four operating VVER-440 units of the Paks Nuclear Power Plant.



The approximately 1,5 million cubic meters of soil excavated in the first phase equals to 27 kilometers of highway excavation work.



Site preparation

In the summer of 2023, the excavation pit was opened and the site is being prepared. The site preparation work, carefully carried out – and supervised by the authority –, has three phases: soil excavation, construction of the cut-off wall and soil improvement.



Soil excavation

In autumn 2023, the first phase of soil excavation in the area of the new Paks units was completed down to the groundwater level, i.e. to five meters deep. Work will continue once the so-called design depth is reached. In some places, this will be up to 23 meters, meaning that a ten-storey apartment building would almost completely disappear in the excavation pit of the future NPP units.





During this work phase, one and a half million cubic meters of soil was moved by „1800 tonnes of iron”, which was the total weight of the machines working on-site.



Cut-off wall

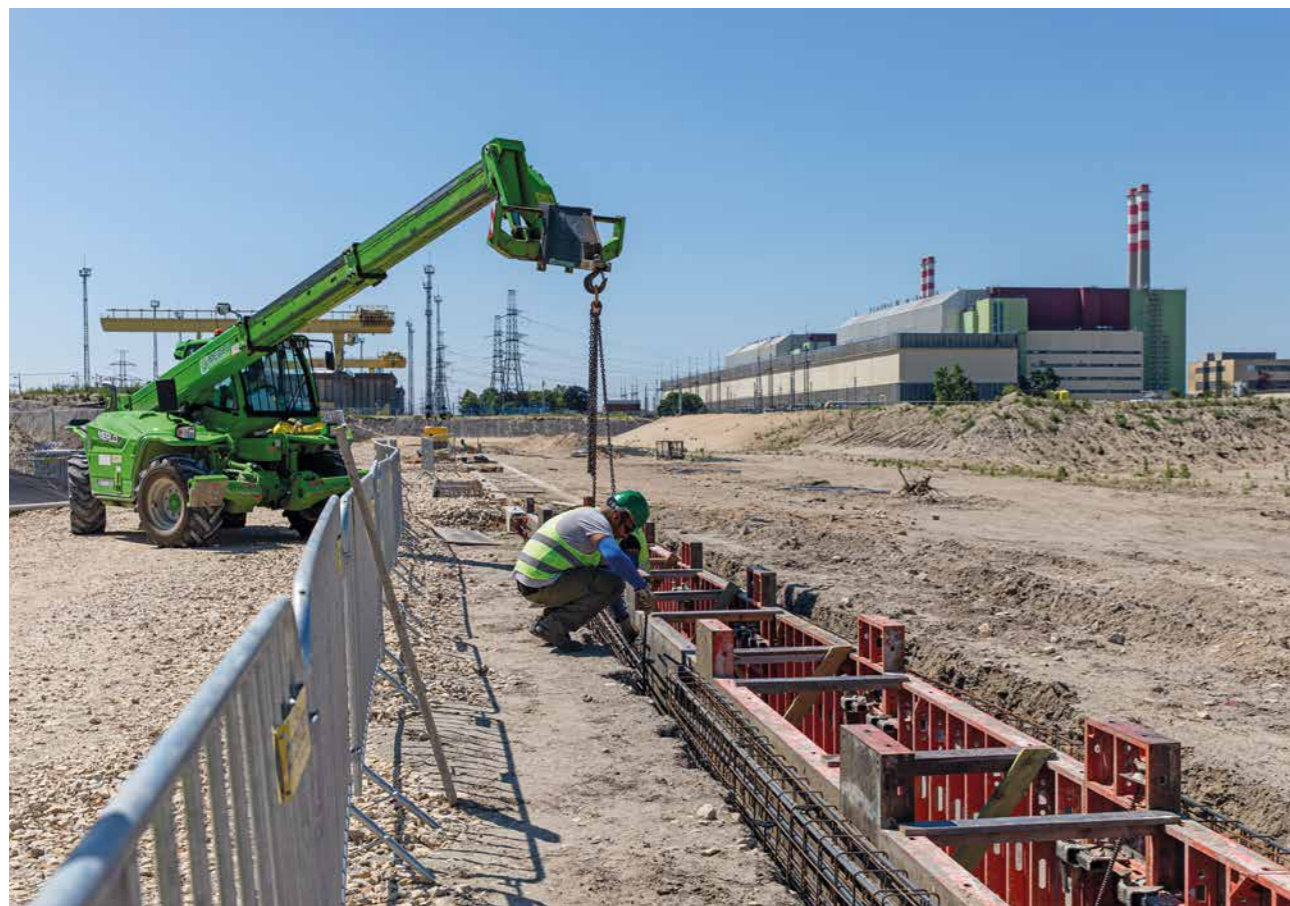
The construction of the new NPP has to take into account the fact that there are currently four units in operation next to the site, thus the site of the two new NPP units was surrounded by a cut-off wall. The purpose of the 2,7 km long, 32 m deep and 1 m thick below-ground watertight wall is to ensure that groundwater can only enter the working pit in a controlled and minimal way. It also prevents the groundwater level outside the cut-off wall from decreasing as a result of dewatering the working pit.



The technology used to achieve this is called the cut-off wall technology, functioning as a watertight barrier. It involves firstly constructing the slurry trench and then filling the gap using a mechanical clamshell placed on a special crane. The work, which was carried out by the Hungarian subsidiary of the German-owned Bauer, lasted from the beginning of July to the end of November 2023, with a two-shift working schedule in 12-hour shifts.

The construction of the cut-off wall was carried out by Bauer's MC 76, 99-tonne, high-capacity, self-propelled, crawler-type machines.

Two slurry mixing plants, constructed in the immediate vicinity of the site, provided the necessary cementitious and bentonite slurry for the cut-off wall and soil improvement works.





Soil improvement

In November 2023, the soil improvement beneath the new units' buildings and structures, important for nuclear safety, started. This is necessary because the site is located in an area close to the Danube, next to an operating nuclear facility, and the buildings of the new units will be extremely massive. Soil improvement is carried out to improve the earthquake-resistance and eliminate the liquefaction potential. On the other hand it helps for unwanted building settlements and tilts. The so-called deep soil mixing (dsm) technology, known and proven in international practice, will be used for this purpose.



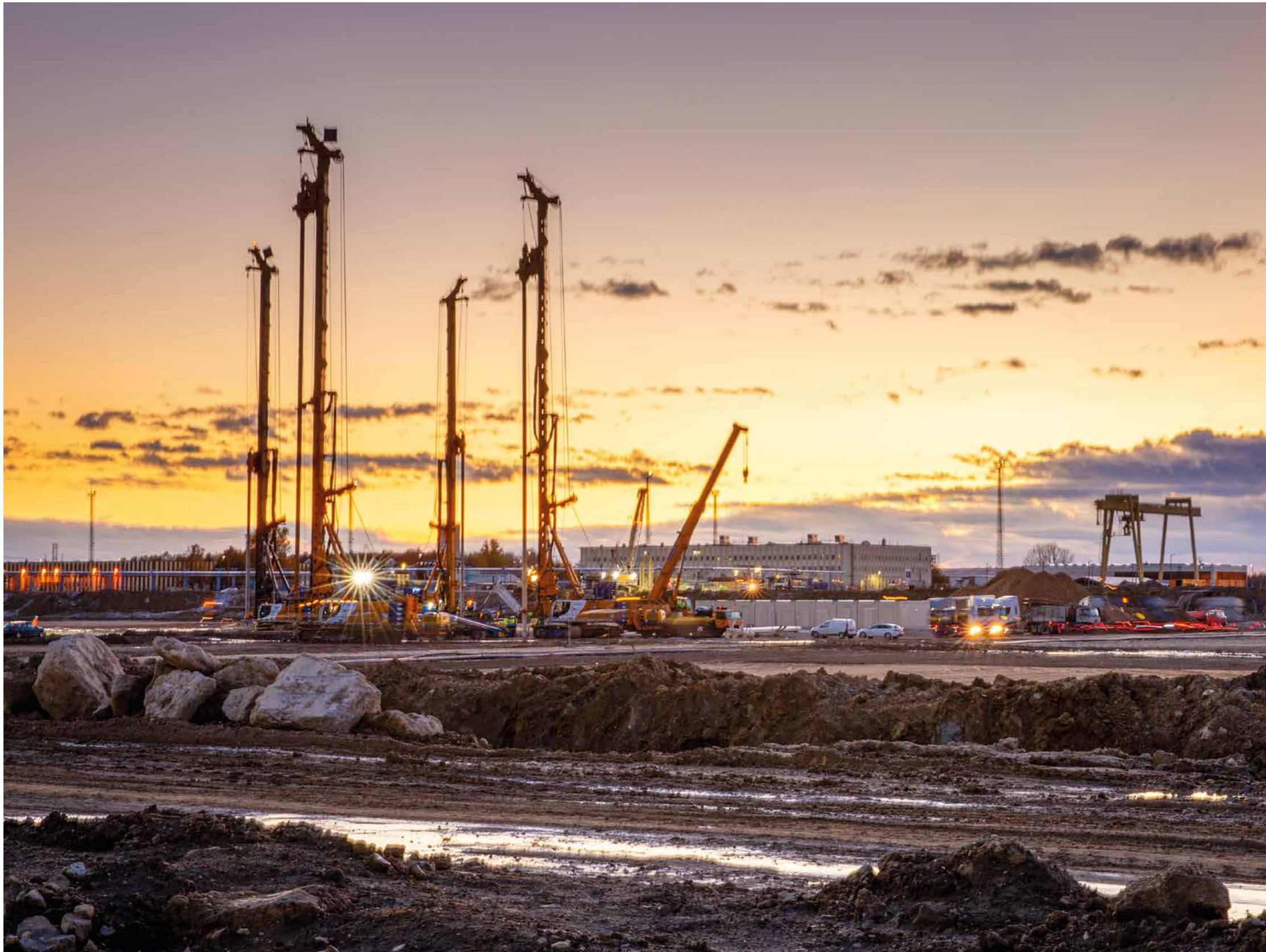
Deep soil mixing (dsm) is the mixing of the existing soil with various binding materials – in this case cement – to improve the mechanical and physical properties of the soil, bind soil particles and fill gaps. The result of this work is the creation of the so-called soil-concrete piles, which have greater strength, lower compaction and lower permeability than the original soil.



The test concrete was poured in March 2024.



The soil improvement is carried out by Bauer's BG 45 machines with a power of 433 kW.



During the Paks II. project, soil improvement will be carried out on an area of around 17 hectares, on average, one hundred per day, a total of 75000 boreholes, and the same number of cemented soil columns are made. More than one million tonnes of cement will be used in the works, which is also carried out by Bauer Hungary Ltd.

In total, 1,5 million meters of boreholes will be drilled during the soil improvement. If we stacked the columns made during the improvement process on top of each other, it would be as high as 99 Mount Everest.



About Paks II. Ltd.

The main goal of Paks II. Nuclear Power Plant Private Limited Company (Paks II. Ltd.) is the preparatory work of the construction of the new nuclear power plant units of Paks, the acquisition of the necessary licenses, the realization of the investment, then the operation of the units.



The construction of the new nuclear power plant units is the industrial investment of the century in Hungary and and in the meantime the largest nuclear project with an implementation license in the European Union. During the construction period, at peak times, it will provide jobs for around 10000 people.

The investment is carried out under the strict control of the Hungarian nuclear authority, and the new units will be constructed according to the standards and specifications set by various European and world organisations – the International Atomic Energy Agency (IAEA), the Western European Nuclear Regulators Association (WENRA) and the European Utility Requirements (EUR).

Participation in the investment

Subcontractors are engaged by the Russian Party for the works on the project through a public procurement procedure.

Paks II. Ltd. operates a qualification system to verify the suitability of suppliers in accordance with the requirements of the Atomic Act and the Nuclear Safety Codes. Nuclear safety activities may only be performed with the approval and under the continuous supervision of Paks II. Ltd. The project company evaluates the suitability of both its own suppliers and those to be engaged by the Contractor on a contract-by-contract basis during the nuclear qualification procedure.

Construction and Erection Base buildings

Duna

Hot water channel of Paks II

Hot water channel of Paks I

Cold water channel

1200 MW

1200 MW

Unit 6

Unit 5

Unit 4

Unit 3

Unit 2

Unit 1

500 MW

500 MW

500 MW

500 MW

PAKS I





PAKS II. LTD.


Paks II. Nuclear Power Plant Ltd.


7031 Paks, Pf. 116


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