

New nuclear in the Czech Republic – briefing paper

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This briefing paper prepared by Czech environmental NGOs is aiming to provide an overview of the current situation and past developments.

Summary

The Czech Government and the Czech majority state-owned energy company ČEZ have undertaken several steps incl. state aid proposal advancing the preparation of the construction of one (or two) new nuclear unit of up to 1200 MW at the area of the current nuclear power plant Dukovany. The Czech state intends to provide up to a 100% loan to ČEZ for the new reactor and also will guarantee the purchase of electricity for above-market price for up to 60 year and other benefits. A new law about the above described state aid was approved in 2021. The new coalition government writes in the coalition agreement: “We support the construction of a new nuclear unit in Dukovany on the condition that it they will not build by Russian or Chinese companies.” A tender is expected to be launched in 2022. The new government also intends to reopen preparation of two new nuclear units at the site of Temelin nuclear power plant.

Czech Energy System

Nuclear produces around 37 % of electricity. The older nuclear power plant, Dukovany 4x510 MW, was put in operation in 1987 and is currently scheduled to operate until 2040-45 and the second plant, Temelin 2x 1055 MW, is from 2002 and should run until 2060. Around half of the country's production comes from coal. Renewables incl. water accounted in 2018 for 10,5 % of power production. Czech republic is a net exporter of electricity, exporting approx. 10-15 TWh each year. The new government agreed to phase out coal until 2033. The biggest energy company and owner of all the existing nuclear plants is company ČEZ a.s., owned by 2/3 by the state.

The previous attempt for new nuclear unit at Temelin failed

The first attempt to build new nuclear plants was from 2008. In that year, CEZ applied for an environmental permit and started an EIA procedure for two new units at the Temelin site. In 2009 CEZ launched a tender. The tender was cancelled in 2014, after the government could not agree on any form of financial support or guarantees. The two remaining bidders in the tender were Westinghouse (US) and a consortium MIR 1200 under the lead of Russian Rosatom.¹

The new Dukovany project

The current plan is that CEZ (over a daughter company Elektrárna Dukovany II, a. s). would build a new unit up to 1200 MW next to the existing four units at the Dukovany nuclear power plant. The construction would start in 2029 and the plant should be operational in 2038. The

¹ <https://www.radio.cz/en/section/curraffrs/cez-cancels-temelin-tender-after-government-says-no-to-guarantees>

tender should surpassingly include an option for building not one but two units (however, in the case of 2 units, CEZ would need to close at least one of the old ones, to have enough cooling water capacities and transmission capacity).

CEZ originally listed the following possible reactors/producers which could fit their criteria:

- AP1000, Westinghouse Electric Company LLC (USA);
- APR1000, Korea Hydro&Nuclear Power (South Korea);
- EPR 1200, EDF Group (France);
- HPR1000, China General Nuclear Power Corporation (China) (might be however excluded from the tender);
- VVER-1200E, Rosatom (Russian Federation).

However the new law (see below) and the new coalition agreement **excludes companies from Russia and China.**

The genesis of the new Dukovany project

In 2016, CEZ started an **EIA procedure for two new units** each up to 1200MW at the site of the current nuclear power plant Dukovany, including public and transboundary consultations. In October 2019, the Ministry of Environment granted a positive decision on the EIA.²

03/2020, CEZ applied for a “**permit for the sitting of a nuclear installation**” (for two units) at the Czech State Office for Nuclear Safety. The public is not allowed to participate in this proceeding, however, a substantial part of the documentation (1600 pages in Czech) was published by CEZ.³

On 28 July 2020 the Government approved a **law which is setting a scheme of financial support to nuclear power.** (The law was adopted by the Parliament only in 09/ 2021, see annex).

On 28 July 2020 the Government signed two contacts with ČEZ (details below).

08/2020 , the lower chamber of the Parliament received a new nuclear law proposed by the Government (and is dealing with it since).

10/2020: Czech secret service warns from involvement of Russia and China if they win a tender⁴

7/2021: The Building Authority in an municipality near Dukovany (Třebíč) has initiated proceedings to permit the construction of two reactors in Dukovany power plant site.

² EIA documentation https://portal.cenia.cz/eiasea/detail/EIA_MZP469

³ <https://www.cez.cz/cs/o-cez/vyrobni-zdroje/jaderna-energetika/jaderna-energetika-v-ceske-republice/nove-jaderne-zdroje/nove-dukovany/verejne-dokumenty>

⁴ https://www.irozhlas.cz/zpravy-domov/tendr-rusko-cina-dukovany-tajne-sluzby-vnitro-varovani-dostavba_2011190600_kar

09/2021 The new law setting frame work for nuclear state aid (see annex) was adopted. (law nr. 367/2021 Sb, effective from 1.1.2022)

11/2021 the state received back a “security questionnaire” from all three possible competitors (EDF, Westinghouse and Korea Hydro & Nuclear Power)

11/2021 the coalition agreement expresses will to continue with the nuclear project, but without Russian or Chinese builders.

Overview of the foreseen state support

State support would include:

- A guaranteed **contract of purchase** for electricity for at least 30 years with a possible extension, the exact details are described in the law (see annex), however the law does not include a concrete price for the electricity, only that there will be a specific procedure for setting up the purchase price at later stages.
- The state will grant a **low- interest loan** (called “assistance”) to CEZ, to help secure the financing and offer lower interest rates compared to commercial loans - the “assistance” is part of the proposed law
- An agreement under which conditions **the state would buy out or take over the project** from CEZ (the whole daughter company) in case of problems and cover all the until incurred costs.

Two contracts between the state and CEZ

At the end of July 2020, the state signed two contracts with CEZ. The contracts were not public before the signature, but were published after it, though with some parts removed (blackened).

The contracts are available in Czech here

<https://smlouvy.gov.cz/smlouva/13386544>

1. **Framework Agreement on Cooperation in the Construction of a New Nuclear Source** The 12 pages long document generally describes why and what, sets a cooperation frame between the state and CEZ, sets the content of further “implementation contracts” and it describes 5 stages of the project, divided by 4 milestones (though without specific dates)
2. The “**First implementation contract**” is 89 pages long. Some parts of the published contract are blackened. It covers a wide range of topics, for example:
 - Big part of the contract deals with the **conditions under which the state will buy-off from CEZ the entire project** - among other reasons, if there will be no “Contract of purchase” for electricity approved by that date. The purchase

price of the project would cover all costs CEZ had since the beginning of the Dukovany II project a few years ago.

- Details of involvement of the state in the tender for the construction

The Government claims that new nuclear might be profitable

The government as well as CEZ are arguing that with the proposed financial assistance to CEZ, the total costs of the project will be bearable and in fact in case of high electricity market prices, it can even generate profit for the state. They argue that the “overnight investment costs” of the project would be 140-160 bln. CZK (5,4-6,1) bln euro for the 1200 MW reactor (They estimate in the governmental materials the guaranteed purchase price to be between 66 and 86 euro/MWh, while the minister of industry in May stated the price might be just 50-60 euro/MWh⁵ and argue that in case market power prices are higher than this, the state would make profit. The opponents however argue that the investment price, based on experiences around the globe, might be much higher.

State aid notification to the European Commission

It is not clear when and what will the Czech State submit to the European Commission.

Expected next developments

2022:

- Evaluation of the answers to the security questionnaires
- Decision of the government about the tender and CEZ launching the tender
- Developments around state aid notification to the European Commission
- Issuance of a zoning decision for two units in Dukovany

⁵ <https://www.investicniweb.cz/news-havlicek-vlada-by-mela-primo-uverovat-novy-jaderny-blok/>

ANNEX I. – presentation by CEZ (Dec 2021)

NEW NUCLEAR PROJECT IS IN THE FIRST PREPARATORY STAGE THAT IS COVERED BY THE SIGNED FIRST IMPLEMENTATION CONTRACT...



Stage	End date	Expected costs* (EUR billion)	Permitting and licensing	Contract with technology supplier
A 1. Preparation, supplier selection	2024	~0.2**	EIA Site decision License for the siting	Tender process and contract signature B
2. Preliminary works	2029	-0.7	License for construction, Building permit	"LWA - Limited Work Authorization" phase
3. Construction, commissioning	2036	-5.1	License for commencement of trial operation	Construction
4. Warranty period	2038		Operation license	Warranty period operation C

A Framework contract
B First implementation contract
C Power Purchase Agreement (TBD)
 Repayable Financial Assistance (TBD)
 Investor Agreement (TBD)

* At 2020 prices, rounded
 ** It does not include the costs incurred until 2020 for the permitting and contracting and the purchase of land; assuming the current supplier model

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... GOVERNMENT SHALL PROVIDE FINANCING FOR PERMITTING AND CONSTRUCTION PHASES AND SECURE THE OPERATION BY POWER PURCHASE AGREEMENT



Currently contemplated financing structure*

- CEZ Group will fund Stage 1 entirely through its equity investment. (ca EUR 0.2 billion**)
- Stage 2 onwards will be financed by the repayable financial assistance from state (RFA)
 - During 2024-2029 in the Stage 2 in the amount ca EUR 0.7 billion
 - During 2029-2038 in the Stage 3 and 4 in the amount ca EUR 5.1 billion

Repayable Financial Assistance from state (RFA)

- 0% during the period of construction
- During period of operation: costs of State debt financing plus 1% but not less than 2% p.a.
- Duration 30 years from the start of operation of NPP

As a result of a higher share of state financing, the offtake price is expected to be between 50-55 EUR/MWh, i.e., in the lower interval of the originally assumed range of 50-60 EUR/MWh (subject to EPC tender results)

Additional cost overrun financing mechanism

- CEZ Group will not bear any risk of additional costs in case of "legitimate grounds", the Czech state bears the additional costs

Test on the overcompensation will be implemented in the PPA contract

- The mechanism according to the low-carbon law will ensure adequacy of the purchase price and return (regular review after 5 years)

This model will be further discussed in the prenotification with the European Commission and finalized

* At 2020 prices, rounded
 ** It does not include the costs incurred until 2020 for the permitting and contracting and the purchase of land; assuming the current supplier model

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Source: Investor presentation November 2021

<https://www.cez.cz/webpublic/file/edee/ospol/fileexport/investors/investment-stories/2021-11-investment-story-published-en.pdf>

ANNEX II – the approved “nuclear state aid law”

The draft law was signed by the President in Sep 2021 and effective from 1.1.2022.

Direct link to the law (8 pages, in Czech):<https://www.zakonyprolidi.cz/cs/2021-367>

Our summary of the law:

The law is called “367/2021 Sb. on measures for the Czech Republic’s transition to low-carbon energy industry and on amendment to Act no. 165/2000 Coll., on supported sources of energy”, but it only considers support of new nuclear, literally “low-carbon electricity generating source in the Czech Republic with a nuclear reactor connected to the electricity system with an installed capacity with a minimum electrical output of 100 MW connected after 2030, to the electricity system”

- The law does not suggest any concrete amounts yet;
- State will prepare a “**contract of purchase**” for electricity from nuclear;
- Possible support only applies to companies from countries that have signed the *International Agreement on Government Procurement* of 1996 (which in fact **excludes Chinese and Russian companies**);
- The contract will be done for **30 years, with possibility of prolongation by at least 10 years** (repeated prolongation by 10 years is possible);
- The investor can get a “**repayable financial assistance**” from the state budget for the purpose of building the nuclear source;
- The **interest rate** of this “assistance” is set to be the in the amount of costs for financing the state debt plus 1% point, minimum is 2%
- The law further suggests: “**The exercise price** is determined in a manner which covers **economically justifiable costs** for securing reliable, safe, required and efficient operation of licenced activity of generating electricity in a low-carbon plant and costs connected with decommissioning of the plant, as well as amortization and adequate profit (in the concerned sector in accordance with a normally acceptable internal rate of return) enabling return on investment made in the low-carbon electricity generating plant in compliance with the purchase agreement. The realization price will be determined on the basis of the budget price of the construction of a low-carbon production plant.
- The State will organize selling of the purchased electricity on the energy market;
- The financial sources for the contracted purchase of the power will firstly come from the state from the revenues from selling of the electricity and secondly (if the market price will be lower than the guaranteed purchase price) from an extra surcharge to existing transmission and distribution grid charges (= all consumers would pay for that);
- The government sets the latest in 2035 a maximum level of this surcharge;