CLEAN ENERGY OF TOMORROW

# Dukovany NPP New Build Status

November 27th, 2024, Prague

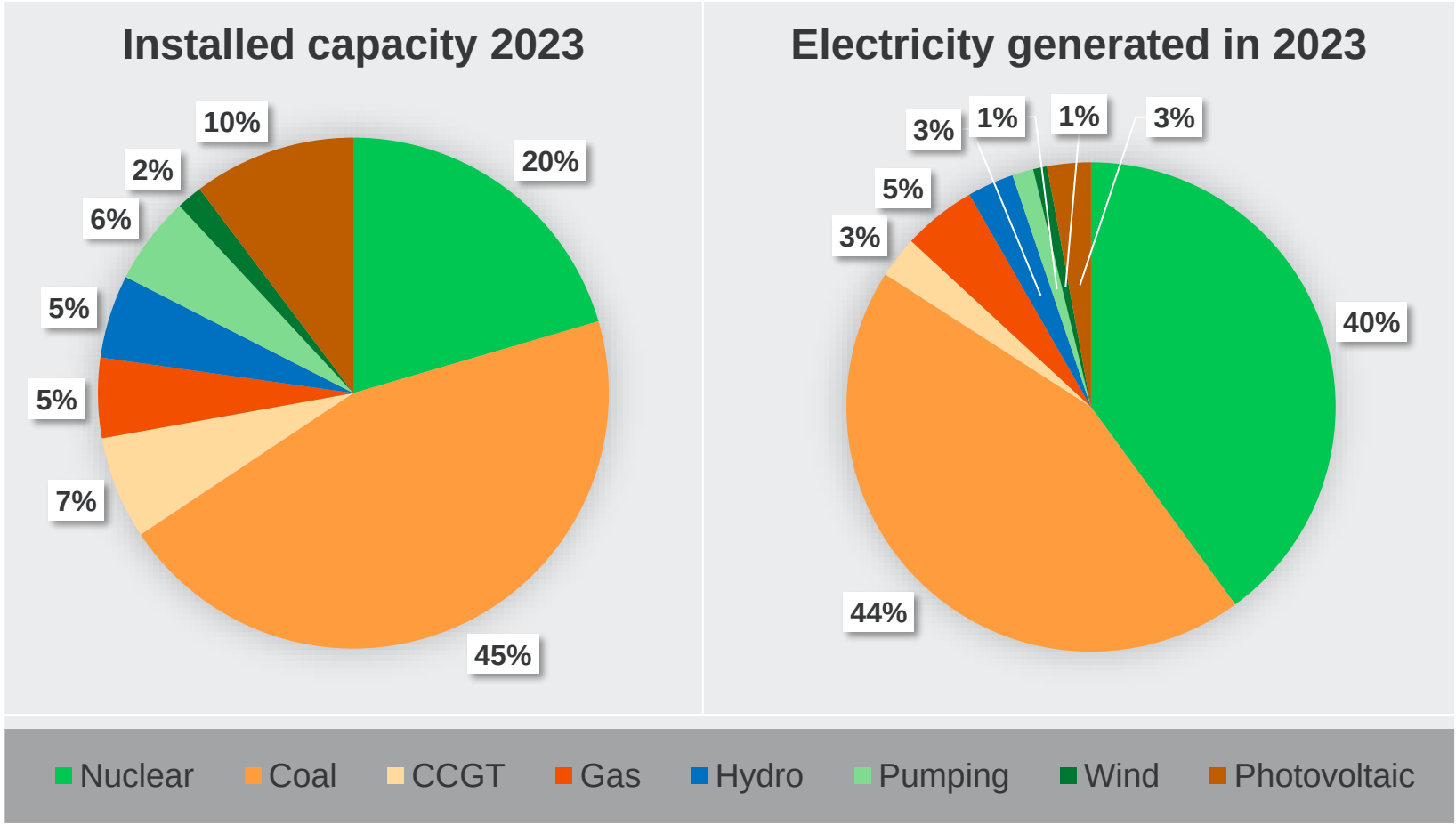
**Elektrárna Dukovany II, a.s.**
Petr Závodský / Chairman of the Board and CEO

**CEZ Group** www.cez.cz/njz

# Czech energy mix in 2023

| Installed capacity | MWinst | |
|---|---|---|
| Nuclear | 4 290 | 20.47% |
| Coal | 9 472 | 45.19% |
| CCGT | 1 364 | 6.50% |
| Gas | 1 062 | 5.07% |
| Hydro | 1 106 | 5.28% |
| Pumping | 1 172 | 5.59% |
| Wind | 342 | 1.63% |
| Photovoltaic | 2 154 | 10.28% |

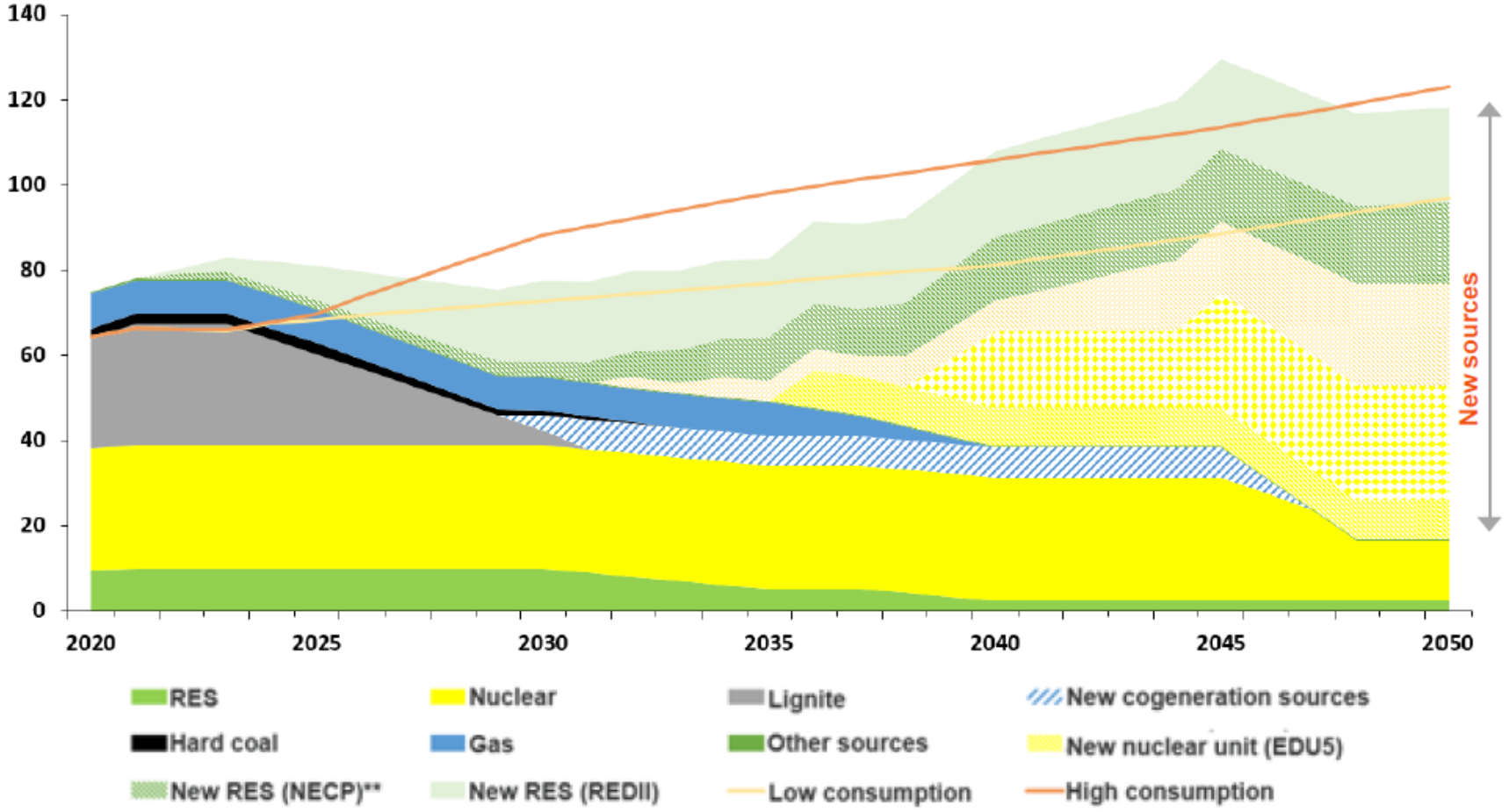
| Production | GWh | |
|---|---|---|
| Nuclear | 30 411 | 39.96% |
| Coal | 33 605 | 44.15% |
| CCGT | 2 089 | 2.74% |
| Gas | 3 703 | 4.86% |
| Hydro | 2 343 | 3.08% |
| Pumping | 1 064 | 1.40% |
| Wind | 701 | 0.92% |
| Photovoltaic | 2 192 | 2.88% |



# Nuclear new build is essential for the long term energy security

**Electricity generation and consumption outlook**

TWh (net generation; consumption*)




- The demand for electricity will grow significantly due to the electrification of transport and heating, as well as the production of hydrogen
- In 2050, only the Temelín NPP and hydroelectric power plants remain in operation To meet the EU goals (Fit-for-55 and REPowerEU), RES will grow rapidly by 2030, primarily photovoltaics
- Even so, there is a deficit of 30-55 TWh

- EDU 5 alone will not be enough to cover future demand, even taking into account the growth of RES
- It will need to be developed
  - RES, including wind
  - Additional nuclear, including SMR

# In Vision 2030, we committed to decarbonize generation portfolio and achieve carbon neutrality

**Nuclear**

- We will **safely increase generation volume in existing plants above 32 TWh** on average in 2030 and achieve 60-year operating life.
- We will build a new nuclear power plant in Dukovany.
- We will prepare for potential construction of small modular reactors (SMR) **after 2030**

**Renewables**

- We will build **1.5 GW of renewables by 2025** and **6 GW renewables by 2030.**
- **We will increase installed capacity of electricity accumulation** to at least **300 MWe** by 2030.

**Traditional**

- **We will decarbonize heating** and **will transform our coal locations** to new activities.
- We will **build new gas capacities**, which will be **ready for hydrogen combustion**.

# New nuclear project at Dukovany site is in the first stage

| Stage | End date | Permitting and licensing | Contract with technology supplier |
|---|---|---|---|
| **1. Preparation, supplier selection** | 2024 | EIA<br>Site decision<br>License for the siting | Tender process and contract signature |
| **2. Preliminary works** | 2029 | License for construction, Building permit | "LWA - Limited Work Authorization" phase |
| **3. Construction, commissioning** | 2036 | License for commencement of trial operation | Construction |
| **4. Warranty period** | 2038 | Operation license | Warranty period operation |

A — Framework contract

B — First implementation contract

C — Power Purchase Agreement (PPA)
Repayable Financial Assistance (RFA)
Investor Agreement (IA)

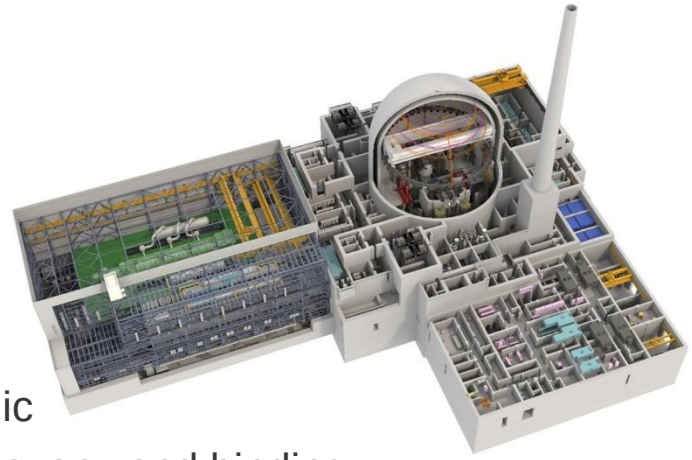
**Expected timeline of "Preparation, supplier selection" stage**

- Submission of final bids for technology
- Evaluation and negotiation of contract details with the suppliers
- Finalization and signing of the contract with the supplier
- PPA, RFA, IA finalization and signing with the Czech State (subject to EC notification result)

* *At 2020 prices, rounded*

** *It does not include the costs incurred until 2020 for the permitting and contracting and the purchase of land*

# Tender procedure



- **30. 11. 2022** – Initial bids received from three bidders:
  - EDF (France)
  - KHNP (Republic of Korea)
  - Westinghouse (USA / Canada)
- **31. 10. 2023** – updated bids received from all three bidders
- **31. 1. 2024**
  - Interim evaluation report at the meeting of the Government of the Czech Republic
  - EDF and KHNP call for submission of more advantageous bids for Unit 5 at Dukovany and binding price offers (options) for Unit 6 at Dukovany and Units 3 and 4 at Temelín
- **30. 4. 2024** – supplemented offers received from EDF and KHNP
- **14. 6. 2024** – Submission of the State Evaluation Report to the state (MIT)
- **17. 7. 2024** – decision of the state regarding the winner of the tender – KHNP selected as the preferred bidder
  - Both EdF and Westinghouse filed an objection with the Office for the Protection of Competition– rejected, but there is a ban on signing the contract
  - EdF submitted a complaint to the EC – FSR / safety exemption
- **31. 3. 2025** – Expected signing of contracts with the selected supplier according to the current schedule


Advanced Power Reactor 1000
1. Containment Building
2. Auxiliary Building
3. Compound Building
4. Turbine Generator Building
5. Transformer
6. Natural Draft CW Cooling Tower
7. Make-up Water Treatment
8. Mechanical Draft Cooling Tower
9. Spent Fuel Interim Storage
10. 400kv & 110kv SWYD Area
11. DH Building
12. Emergency D/G & AAC D/G Building
KHNP
KOREA HYDRO & NUCLEAR POWER CO., LTD

# NPP EDU5,6 - Licensing and Permiting

**Environmental Impact Assessment** (EIA, according to law No. 100/2001 Coll.)

- The Ministry of Environment issued **the EIA statement** on environmental impact assessment of a project in August 2019. (Link to EIA Documentation in English)

**Siting of the nuclear Facility**

- The documentation for the siting of a nuclear installation including initial safety analysis report is publicly available on the ČEZ website: www.cez.cz/njz
- The siting of a nuclear installation was issued by SÚJB on **March 8, 2021**, license has unlimited time validity with **3 conditions**.

**State Authorization** (according to law No. 458/2000 Coll. Energetic Act).

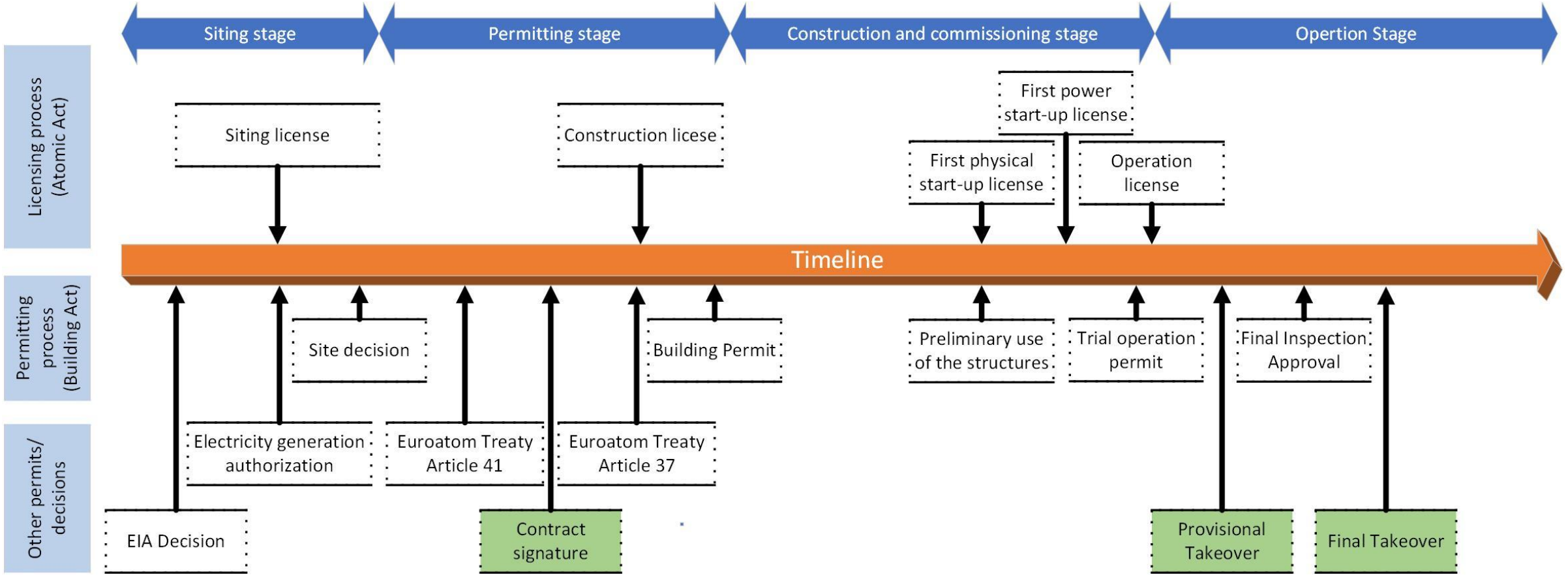
- Assessed and issued by the ministry on **April 27, 2021**.

**Site decision proceeding (zoning procedure, according to the Building Act)**

- Application for the site decisions according to the Building Act were submitted to the Building Authority on **June 1, 2021**.
- Site decision were issued on **October 30, 2023**. The appeal processes are pending. EDU II expects site decision will be in force by end 2024.

The licensing and permitting are done for the **siting of two nuclear facilities**, each with one pressurized water reactor with a rated thermal output of **up to 3500 MWt** and the corresponding net electrical output of **up to 1200 MWe**.

# Licensing process in the Czech Republic



# Agreements with State – in Preparation
# Key Principles Agreed

Key transaction elements which will govern the rights and obligations of the parties in relation to the Project and, if agreed by the parties, will replace the First Implementing Agreement and the Master Agreement concluded on 28 July 2020 among the State, ČEZ, a. s. (CEZ) and Elektrárna Dukovany II, a. s. (EDU II):

A. Purchase Contract ("**PC**") between the Czech Republic represented by the Ministry of Industry and Trade (the "**State**") as offtaker and Dukovany II as supplier;

B. Investor agreement ("**IA**", "**Investor Agreement**") among the State, CEZ and EDU II;

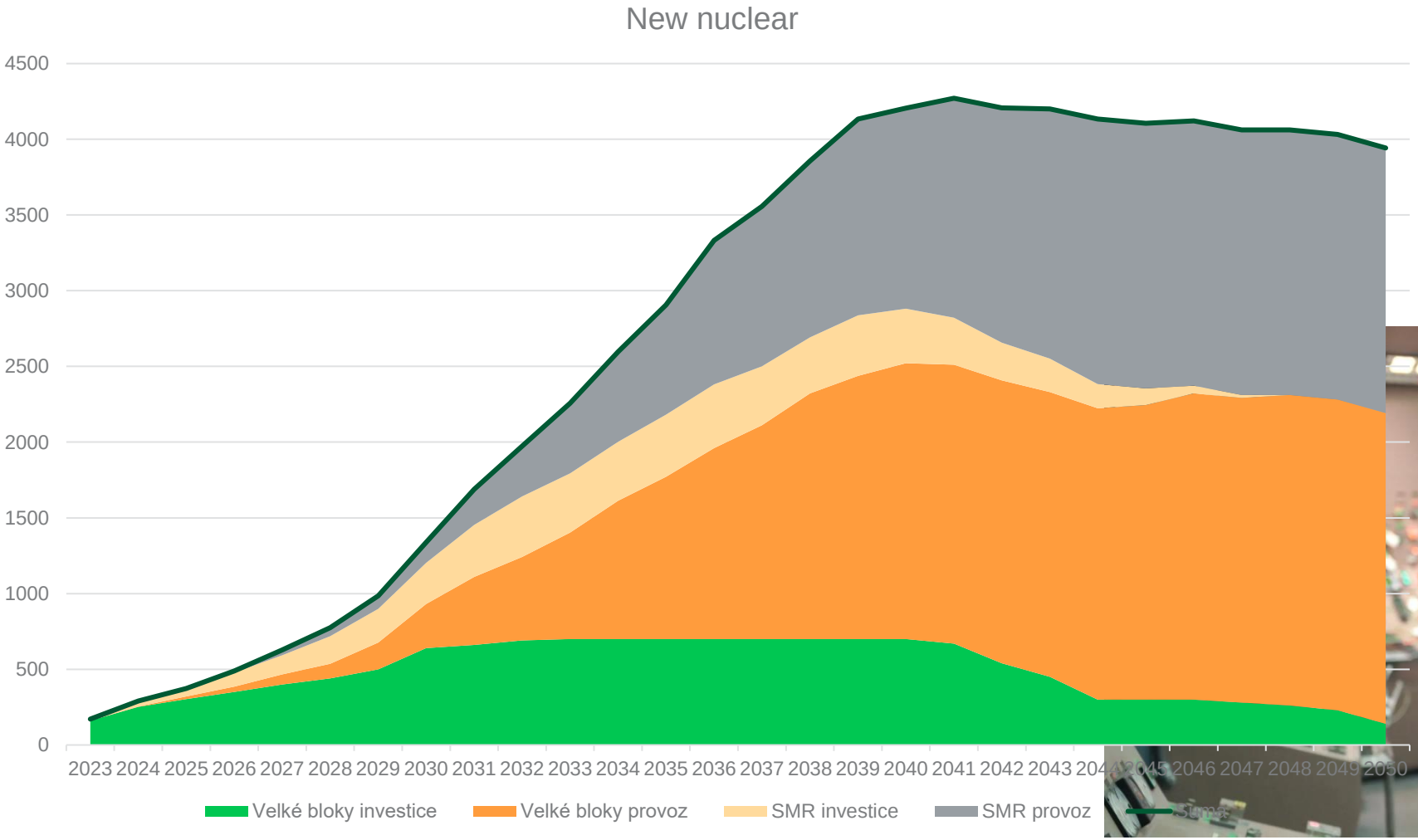
C. Repayable financial assistance ("**RFA**") granted by a decision of the Ministry of Industry and Trade to EDU II.

Notification of State Aid needed (European Commission):

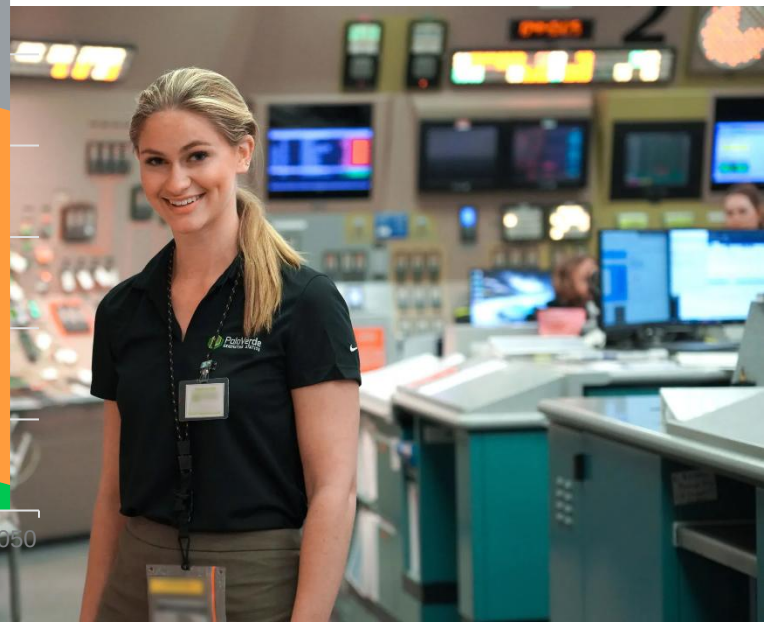
- Prenotification started in August 2020
- Notification started in June 2022

**The PC, the Investor Agreement and the RFA will be signed/issued on or around the same date and none of them will enter into effect unless and until each of them are signed/issued.**

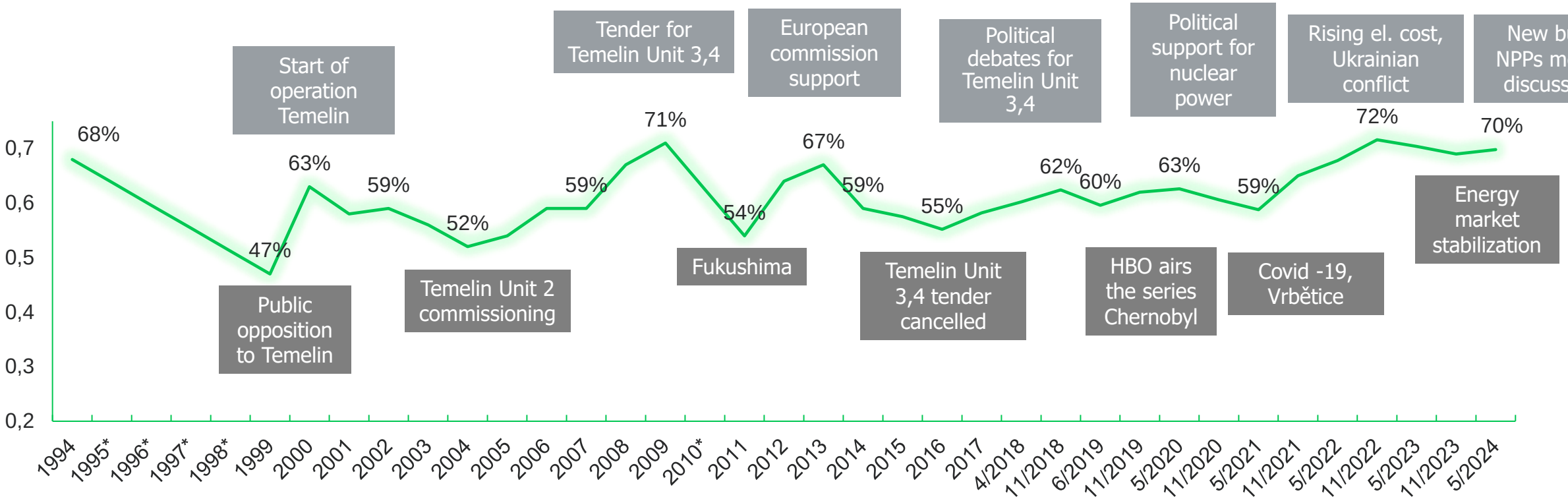
# People …. Staffing for 4 × 1000MWe and 10 × SMR




**EDU II:**
**186 Employees**
**96 % University degree**
**27 % Women**



# Public support for nuclear power in CR



# Summary

- The long-term **strategy of the energy sector** (and many other sectors) in the Czech Republic will need to be **adapted to the climate neutrality commitments** to which the Czech Republic has subscribed.
- Many sectors will only be able to **be decarbonized through increased electrification, so the need for emission-free electricity will grow in the long term**.
- Coal sources under regulatory and economic pressure (BAT, CO2) will gradually cease their activities, natural gas was planned only as a temporary solution that could partially compensate for the loss of coal capacity for a limited time. However, in the energy sector, it will have to be replaced by green hydrogen/methane.
- While **Europe relies heavily on offshore, the Czech Republic,** as a landlocked country, **needs to develop nuclear and renewable energy projects.**
- The Czech Republic will need to expand its production sources, with **2 new nuclear units only replacing**, in the medium term, the **older Dukovany units**, and only other nuclear units will realistically expand the future source base.

# Thank You for Your Attention