



# DUKOVANY NEW BUILD STATUS

SEPTEMBER 22<sup>TH</sup>, 2022

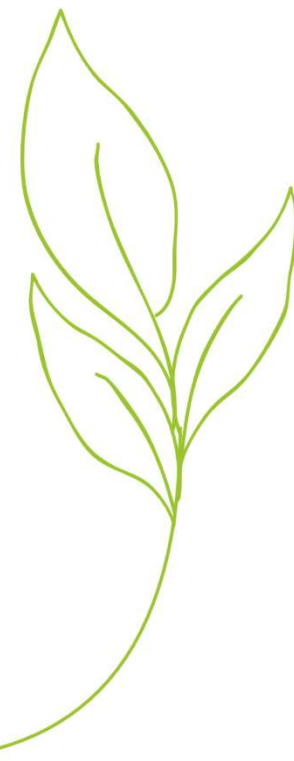
**PETR ZÁVODSKÝ** / CHAIRMAN OF THE BOARD AND CEO

ELEKTRÁRNA DUKOVANY II, A. S. / ELEKTRÁRNA TEMELÍN II, A. S.

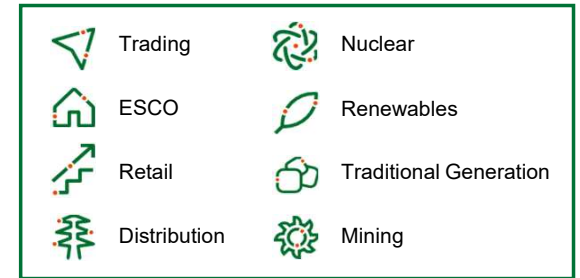
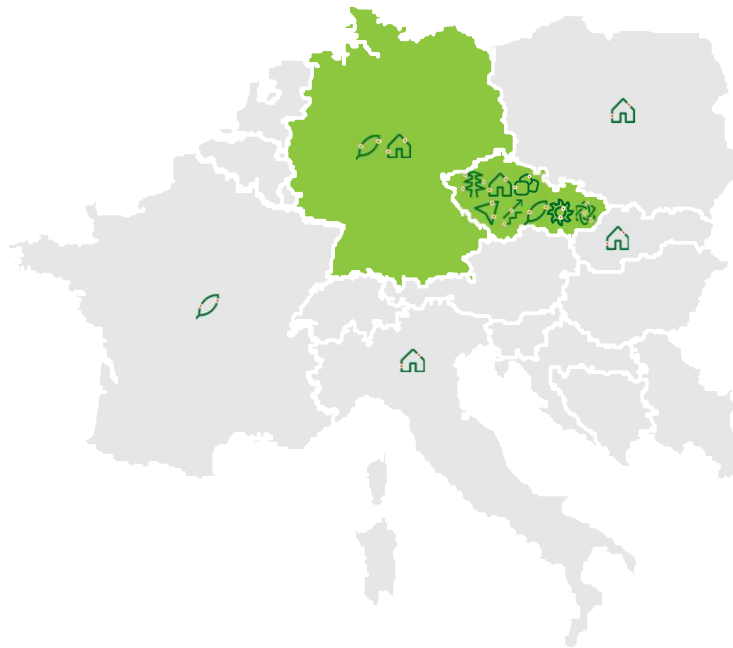
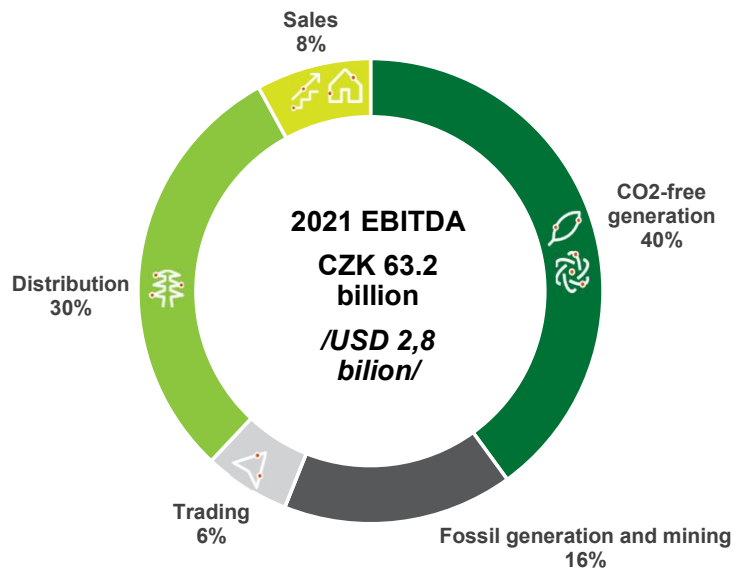
**CEZ GROUP**

[PETR.ZAVODSKY@CEZ.CZ](mailto:PETR.ZAVODSKY@CEZ.CZ) / [WWW.CEZ.CZ/NJZ](http://WWW.CEZ.CZ/NJZ)

**ČISTÁ  
ENERGIE  
ZÍŤŘKA** ●●●●



# WE ARE AN INTERNATIONAL VERTICALLY INTEGRATED UTILITY, AMONG THE LARGEST IN EUROPE BY MARKET CAP



**CEZ Group**  
**11<sup>th</sup> largest** in number of customers  
**12<sup>th</sup> largest** in installed capacity  
**12<sup>th</sup> largest** by market capitalization\*

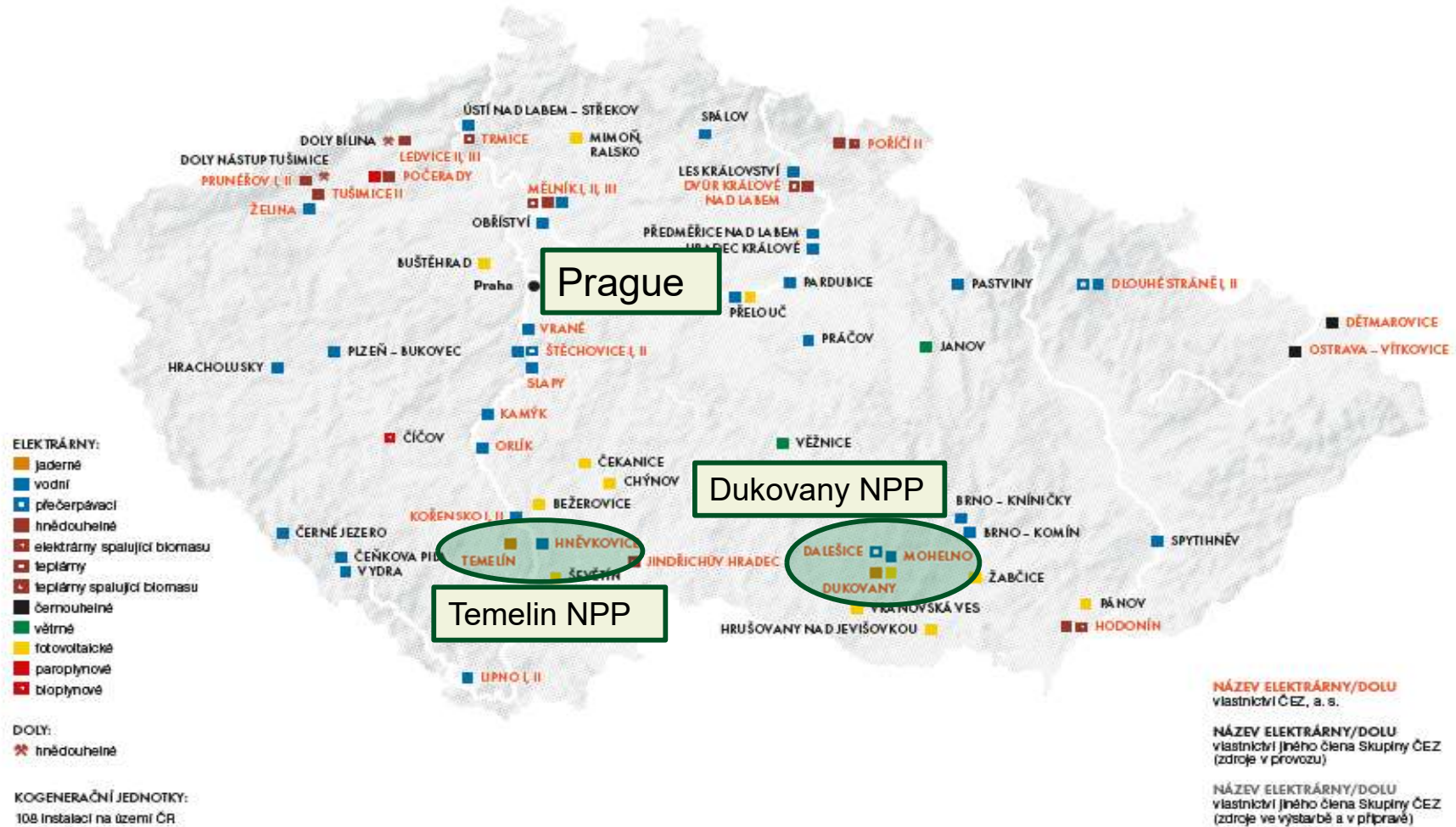


\* As of February 11, 2022

# CEZ GENERATION FACILITIES IN THE CZECH REPUBLIC



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# ČEZ GROUP WILL ACCELERATE THE IMPLEMENTATION OF THE NEW VISION 2030 „CLEAN ENERGY OF TOMORROW“



## CEZ Group's Strategic Priorities

Efficient operation, optimal utilization and development of generation portfolio

Modern distribution and care for customers' energy needs

Development of new energy in the Czech Republic

Development of energy services in Europe

## CEZ Group's Key Strategy Thesis

- Efficiently managing nuclear power plants and preparing conditions for the construction of a new nuclear power plant as part of enhancement of energy security and decarbonization of the generation portfolio in Czechia
- Efficient management of coal-fired power plants located near the coal basins and decarbonization of Czech generating portfolio
- Modernizing and digitizing distribution and sales in Czechia, developing comprehensive services with respect to customers' needs
- Developing energy services (ESCO) and renewable energy sources (RES) in Czechia while fulfilling the Czech energy and climate plan
- Developing ESCO activities abroad and achieving a significant position in markets close to Czechia, primarily Germany, northern Italy, and Poland



## VICE 2030 THE CLEAN ENERGY OF TOMORROW

### I Transforming the Generating Portfolio to Low Emissions and Achieving Carbon Neutrality

- Efficiently managing nuclear power plants and preparing conditions for the construction of a new nuclear power plant as part of enhancement of energy security in Czechia
- Efficient management of coal-fired power plants located near the coal basins and decarbonization of Czech generating portfolio (including transformation of the heating industry)
- Developing renewable energy sources (RES) while fulfilling the Czech energy and climate plan

### II Providing the Best Energy Solutions and the Best Customer Experience on the Market

- Modernizing and digitizing distribution and sales in Czechia, developing comprehensive services with respect to customers' needs
- Developing energy services sources (ESCO) in Czechia while fulfilling the Czech energy and climate plan
- Developing energy services (ESCO) abroad to achieve a significant market position in Germany, Northern Italy, and Poland

# DUKOVANY NUCLEAR POWER PLANT



- **In operation since 1985 - 1987**
- Reactor design: VVER 440 type V213
  - Nuclear island design – Atomenergoprojekt – Russia
  - Conventional island design – Energoprojekt Praha - Czech
  - Major deliveries - Czech companies
  - Škoda (Praha, JS, Doosan Power), Vítkovice, Sigma, Etc. (incl. reactor vessels, steam generators, turbines, etc..)
- **Long Time Operation (LTO) till 2045–2047 .. lifetime 60(+)**
- Power uprates 440 MW → 500 MW (104%, efficiency enhancement)
- Black start ready (grid recovery after blackout)
- Development program: Nuclear fuel
  - 16month – fuel cycles
  - Power uprate 107+% (1075 MWt)
- Hydro power plant Dalesice uprated to 4 x 120 MW
  - Cooling water delivery, pumpstation & backup

# TEMELÍN NUCLEAR POWER PLANT



- **In operation since 2000 - 2002**
- **Reactor design: VVER 1000 type V320**  
Nuclear island design – Atomenergoprojekt – Russia  
Conventional island design – Energoprojekt Praha - Czech  
Most deliveries - Czech companies (> 90%)  
Škoda (Praha, JS, Doosan Power), Vítkovice, Sigma, Etc.  
(incl. reactor vessels, steam generators, turbines, etc..)
- **Long Time Operation till 2060 - 2062 .. lifetime 60(+)**
- **Power uprates 981 MW → 1086 MW (1100 MW peak)**  
(104%, turbine upgrades, efficiency enhancement)
- **Development program: 18month – fuel cycles**
- **Black start ready (grid recovery after blackout)**
- **Hydro power plant Hnevkovice 2 x 4,8 MW**
  - Cooling water delivery
- **Dlouhe Strane pumpstation 2 x 325 MW ~ backup**

# NEW NUCLEAR BUILD



## Elektrárna Dukovany II, a. s. (EDU II)

- subsidiary company of ČEZ, a. s.
- established in 2015
- over 120 employees

## Dukovany II

- focus on 1 reactor unit up to 1200 MWe
- 60 years projected lifetime
- generation III+ PWRs

## Elektrárna Temelín II, a. s. (ETE II)

- focus on new reactors at Temelín
- SMR – Temelín / New site

100 %



ČEZ, a. s. (CEZ Group)



# ON JUL 28, 2020, TWO AGREEMENTS HAS BEEN SIGNED



**1) FRAMEWORK AGREEMENT, not legally binding, covers overall cooperation in NNPP construction**

**2) IMPLEMENTATION AGREEMENT FOR STAGE 1 OF THE CONSTRUCTION OF A NEW NUCLEAR POWER PLANT at Dukovany**

## **Selected obligations of ČEZ during Stage 1:**

- Ensure the issuance of a zoning decision, a permit for the siting of a nuclear facility and the necessary rights to real estate and land
- Select a contractor and enable the state to control the choice of contractor with regard to Czechia's security interests
- Keep to the schedule and budget for Stage 1 and allow the Czech state to monitor performance
- Hand over fully functional company Elektrárna Dukovany II if the company is to be bought by the Czech state

## **Selected rights of ČEZ during Stage 1 if no agreement is reached on the next stage (e.g., due to regulatory conditions):**

- Sell Elektrárna Dukovany II to the Czech state
- Get compensation from the Czech state in the amount of costs incurred

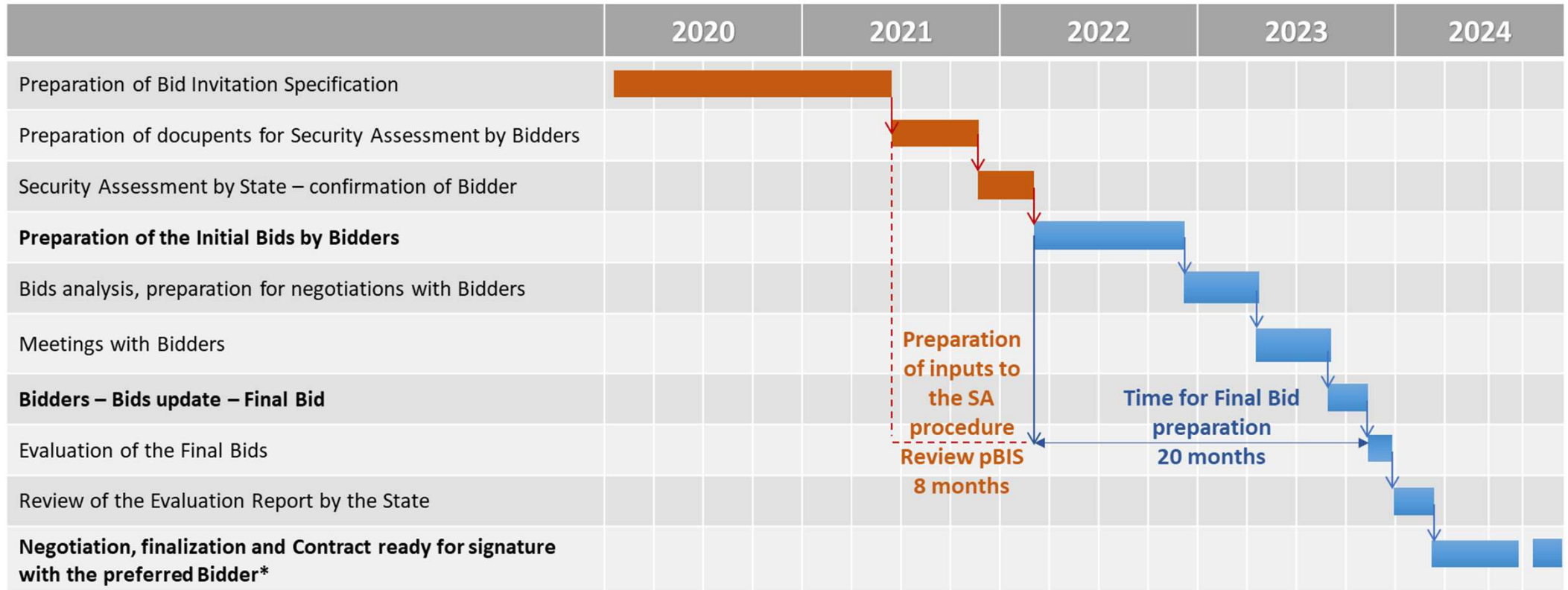
The next stages of the project will be addressed by successive agreements, incl. definition of the main principles (e.g., the parameters of purchase prices of electricity from the new facility and conditions for the Czech state to partially fund the project). Starting tender for supplier is subject to the state's fulfillment of certain conditions.



# 17TH MARCH – PM VISIT AT DUKOVANY START OF THE DUKOVANY 5 TENDER



# TENDER SCHEDULE



# LICENSING AND PERMITTING



## **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](http://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 1st, 2021**.
- Site decision proceedings are **currently underway**, Ministry of Environment provided information to the States concerned.

The permitting is done for the **siting of two nuclear facilities**, each with one pressurized water reactor with a rated thermal output of **up to 3500 MW<sub>t</sub>** and the corresponding net electrical output of **up to 1200 MW<sub>e</sub>**. (1200MW<sub>e</sub> during parallel operation with the existing units).



# 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. Power purchase agreement (“**PPA**”) 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 PPA, 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.**



# SMR DEVELOPMENT PROGRAM



## **Main goal of the Program is to implement SMR technology in the Czech Republic:**

Stage I: To put the First SMR (pilot) unit in Temelín site into commercial operation till latest 2034

Stage II: Continue in construction of additional units on other 2-3 sites in the Czech Republic (owned by CEZ Group)

## **Background:**

To develop the above-mentioned Program with the aim to:

- maximize the involvement of the Czech R&D
- maximize the involvement of the Czech industry
- find the best financing and delivery model for the Program



\*NDA – Non disclosure agreement

# SMR ACTIVITIES



## **Project „SMR Temelín“:**

- Feasibility study ongoing (expected completion 10/2022)
- Communication with potential suppliers established (ongoing)
- Preliminary geological survey for SMR ongoing

## **Project „SMR in non-nuclear sites“:**

- List of potential critical risks for nuclear siting defined – related analysis to be done in 2022 / 2023
- Reduction to 2-3 sites at the end of 2022
- Feasibility studies for shortlisted sites at the end of 2023

## **SMR Generally:**

- Established new working group for SMR on state level (under leadership of MIT) – coordination of SMR activities on the state level
- Cooperation with South Bohemian region – MoU + intention to establish new entity (South Bohemian Nuclear Park)
- Active participation on the programs of international organizations (SMR agenda) - EUR, Foratom , IAEA, CORDEL... EU Workshops etc.
- Communication with other utilities/investors



THANK YOU FOR YOUR ATTENTION

