Deep Geological Repository Development in the Czech Republic

Vítězslav Duda

RAWRA

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Nuclear sites in the Czech Republic

- Temelín
- Dolní Rožínka
- Dukovany
- Richard
- Bratrství
- Řež
- Praha
- Uranium mine
- Repository
- Research Reactor
- SF Storage
RWM Legal and Policy Framework

• Act No. 18/1997 Coll, on Peaceful Utilisation of Nuclear Energy and Ionising Radiation (the Atomic Act),
  – Responsibility of State for disposal of RW – SURAO/RAWRA;
    • Ref: www.sujb.cz
• Joint Convention on Safety in Spent Fuel Management and Safety in Radioactive Waste Management
  – Regular reports on RWM
• Policy for Radioactive Waste and Spent Fuel Management
  – Approved by the Czech government on 15 May 2002, resolution No. 487, updated in 2014
    • Reports according to the Council Directive 2011/70/Euratom
**HLW / SNF Management**

### Amount
- **ILW** 4430 t
- **SNF - DUK I - IV** 2430 t (60 years operation)
- **SNF - TEM I, II** 2470 t (60 years operation)
- **(TEM III, IV, DUK V)** 5010 t (60 years operation)

### Storage at sites of Dukovany and Temelin NPPs

### Final disposal at DGR (operation from 2065)
- Enough time for options (reprocessing, partitioning and transmutation)
Storage of SF (ČEZ, a. s.)

- MSVP Dukovany - 600 t, SVP Dukovany - 1340 t
- SVP Temelín 1370 t
Deep Geological Repository

- Capacity up to 10000 t of SF
- Crystalline host rock
- Operation since 2065
### HLW / SNF Disposal - Schedule

**Presumed timetable for deep geological repository preparation, construction and operation**

<table>
<thead>
<tr>
<th>Event</th>
<th>Year(s)</th>
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<tr>
<td>Research studies aimed at finding further potentially suitable DGR sites including the revision of studies performed before 2002</td>
<td>2016</td>
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<tr>
<td>Selection of two candidate sites based on the preliminary characterisation of the sites, including the position of the communities concerned</td>
<td>2020</td>
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<tr>
<td>Selection of the final site including the position of the communities concerned and submission of an application for land protection at the selected site</td>
<td>2025</td>
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<td>Commencement of the EIA procedure for the construction of an underground laboratory at the final site</td>
<td>2026</td>
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<tr>
<td>Submission of an application for planning permission for the underground laboratory at the final site</td>
<td>2028</td>
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<tr>
<td>Commencement of the EIA procedure for DGR construction</td>
<td>2035</td>
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<td>Submission of documentation for DGR planning permission to all the institutions concerned including the SÚJB (safety report)</td>
<td>2040</td>
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<tr>
<td>Submission of documentation for building permission</td>
<td>2045</td>
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<td>Deep geological repository construction (including the first disposal section) and the drafting of documentation for the commencement of operation</td>
<td>2050–2064</td>
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<tr>
<td>Drafting of documentation for DGR operation authorisation, decision issuance</td>
<td>2063–2065</td>
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<tr>
<td>Commencement of deep geological repository operation</td>
<td>2065</td>
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Siting of a DGR

Stages

✓ Stage 1 – Evaluation of the whole of the Czech Republic (study of archive geological data),

✓ Stage 2 – Reducing the area of sites (geological research work without drilling – geological research), 6+1 sites

• Stage 3 – Site characterization (geological works with drilling – geological survey) – 3 phases - permission of ME
Site selection process
RD&D Programme

• **RD&D focuses on improving both the safety and efficiency of RAW and SNF management**

• **Main objectives (2015-2025)**
  – support of the siting programme
  – optimisation of the DGR design
  – support of the safety case and EIA studies

• **International involvement**
  – IGD-TP supported projects (DOPAS, CAST, JOPRAD, MODERN…)
  – Bilateral agreements (ANDRA, NAGRA, SKB, GRS) and other projects (Decovalex, TF EBS …)
RD&D - Generic research

- Bedřichov water supply tunnel
  - construction period - 1981-83
  - granitic rock
  - tunnel profile - circular 3.6 m diameter
  - depth max. 140 m
  - TBM – 890 m, drill and blast 1705 m
RD&D - Demonstration research

• The Josef gallery
  – operated by CTU, former Au exploration mine
  – length of the main drift 1 835 m,
  – profile 14 – 16 m²
RD&D - PVP Bukov

- **Underground research facility**
  - Construction in the separate part of U-mine in crystalline rocks, – 600 m below surface
  - Geology - crystalline rocks – gneisses, migmatites with lenses of amphibolites
RD&D Organisation

• Large portion of RD&D subcontracted - tenders
• Domestic capabilities
  – universities, research organisations, design organisations, manufactures
  – geological survey organisations
  – mining organisation – state enterprise
• Transfer of know-how, knowledge
  – Disposal services will be needed by 2065
  – Disposal technology adjustment due to design differences (container, bentonite)
  – Can we suppose disposal services availability?
Thank you for your attention.