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Coal-to-SMR Repurposing

21 October 2026

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Presentation topics

Six topics. One clear story.

1 Why coal to nuclear?

A cleaner, safer and more resilient future.



Drivers

2 From a coal site to an SMR site

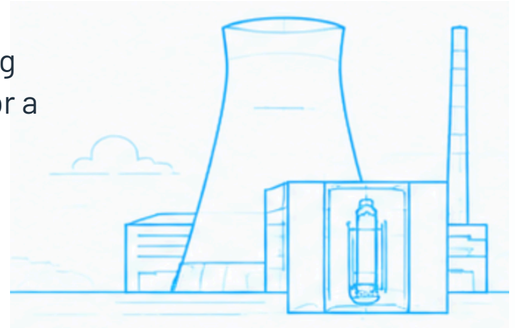
Same location. A new purpose.



The pathway

3 SMR retrofit

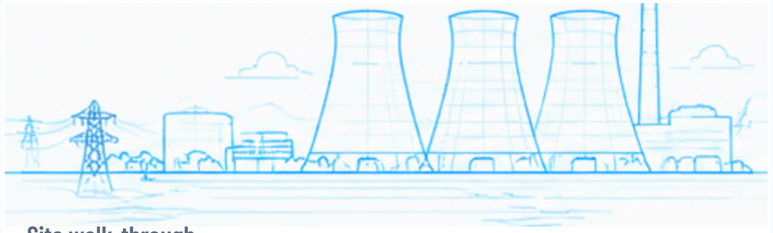
Adapting existing infrastructure for a new generation.



Method & platform

4 Chvaletice, a test case

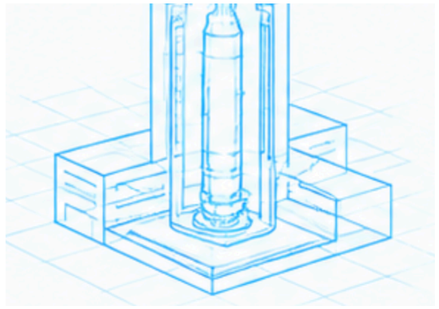
Site walk-through.



Site walk-through

5 SMR compatibility

Reliable. Flexible. Future-ready.



SMR know-how

6 Conclusions

Where we go next.



Next steps

WHY COAL TO NUCLEAR?

Why coal to nuclear?

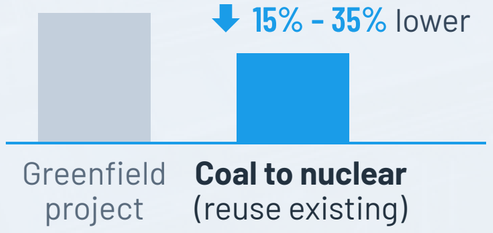
Lower cost, faster, lower risk

In summary:

15% – 35% lower overnight cost vs. a greenfield project.

U.S. DOE (2022)

For a 1,200 MWe coal plant replacement, overnight costs could be **15% – 35% lower** than a greenfield, by reusing existing infrastructure.



TerraPraxis

More optimistic estimates:

28 – 35%
capital cost savings

9 – 28%
LCOE reduction
(with advanced SMRs)

Coal to Nuclear

What else adds value?

Beyond the 15–35% cost saving

Grid connection & permits

Existing grid connection and industrial permits save years. That reduces interest costs during construction — a major part of the total cost in nuclear.

Local acceptance

Higher acceptance from local communities reduces the risk of delays.

A cleaner, more resilient future

Decarbonization, energy security and long-term value — with a proven, lower-risk path.

From a Coal Site to an SMR site

Same location. A cleaner, safer, more sustainable future.

4 SMR Deployment

Building the new plant

Existing Changing in this phase Under works

1 Coal Plant

- Existing infrastructure
- Grid connection
- Industrial permits

2 Decommissioning

- Demolition of obsolete units
- Site remediation
- Reuse of key infrastructure

3 Infrastructure Reuse

- Rehabilitate buildings & utilities
- Upgrade grid connection
- Prepare for SMR integration

4 SMR Deployment

- Install SMR modules
- Integrate with existing grid
- Start clean, reliable energy

Leveraging what exists today to build the clean energy of tomorrow

SMR.RETROFIT

Plant solutions

SMR.RETROFIT

From data to a global coal plant tracker

SMR.KNOW

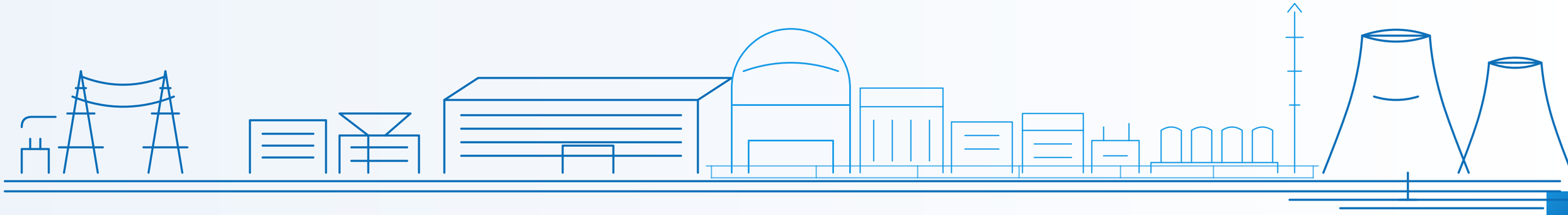
Internal database that consolidates up-to-date, curated information on over 100 SMR designs

SMR.FIT

The **8 Critical Success Factors (CSFs)** defined in the SMR.FIT methodology are adapted in SMR.RETROFIT

CPP database

Global Coal Plant Tracker, a comprehensive database that lists over 14,000 coal-fired power plants worldwide



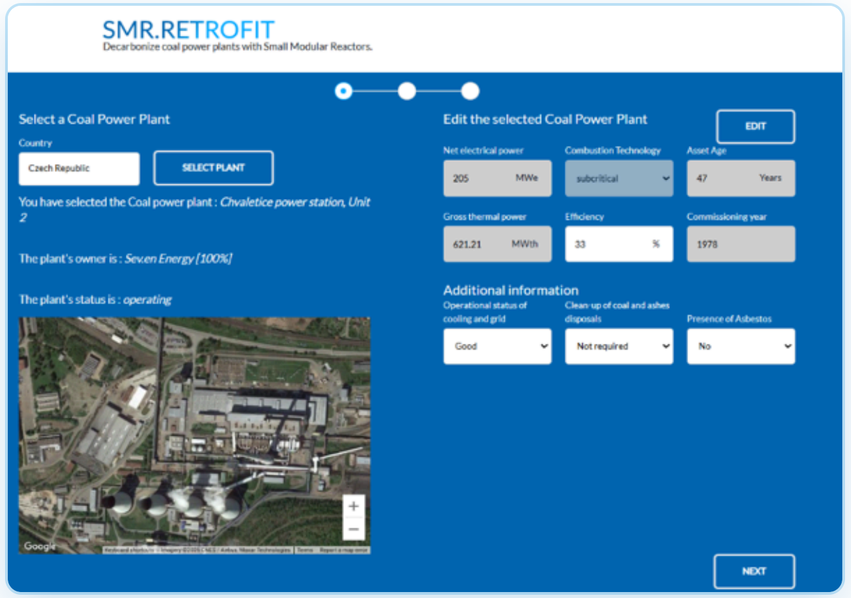
SMR.RETROFIT

Decarbonize coal power plant with Small Modular Reactor

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What it is?

A digital platform to support the decarbonization of coal power plants with SMRs.



Plant selection & overview

Select a coal power plant and get a complete view of its technical and operational data.

Scenario selection

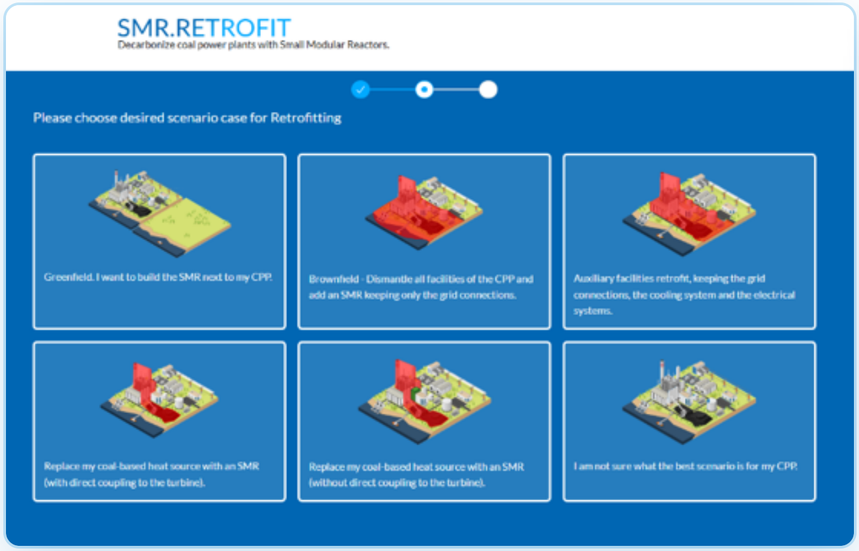
Explore different retrofit scenarios, from full replacement to hybrid solutions.

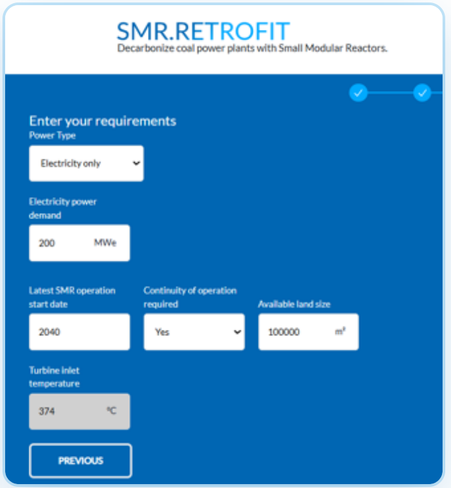
Problem it's trying to solve

- An increasing interest in decarbonizing coal power plants
- Streamlining the preliminary phase of the CPP decarbonization projects
- Providing confidence to stakeholders, facilitating a smoother transition to cleaner energy solutions

Key features

- A web-based platform as data-driven support to decision-making to easily evaluate the potential of a coal power plant to be retrofitted with an SMR





Custom requirements

Define your technical and operational parameters to get tailored results.

Our SMR down-selection methodology

90+
SMR

1 Exclusion criteria

- Based on pre-defined suitability requirements
- Preliminary filter including, e.g.
  - Incompatibility (T_{out}, power)
  - Dormant projects or conceptual designs lacking support
  - Geopolitics
  - Timing

2 Technology pre-assessment

- **Multi-criteria** comparative assessment
- Public information

3 Top-ranked designs

- Privileged contact established with vendors
- In-depth technological assessment

Critical Success Factors



- Safety
- Cost-competitiveness
- Sustainability
- Delivery certainty
- Equity and Finance
- Time-to-market
- Geopolitical support
- Fitness-for-purpose

3-4

Weight Critical Success Factors

- "Customer Profile" creation
- Limited criteria customization

CHVALETICE COAL POWER STATION

Chvaletice: coal to nuclear

3D site model · scenario walkthrough

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TODAY

1 / 6

Original coal plant

Existing plant, as built

Kept

+ Scenario details

Overview | Reload 3D

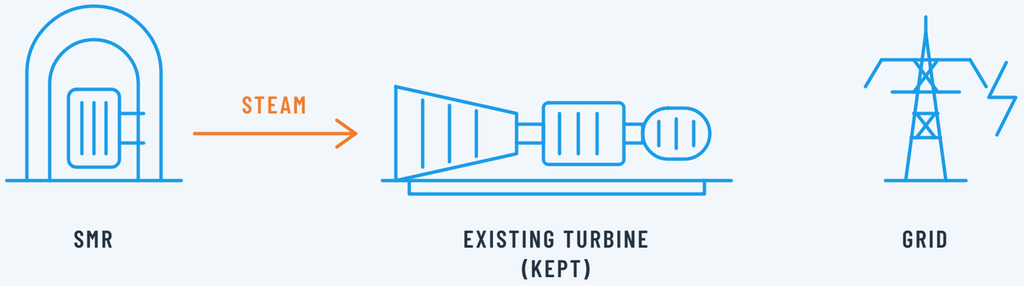
← → change scenario · drag to orbit

Two ways to meet the turbine.

DIRECT USE

Auxiliary facilities and turbine — direct use

The SMR steam conditions match the existing turbine. The whole steam block is reused as it stands.



UPSIDE

- ✓ Minimal infrastructure reuse barrier
- ✓ Highest efficiency potential
- ✓ Potentially lower CAPEX

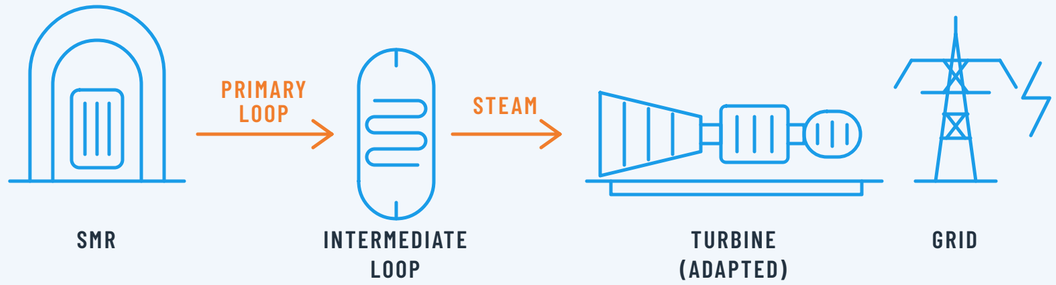
CONSTRAINT

- Limited technology compatibility
- Potential turbine adaptation
- More demanding qualification

INDIRECT USE

Auxiliary facilities and turbine — indirect use

An intermediate loop adapts the reactor output to what the turbine needs, opening the door to more designs.



UPSIDE

- ✓ Greater flexibility
- ✓ Better turbine compatibility
- ✓ Easier adaptation to different SMR technologies

CONSTRAINT

- Additional equipment and investment
- Small efficiency penalty
- Increased system complexity

CONCLUSIONS

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What SMR.RETROFIT delivers.

01

A screening, not a study

The preliminary phase of a decarbonisation project goes from months of bespoke work to a structured, repeatable assessment.

02

Evidence for stakeholders

Owners, regulators and financiers see the same scored criteria instead of competing opinions on feasibility.

03

Any site, any design

14,000 coal units against 100+ SMR designs, matched through one adapted set of critical success factors.

04

Chvaletice proves it

A real site carried through the full method, from infrastructure survey to a shortlist of compatible reactors.

