

Competence Centre for **Deep Geothermal Energy** (DEGREE)

Scalable geothermal baseload, district heating and critical materials –
strengthening industrial competitiveness in a fossil-free energy system

Swedish Energy Agency call: Competence Centre for a Fossil-Free Energy System
<https://www.energimyndigheten.se/utlysningar/kompetenscentrum-for-ett-fossilfritt-energisystem/>

Maria Ask, Uppsala university
Länsstyrelserna, 2026-03-12



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Introduction

Scaling deep geothermal energy for industrial competitiveness and societal resilience

- Sweden faces structural energy and material challenges

Deep geothermal can deliver:

- 1. Planned fossil-free energy 24/7**
- 2. Co-produced critical raw materials**
- 3. Improved energy security and resilience**


- Geothermal technology is proven & demonstrated globally!
- Swedish Action is needed!

BBC

Earth's heat to power 10,000 homes in renewable energy first for UK

26 February 2026 Share ↵ Save □

Esme Stallard, Climate and science reporter and Kate Stephens, Senior science journalist



The United Downs power plant, near Truro in Cornwall, becomes the first power plant in the UK to generate electricity from the Earth's heat.

The UK's first geothermal power plant has been turned on, providing a completely new type of renewable electricity using hot water from underground.

On Thursday morning, the Cornish plant will be switched on after nearly two decades in development which required Geothermal Engineering Ltd (GEL) to drill the deepest on-shore well in the UK.

BBC, 2026-02-26 at

www.bbc.com/news/articles/cewzg77k721o



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SEA call: Competence centre for fossil free energy system

SEA impact objectives:

- Guiding principles: Secure, Competitive & Sustainable
- Long-term collaboration between academia and other stakeholders
- Attractive and excellent research environments with international research collaboration
- Knowledge development for the energy and climate transition
- Support for accelerated implementation of research results by stakeholders
- Skills supply of well-educated experts in areas related to energy and energy technology
- *Visible impact within education*

Funding model:

- Full centre: 15-60 MSEK/year, 75-300 MSEK in total
- Per partner group: 5-20 MSEK/year, 25-100 MSEK in total

Targets for skills development:

- Entire program (300+700 MSEK): 200 PhDs + 100 postdocs
- For a 75 MSEK program → 15 PhDs + 7-8 postdocs

Funding period

- Phase 1: 2027-2031 Phase 2: 2032-2036 (after evaluation)



The energy transition gap in Sweden

1. Supply–Demand Imbalance

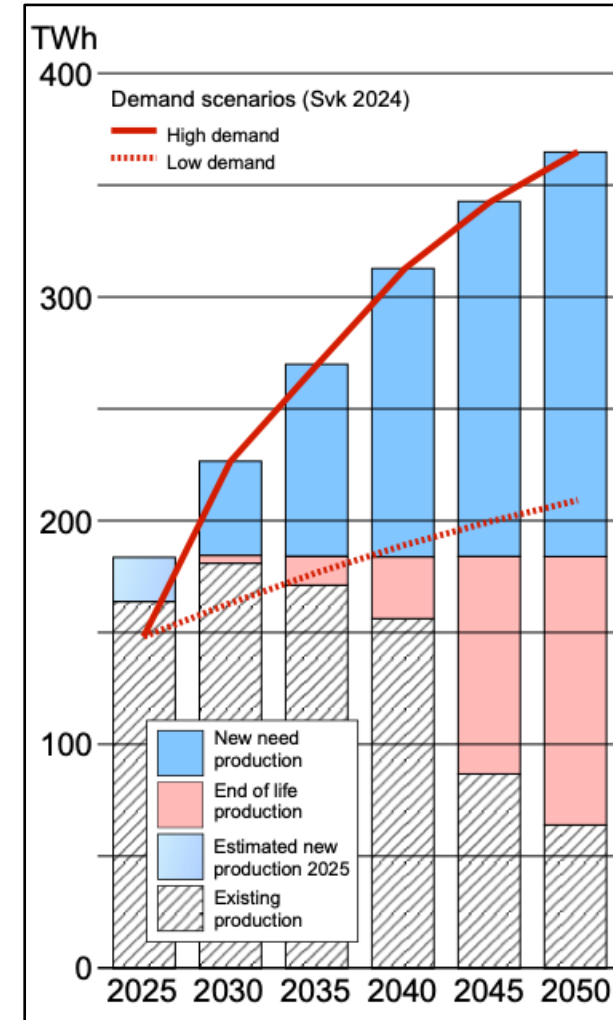
- Rapid electrification
- Intermittent generation growth
- Grid stability pressure

2. District Heating Under Transition

- Fuel uncertainty
- Cost volatility
- Regulatory shifts

3. Strategic Vulnerabilities

- Import dependence
- Critical raw materials
- Industrial competitiveness

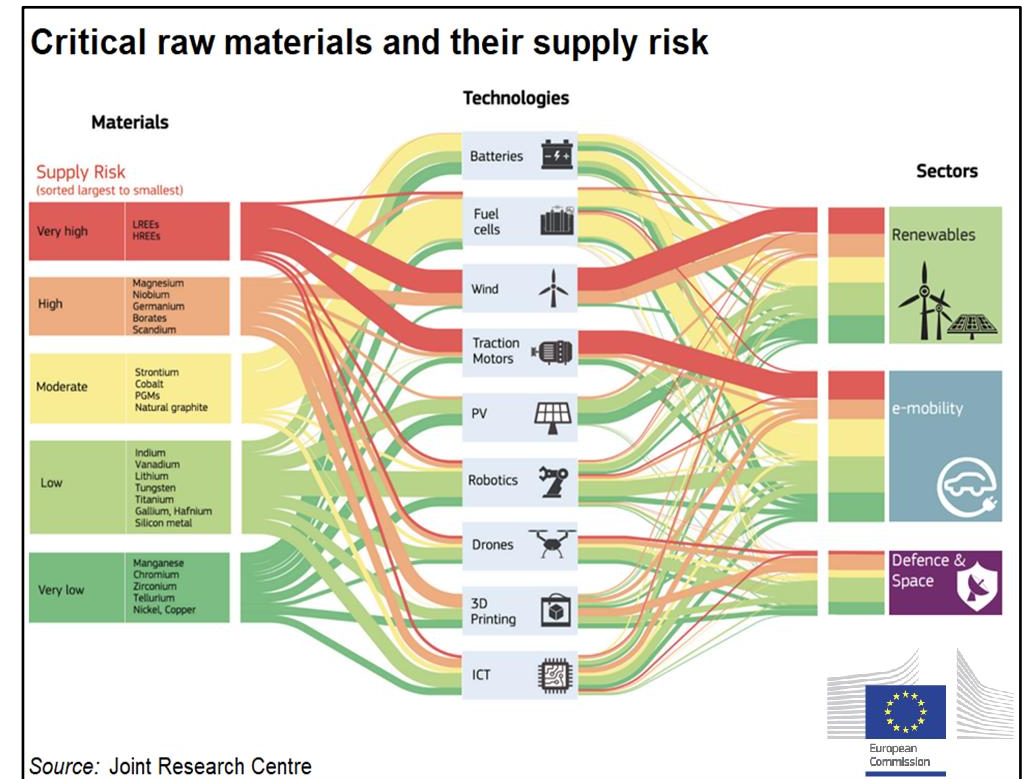


modified from SEA (2024)



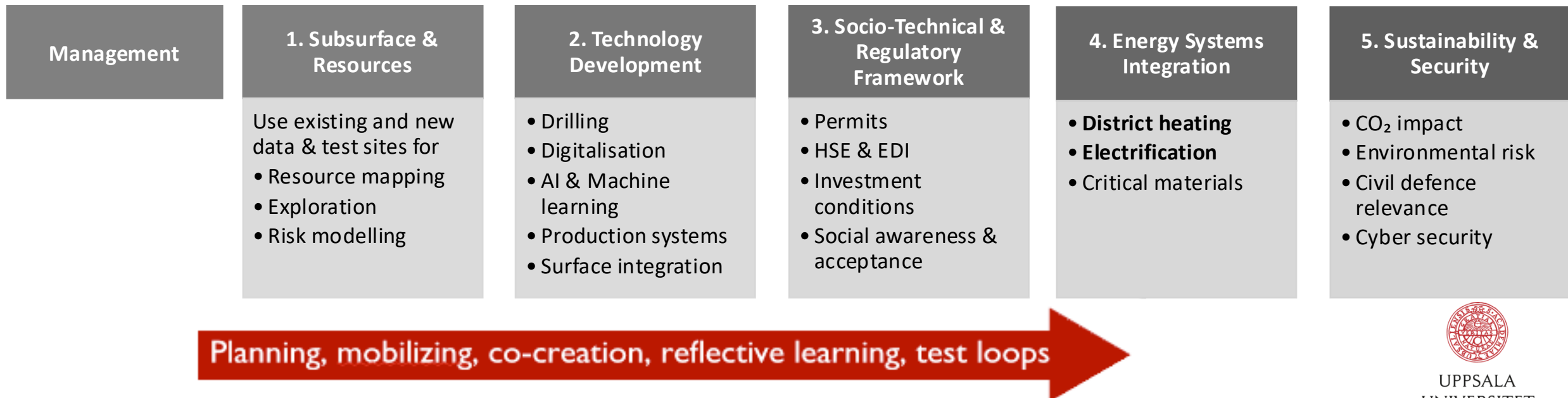
DEGREE Aims & Objectives

- We aim to build long-term collaboration within a Quintuple Helix partnership that creates values for all partners
- Complement the Swedish fossil-free energy mix
 - Heat for district heating & geothermal power
 - Co-extraction of critical raw materials from geothermal fluids
- Contribute to the European Geothermal Action Plan (EU, QI 2026)
 - Swedish actors in the geothermal industry alliance
 - Develop best practices, risk analyses and mitigation
 - Contribute to a Swedish deep geothermal road map
- Provide energy security and resilience (NATO, national geopolitical priorities)

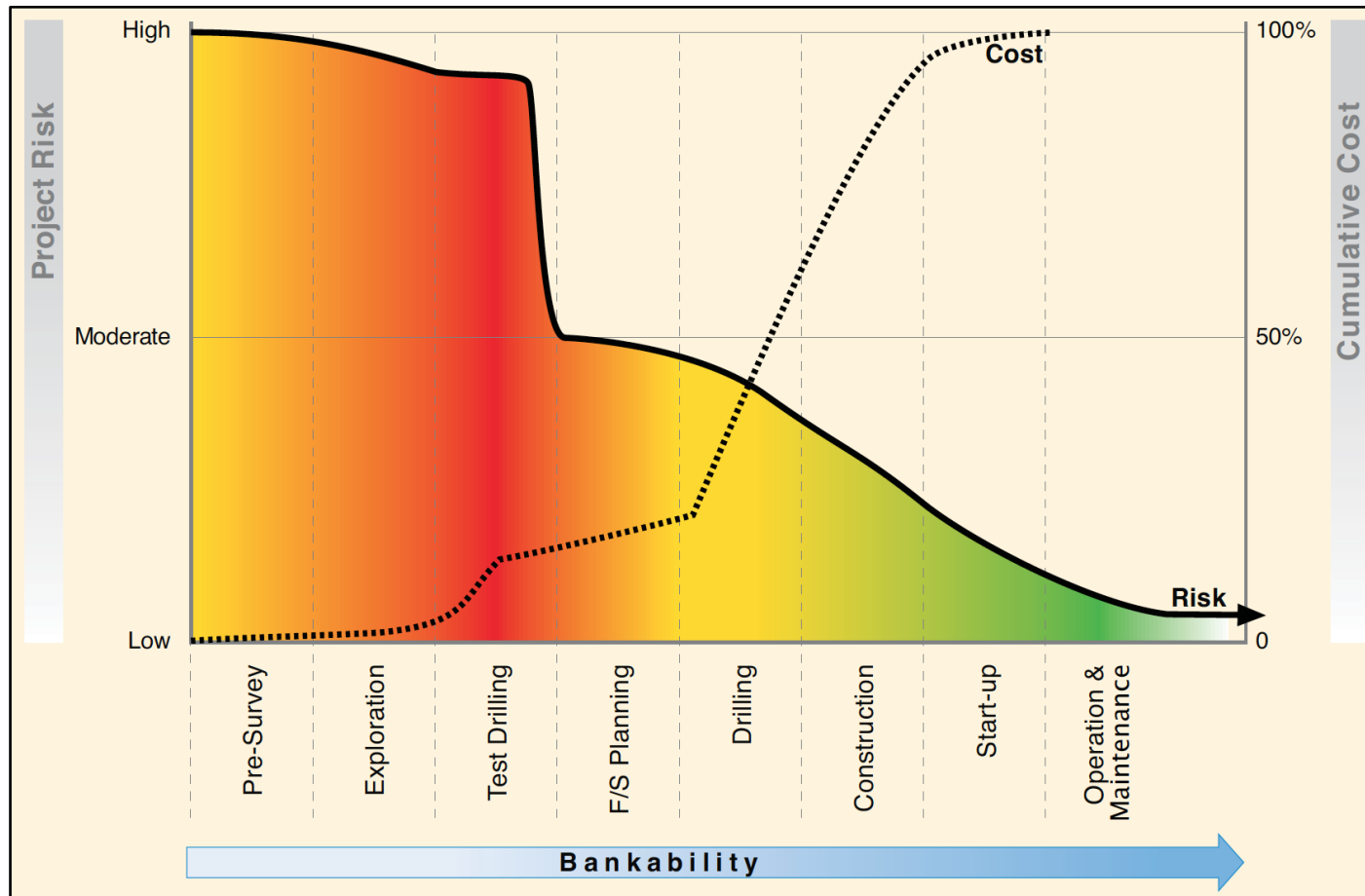


DEGREE: A full value-chain approach

- We address the entire system (not isolated technology)
- Mission-driven co-creation centre
- Five work packages conducts RID, one is focused on management of the centre
- Early positioning in emerging geothermal value chains



DEGREE: An agile centre



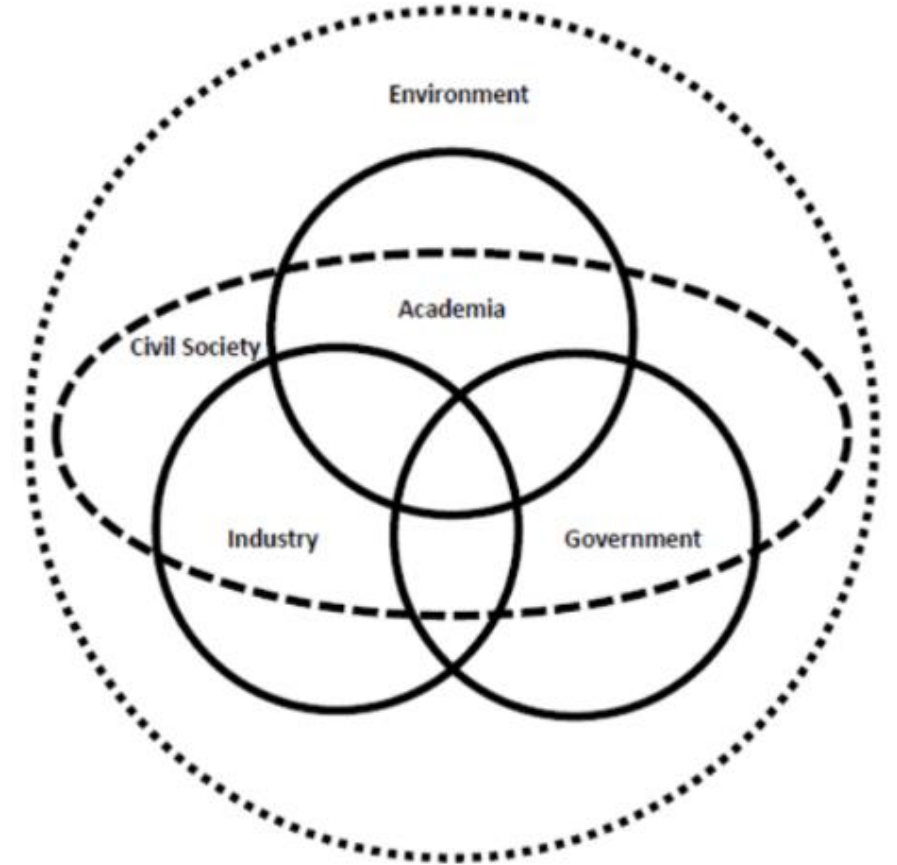
Gehringer and Loksha 2012

- DEGREE – SEA funding (25 MSEK)
 - 7 PhD students
- Fund 8 PhDs & 7-8 postdocs by related projects
 - Structured approach to achieve funding nationally and internationally
 - Knowledge building to tap EU Horizon funding



Partner commitment levels

- DEGREE offers three levels of engagement:
 - **Friends of DEGREE** want to stay informed, contribute to knowledge exchange, and position themselves within the development of deep geothermal energy in Sweden
 - **Associated Partners** take a more active role in the centre's development and gain deeper access to knowledge, collaboration, and project opportunities
 - **Full Partners** are strategic industry partners who actively contribute to the development, governance, and long-term direction of DEGREE



Our offer to FRIENDS of DEGREE

50-99 kSEK/year in-kind

Benefits include:

- Participation in DEGREE co-creation processes and Transition Labs
- Access to seminars, workshops, and webinars
- Access to DEGREE cross-sectoral network
- Exposure to results and technology development (without compromising IP rights)
- Visibility for your organisation through DEGREE communication channels
- Early awareness of emerging collaboration and project opportunities
- Opportunity to initiate and participate in joint project proposals and funding applications



Our offer to Associate partners:

100-499 kSEK/year in-kind and/or cash

Benefits include:

- All benefits included in Friends of DEGREE
- Active participation in co-creation processes and Transition Labs
- Invitation to the annual DEGREE General Assembly
- Early access to results and technology development, with opportunities for knowledge exchange (without compromising IP rights)
- Opportunity to contribute data, infrastructure, and test environments
- Enhanced visibility for your organisation through DEGREE communication channels



Our offer to Full partners:

≥ 500 kSEK/year in-kind and/or cash

Benefits include:

- All benefits included in Associated Partners
- **Innovation leadership:** opportunity to shape and lead Transition Labs and co-creation activities
- **Strategic influence:** representation in DEGREE governance and opportunity to shape research and innovation priorities
- **Talent access:** structured pipeline of postdocs, PhD and MSc students, with opportunities for co-supervision and researcher mobility
- **Innovation collaboration:** tailored workshops and direct engagement with researchers and specialists



Contact & Important Dates

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Communicate if you plan to join DEGREE, and level of commitment: 18 March 2026
(via e-mail maria.ask@geo.uu.se)

Deadline for submission of letter of intent: 23 March 2026
(via e-mail maria.ask@geo.uu.se)

Deadline for application: 31 March 2026

Earliest start of DEGREE: 1 January 2027





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