

INFO DAY FOR TENDERS FOR GRANTS FOR LARGE AND SMALL SCALE PROJECTS IN THE LOW-CARBON TECHNOLOGIES
WITHIN THE FRAMEWORK OF THE EU INNOVATION FUND in Ljubljana, Slovenia

Ministry of the Environment, Climate and Energy of Slovenia *and* Slovenian Business & Research Association, Brussels



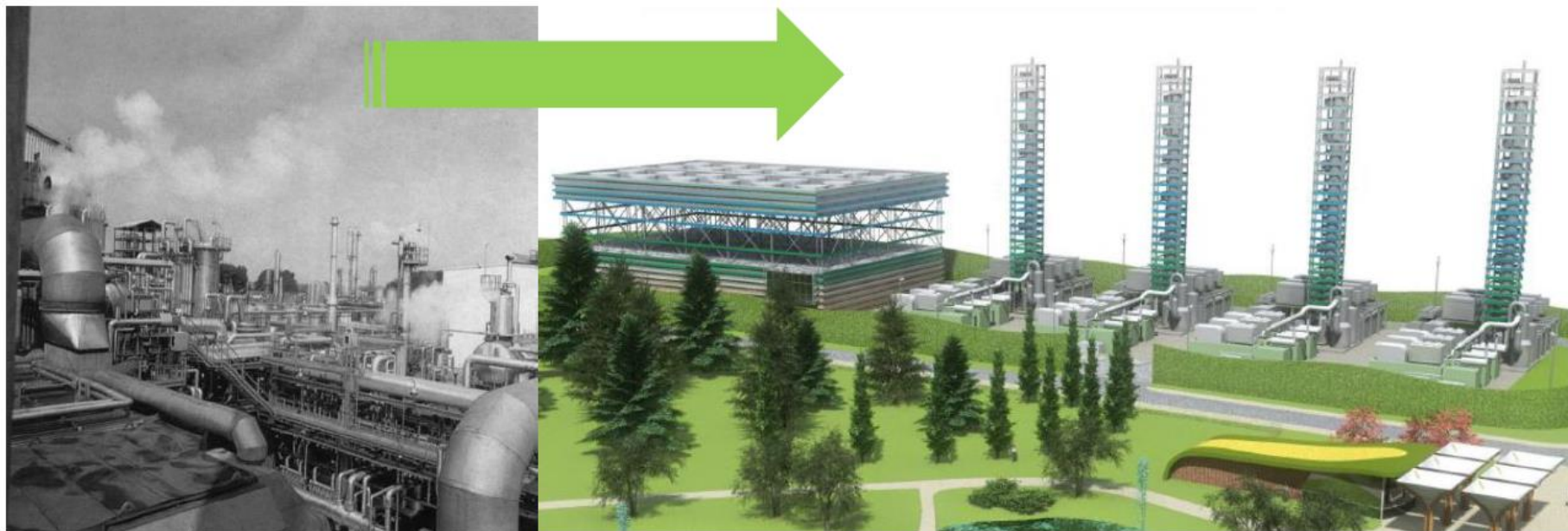
„Green Lendava, Slovenia“

Innovative, baseload & zero emission energy for
sustainable growth and green transition

Ljubljana, 27th January 2023

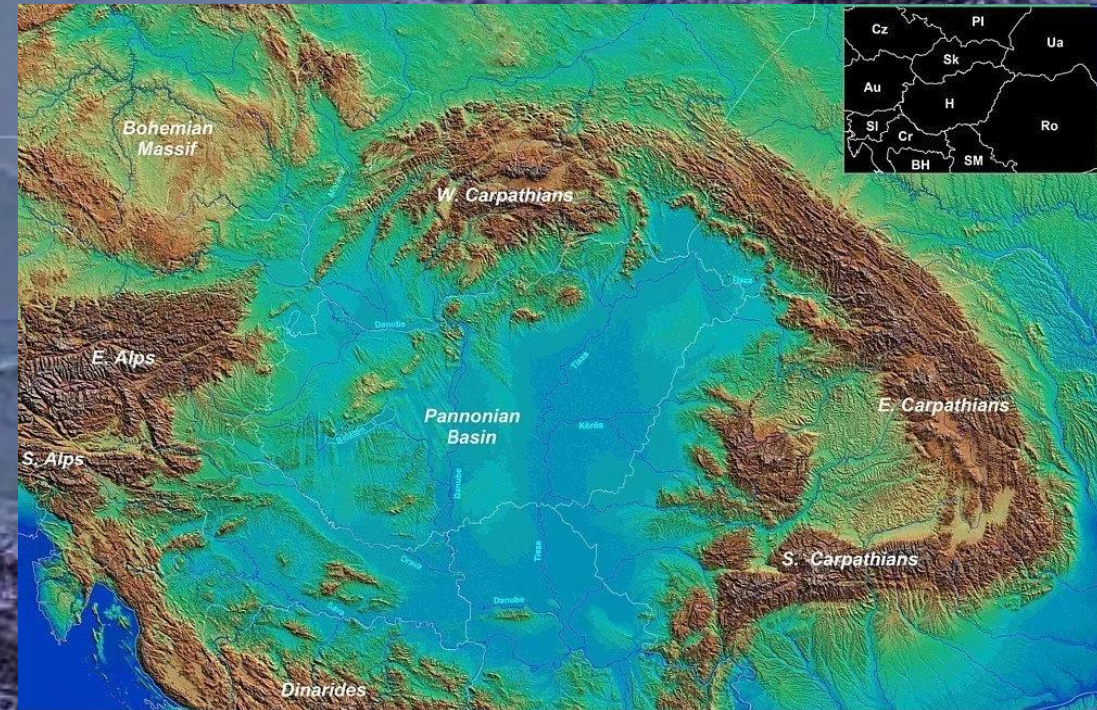
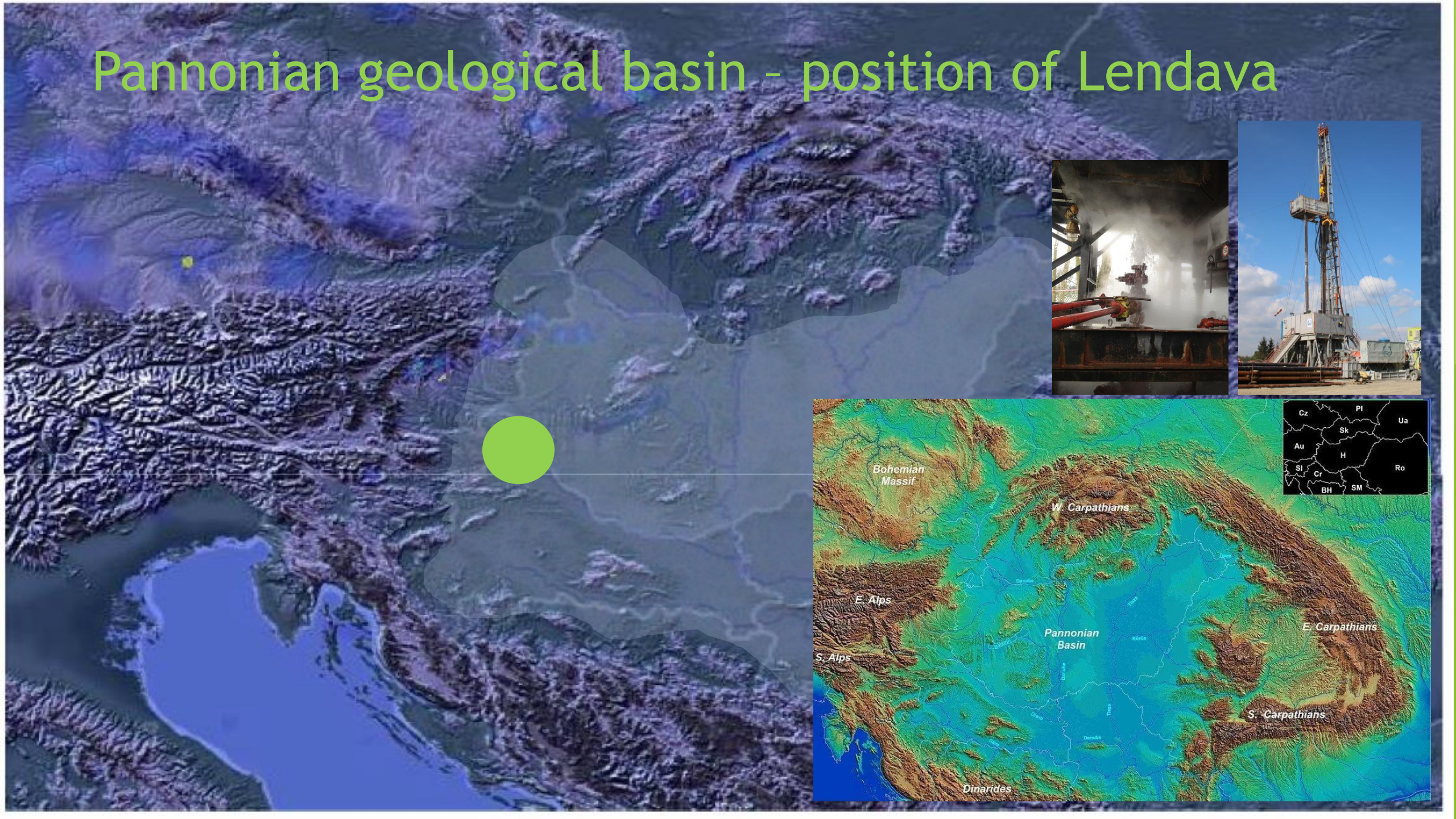
Peter Vesenjāk, advisor to board of CloZEd Loop Energy AG, CH

What is Green Lendava?

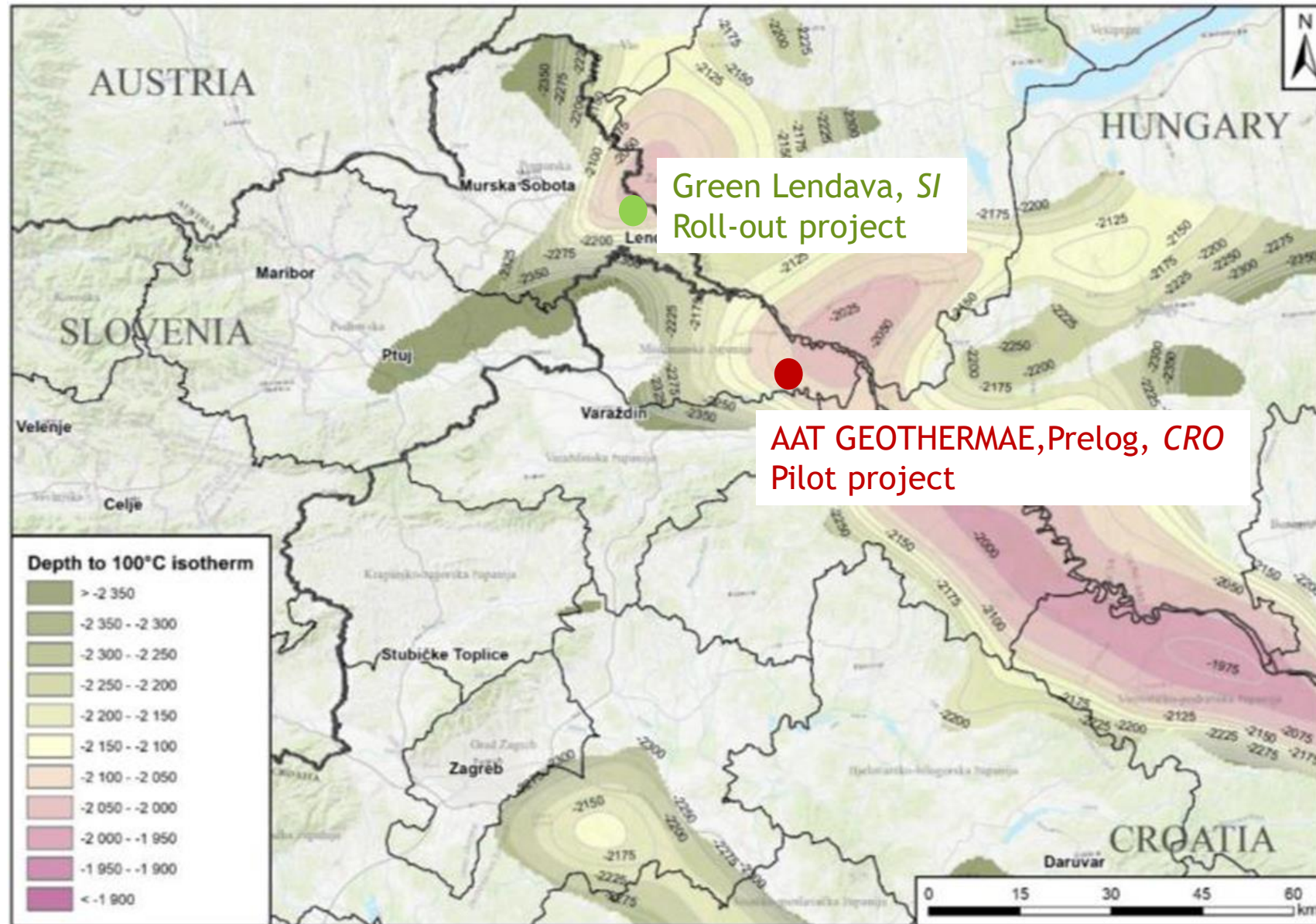


- ▶ Roll-out investment project in development and construction of an **advanced geothermal sourced power plant with baseload production of clean ("zero emission") power and thermal energy**
- ▶ Utilizes and **rolls out innovative technology** awarded by the EU NER300 and the EU Innovation Fund Small Scale programs for innovation in **Croatian pilot project AAT GEOTHERMAE** (www.aatg.energy)
- ▶ **Substantial impact** on the wider energy, economic and social development
- ▶ **Energizing change of the once refinery town into a green hub.** Supply of zero emission power and heat for development of clean industry, agriculture and low cost heat for residents increases the quality of life in the area of Lendava and NE Slovenia region
- ▶ Significant contribution to the **stability of the power grid with its baseload power** delivery
- ▶ 18,6-19,7 MWe gross ($\approx 12-13$ MWe net) + 50-60 MW_{th}
- ▶ $\approx 100 \text{ GWh}_e \text{ p.a.} + \approx 600 \text{ GWh}_{th} \text{ p.a.} \approx 700 \text{ MWh of energy p.a.}$

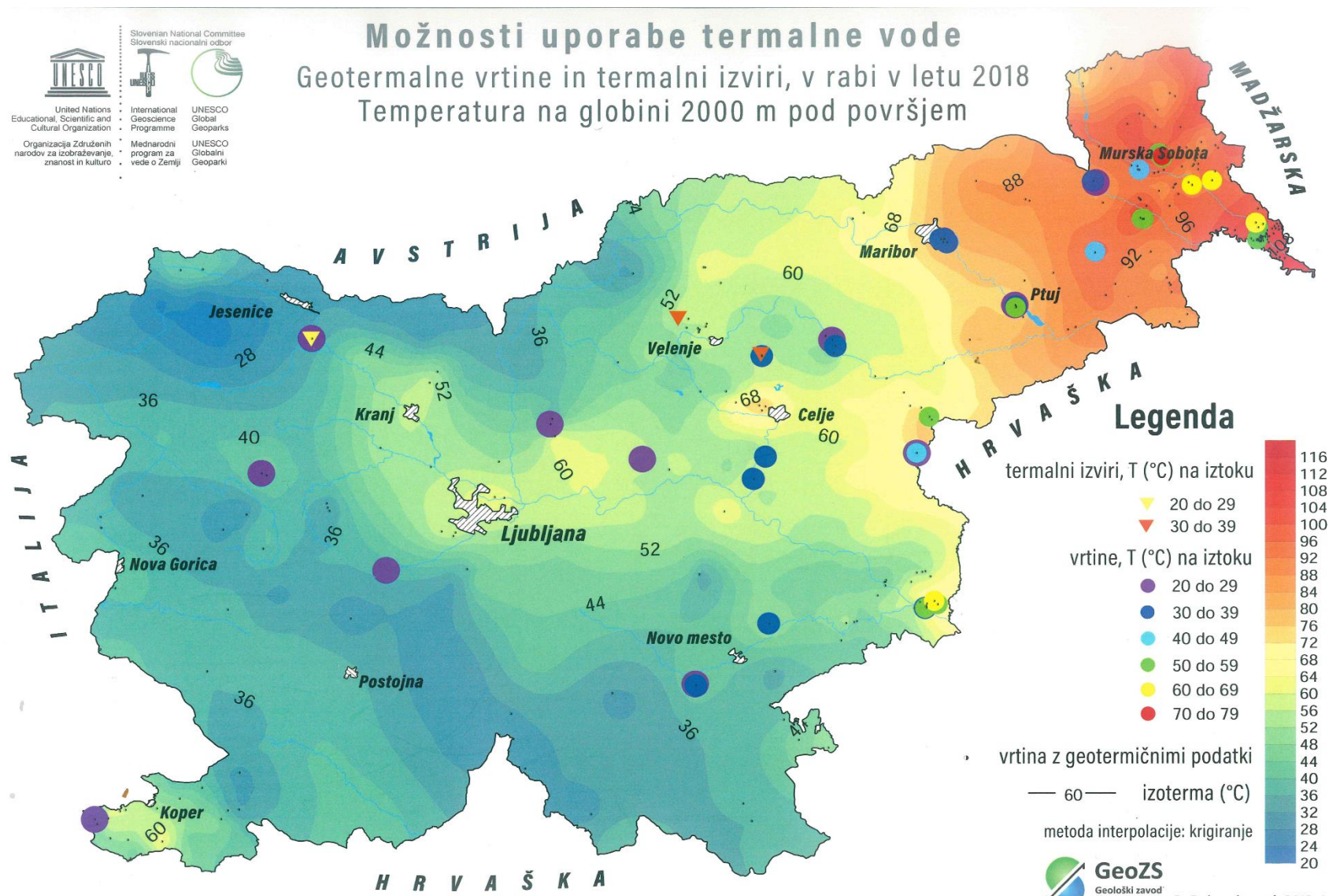
Pannonian geological basin - position of Lendava



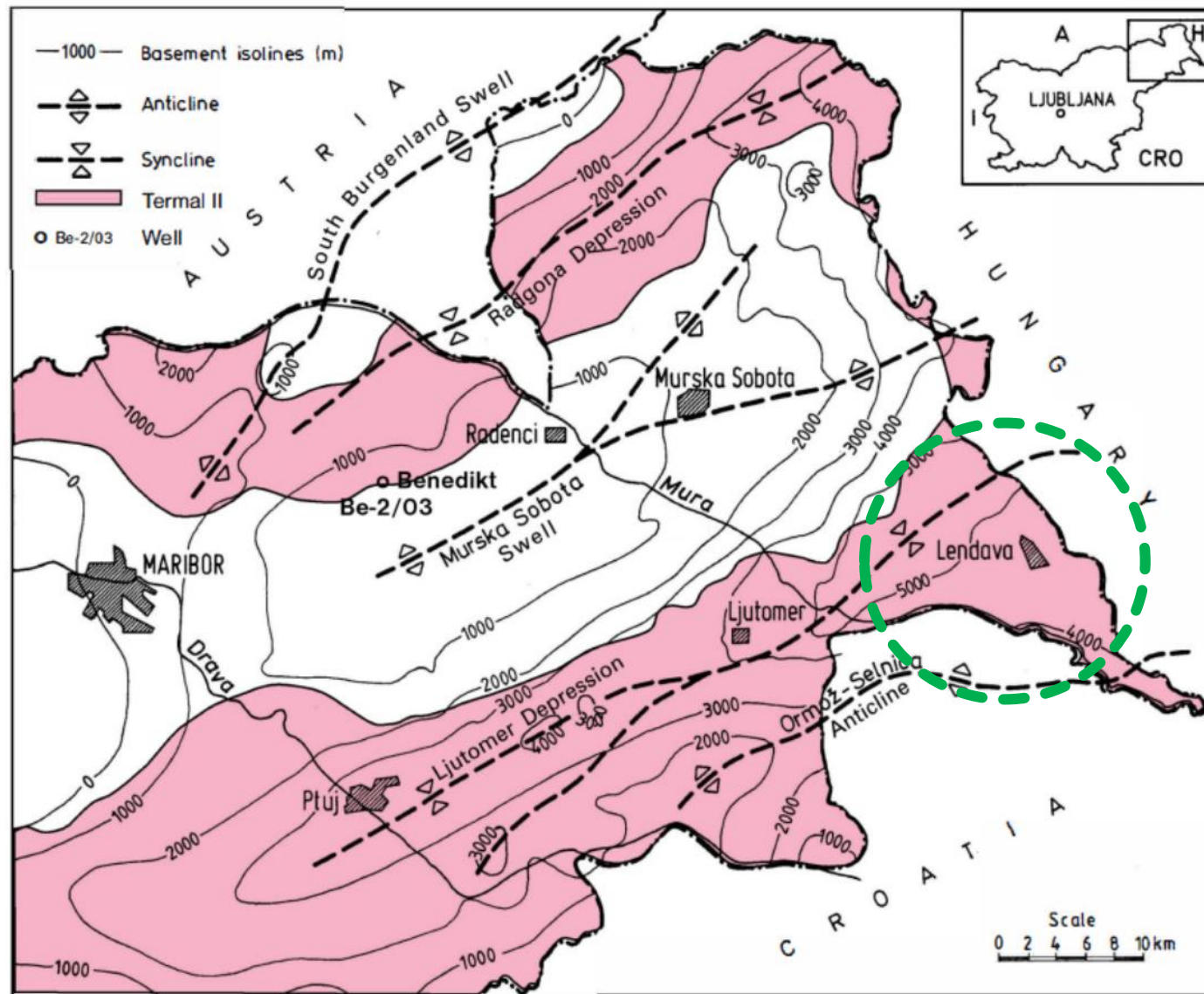
EU geothermal region SI-HU-CRO



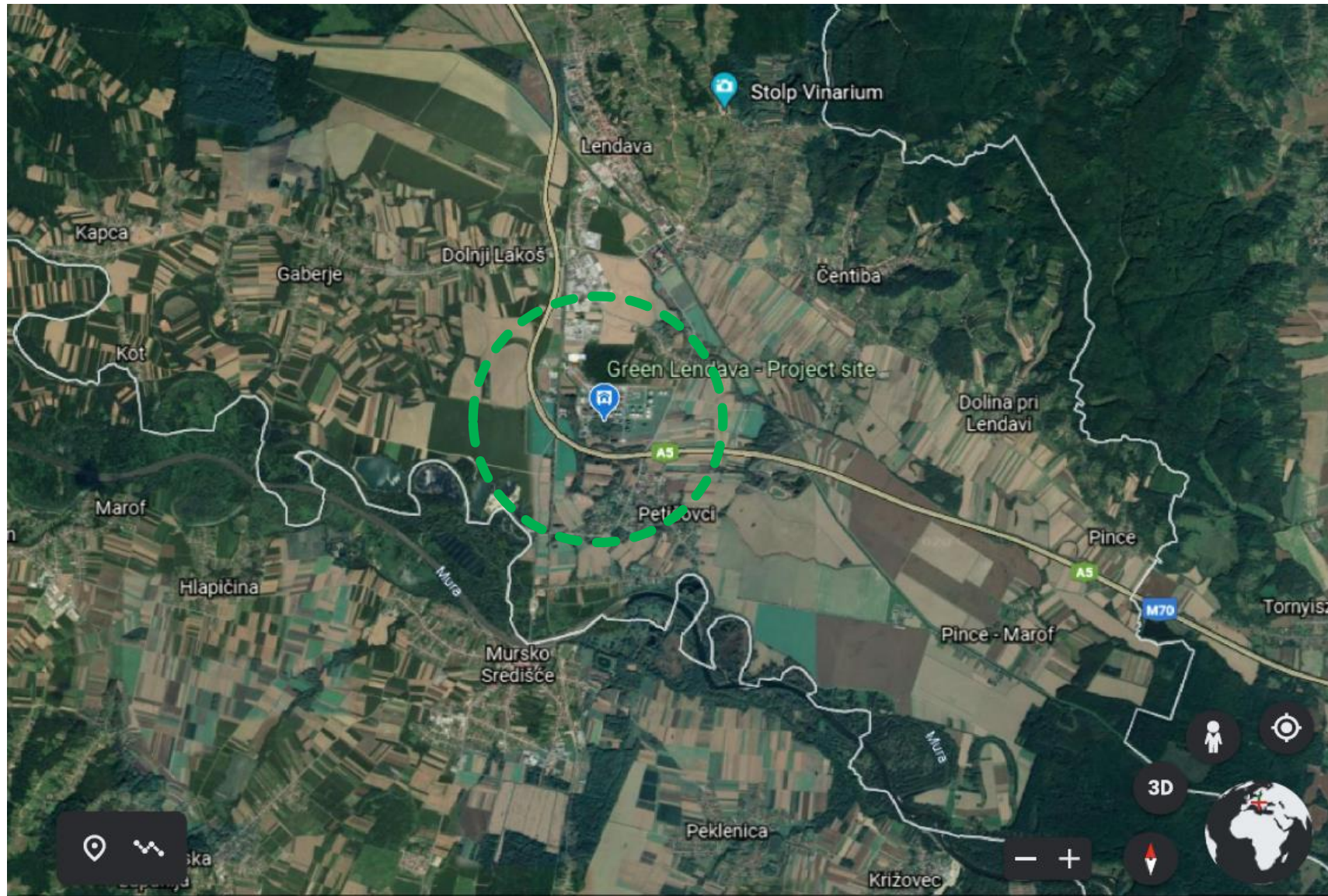
Geothermal Slovenia

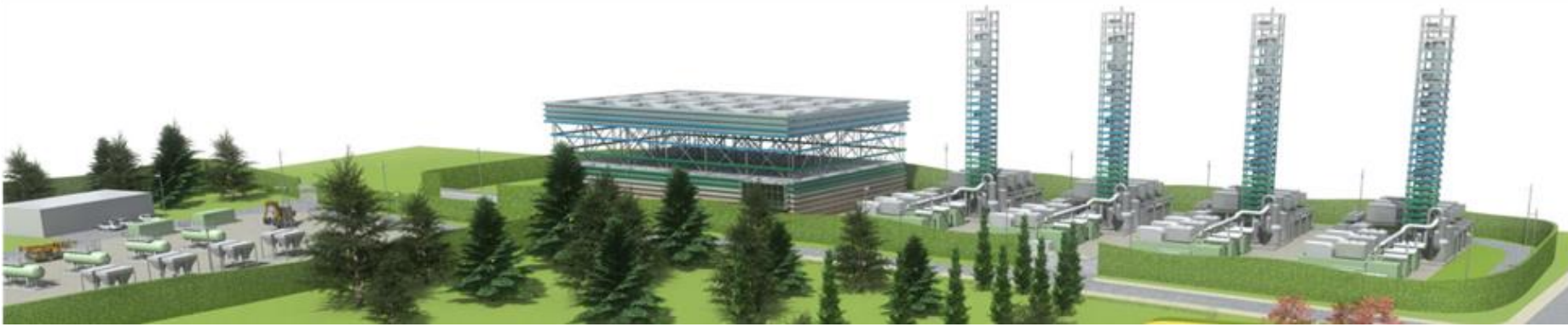


Geothermal potential of NE Slovenia



Green Lendava project site

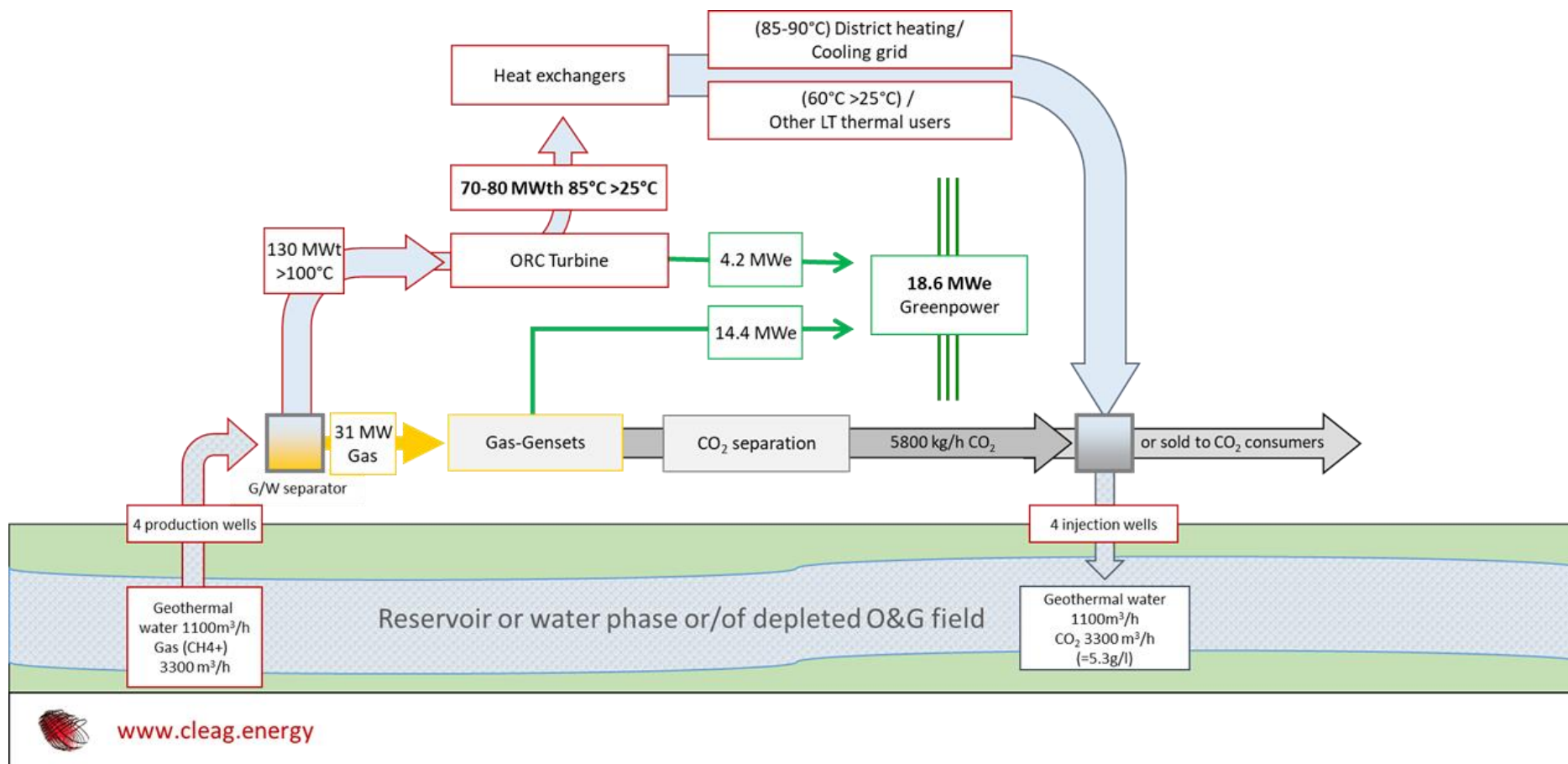




- ▶ Efficient use of energy and reduction of the impact of fossil fuel use on the environment and focus on a green economy and a carbon-free society → 11,250,000 mT reduction of emissions into the environment during the economic life cycle of the project (project emissions: <5 g/kWh in a life cycle of 25+ years)
- ▶ → 18,6 / 19,7 MWe (net 10-12 MW) + 60-80 MW_{th} → 8.200-8.600 h p.a. → 97-105 GW_{he} p.a.+ 600 GWh_{th} p.a. ≈ 700 GWh of energy p.a.
- ▶ Reduction of the need to import traditional energy products (gas, oil) → ≈ 600 Mil. EUR during the economic life cycle of the project (25+ years)
- ▶ Direct and indirect added value job creation in the field of energy and related activities: agriculture, tourism, industry and development of entrepreneurship and quality of life in the environment → potential of 300-500 new jobs, long-term favorable price and baseload supply of thermal energy: district heating for industry, population and entrepreneurs, agricultural production, etc.
- ▶ Promoting the development of stable baseload, new and innovative green technologies and contributing to the well-being and development of the local community and region
- ▶ Diversification of energy production by applying green technologies and at the same time increasing the reliability of energy supply by utilizing local natural resources that are still almost untapped.

Patented innovative technology utilizing full potential of geothermal resource

Advanced geothermal power & heat plant with internalization of carbon compounds (ICC)



„Green Lendava“ project: key info & status

- ▶ Required area of land for development: 5 - 7 ha
- ▶ 3-4 deep directional geothermal production wells + 3-4 directional injection wells in the same geological layer(s) ("Closed Loop") = **a total of 6-8 wells at the same place above the surface** (*no connection pipelines needed*)
- ▶ **Innovation**: energy utilization of the entire geothermal resource, i.e. thermal energy of thermal water + energy of in the same water fully dissolved gases in a closed circuit without emissions into the environment ("zero emission") = **ICC**
- ▶ **CAPEX** → 120 Mil.EUR, **OPEX** → EUR 5 million p.a.
- ▶ Development time until obtaining all permits and FID: 2-3 years, Construction time: 2 years (= a total of up to 5 years from the start of development)
- ▶ Investor: project company (CLEAG SPV) registered in Slovenia, structured by CLEAG + strategic and financial institutional investors
- ▶ Project development started in 2022 by first analysis, planning, established partnerships, defined location and agreed conditional equity for the project development.
- ▶ **Support obtained** by local municipality of Lendava and the relevant Ministry
- ▶ **Project ready to be launched** by mining exploration and energy permitting



„Green Lendava, Slovenia“

Candidate project for next call of InnovFund-LSC
(Innovation Fund Large Scale Projects)



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