

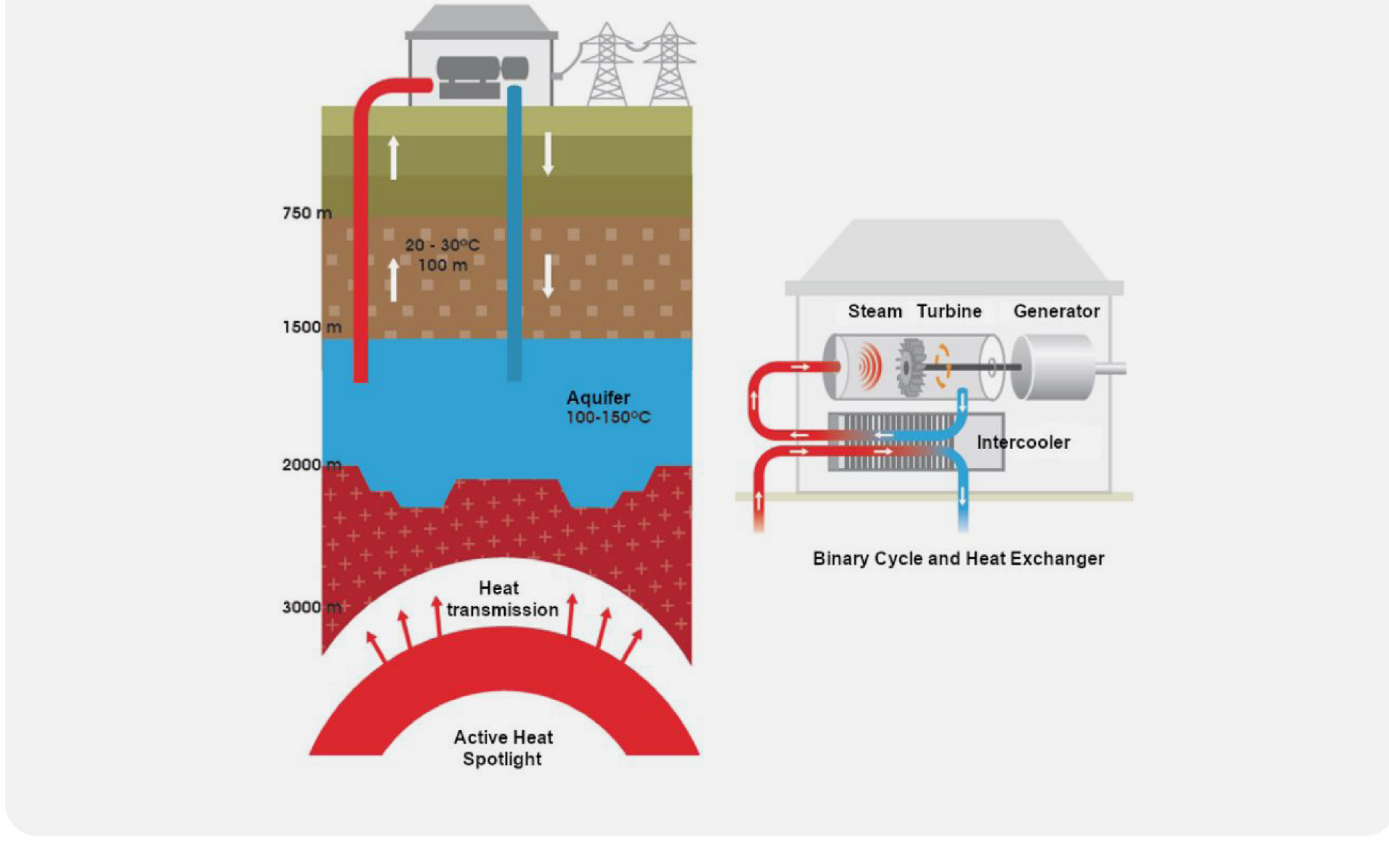


August 2023

## Competitive advantage of post coal mining areas: Mine Water

### A VALUABLE RESOURCE FOR GEOTHERMAL ENERGY, GREEN HYDROGEN, AND RARE EARTH PRODUCTION.

Mine water plays a key role in sustainable energy production and resource extraction. Mine water that floods mines could be a geothermal energy resource. The constant temperature at depth provides a reliable energy source throughout the year. Geothermal heat pumps convert this energy for heating and cooling. Furthermore, mine water could be used for producing green hydrogen through electrolysis. Additionally, mine water is crucial in the flotation process to extract rare earth concentrate from fine coal waste, which will be sold to hydrometallurgical plants for mixed rare earth precipitate production.



Deliverable 2.1 of GreenJOBS project provides a more specific deployment on this topic. More information through the following link: <https://greenjobsproject.uniovi.es/wp-content/uploads/2023/05/D2.1-Geothermal-energy-deployment.pdf>

## Partners

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## GreenJOBS progress

After the first 12 months, the GreenJOBS project is progressing according to the program and the corresponding deliverables for WP2 about emerging renewable energy sources (geothermal, wind, photovoltaic,...) have been completed. At the same time, activities for WP3 are also advancing in the good way. Project has continued with its communication campaign. Main communication actions of the last 6 months are shown below.

### EU Research Fund for Coal and Steel transf. projects for a new era (EURACOAL)



The GreenJOBS project participated in the presentation at the Workshop in the European Parliament (Brussels, Belgium, 23 May 2023).

Prof. Alicja Krzemień presented two RFCS-funded projects concerned with a just transition: POTENTIALS and GreenJOBS which show how accompanying measures and research projects can support green business development models for the coal regions – especially in the energy sector.

### GreenJOBS at 26th World Mining Congress



Presentation of GreenJOBS at the 26th World Mining Congress, titled *Repurposing of coal mines and coal-fired power plants in low-carbon energy transformation process, within the session Advances in best practice for closure and transition (Brisbane, Australia, 26-29 June 2023)* by Mr. Stanislaw Tokarski from the Central Mining Institute of Poland.

## Example of energy transition in Slovenia. The case of Velenje Coal Mine



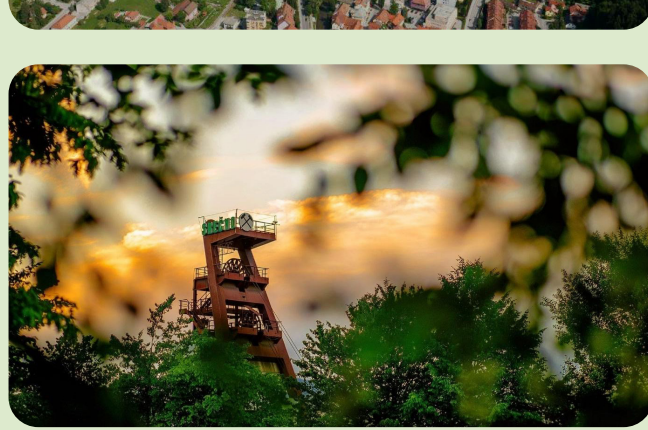
Premogovnik Velenje (the Velenje Coal Mine) is a technologically advanced company with lignite mining as its primary activity. Together with the Šoštanj Thermal Power Plant obtains one third (in dry conditions even more) of the electricity consumed in Slovenia, which is why the coal mine is one of the most important pillars of Slovenian energy. Till today coal mine extracted more than 250 million tons of coal and employees all together with affiliated companies 2000 employees.

**The lignite layer extends below the entire Šaleška Valley up to a depth of 500 meters below the surface. The thickness of the lignite layer ranges from 20 to 160 meters mined by Velenje method.**

For almost 150 years, the Velenje Coal Mine has played a crucial role in the region's socio-economic development, creating numerous jobs and contributing to the city's growth. However, it has also led to adverse effects such as land degradation, house demolitions, and displacement of people, transforming a once green valley into an "industrial miracle" dotted with artificial lakes.

### Slovenia's National Strategy: Phasing Out Coal and Transitioning to a Green, Digital, and Resilient Society

Slovenia's National Strategy aims to transition from coal-based energy to a green, digital, and resilient society by 2033. The plan faces challenges in managing redundancy and achieving economic diversification, where active stakeholder involvement is crucial to ensure a fair and equitable transition. Additionally, maintaining electricity security and competitiveness while implementing the changes poses significant hurdles. The successful rehabilitation and closure of coal mines are projected to take 15-20 years and will provide employment for 400-500 workers.



**The remaining mining infrastructure offers potential for new installations and activities, explored through co-funded development projects. For instance, one shaft could be repurposed for energy, industrial facilities for tourism or new ventures, and degraded areas for renewable energy sources (RES). With coal use ending at TEŠ, alternative heating methods for Šoštanj and Velenje must be found, presenting opportunities for synergies.**

### Exploring Opportunities in Repurposing Mining Infrastructure: New Installations and Activities for a Sustainable Future



The Velenje Coal Mine area offers potential for energy projects like solar power plants and gravity batteries for energy storage.

Utilizing constant temperature mine water with large heat pumps can integrate renewable sources into the energy supply.

**Therefore, despite end of such long and historically rich period, we have to see the closure of the coal mine as an opportunity to change the structure of the economy and speed up the economic and social development of the region.**

### Sustainable Job Preservation and Market Adaptation: The Company's Key Priorities for a Successful Transition



During the transition, careful market planning, exploring potentials, and seeking partnerships with local businesses are essential. Upgrading the Wood Processing Center will benefit SMEs in the wood industry. A circular economy is promoted through a Special Purpose Vehicle for plastic processing and alternative fuel production, enhancing sustainability and innovation in the region's transition.

