Donnerstag, 26. Februar 2026, 16.50 Uhr
Ortenauhalle Kongress 2
Oberflächennahe Geothermie

Thursday, 26 February 2026, 4.50 pm
Ortenauhalle Congress 2
Near-surface geothermal energy

Revolutionizing Geoenergy Project Design and Collaboration: Celsius Design Assistant

Revolutionierung der Planung und Zusammenarbeit bei Geoenergieprojekten: Celsius Design Assistant

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The decarbonization of the built environment demands innovative tools to accelerate the adoption of geoenergy solutions, yet the industry continues to face significant challenges. These include the time-intensive nature of system design, fragmented workflows, and the complexity of integrating technical, economic, and environmental considerations. To address these barriers, Celsius Energy has developed the Celsius Design Assistant, a web-based application that delivers rapid, accurate, and collaborative techno-economic assessments of geothermal energy systems.

The Celsius Design Assistant is designed to optimize the entire pre-design process for geoenergy projects by integrating advanced algorithms and models that simulate geothermal system performance within the context of specific building typologies, energy demands, and site characteristics. By leveraging these models, the platform provides energy managers and engineers with highly accurate dimensioning of geothermal systems while evaluating their financial feasibility and environmental impact. Additionally, the Celsius Design Assistant incorporates a scenario-generation engine that allows users to compare multiple design options in terms of cost, energy efficiency, and carbon footprint reduction, enabling data-driven decision-making.

The total amount of human labour is reduced by a factor of at least 10, representing savings of several thousand euros per pre-design, which is essential for scaling up.

Unlike traditional commercial software, the Celsius Design Assistant is engineered to facilitate collaboration across multidisciplinary teams. Its architecture balances computational rigor with user accessibility, exposing only the necessary level of technical complexity to streamline workflows. The platform also integrates seamlessly into Celsius Energy's broader value chain, ensuring continuity from early project conception through to detailed design and execution.

This presentation will delve into the development and architecture of the Celsius Design Assistant, including its underlying modeling frameworks, user-centric interface design, and its impact on reducing project development time. Case studies from early deployments will be presented to illustrate the tool's effectiveness in providing optimized geothermal energy solutions and engaging clients in technical and financial discussions. Furthermore, the presentation will explore

how the Celsius Design Assistant contributes to the promotion of geoenergy as a cornerstone of carbon footprint reduction strategies in the building sector, aligning with net-zero goals.