GEOFLEXheat

spike RENEWABLES

RETEGEOTERMICA

ALL ABOUT OUR ITALIAN DEMO SITE

Amiata Energia, Bagnore, Italy

The objective is to develop and test **innovative scaling prevention** and management solutions to **improve the reliability and efficiency of geothermal energy production**. The site focuses on **two key challenges: stibnite (Sb_2S_3) and silica (SiO_2) scaling** — common issues in high-enthalpy geothermal systems.

PROCESS OVERVIEW

Step 1: A specialized chemical inhibitor is injected before the heat exchanger to prevent stibnite scaling.
Step 2: The brine is cooled from ~200 °C to ~80 °C through the heat exchanger.
Step 3: A second chemical treatment promotes controlled silica precipitation, followed by filtration to remove deposits.

Monitoring and optimization

The system continuously tracks temperature, pH, and concentrations of silica, antimony, and sulfide, enabling real-time adjustments to chemical dosages and flow conditions.

EXPECTED IMPACT

- Prevents scaling and equipment fouling
- Increases operational efficiency and heat recovery
- Reduces maintenance costs and downtime
- Demonstrates how geothermal flexibility can support cleaner and more sustainable heat production

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