Introducing GEOFIT

Easy-to-install, economical and enhanced geothermal systems for energy efficient building retrofitting
OUR RESPONSE

**GEOFIT: Economical enhanced geothermal systems for energy efficient building retrofitting**

- **4 year** H2020 project (May 2018-April 2022)
- **24 Partners**
- Innovation Action supporting the H2020 Societal Challenge of Secure, Clean and Efficiency Energy
- Part of INEA’s Energy Portfolio (Low Carbon Economy (LCE), Renewable Energy Technologies (RET))
- **€ 9.7 million cost / € 7.9 million funding**

INEA currently oversees 17 Geothermal projects with a total funding of €125 million (May 18)
PROCESSES: PLANNING, INSTALLATION, OPERATION

Technology toolsets to support the building processes around the technology couplings

- Planning
- Installation
- Operation

- BIM / Survey / Baseline
- Drilling, Monitoring & Integration
- Heating and cooling systems
- Hybrid GSHP
- Novel GHEX
- Geothermal as a smart asset

Concept image courtesy of partner Uponor
SHALLOW-EARTH HEAT EXCHANGER CONCEPTS COUPLED TO INNOVATIVE DRILLING TECHNIQUES
GROUND PENETRATING RADAR, UAV SURVEYS, AND MONITORING TO REDUCE RISK

Images from partner IDS Georadar & R2M Solution
NOVEL TECHNOLOGIES AND INTEGRATED SYSTEM CONCEPTS DELIVERING ULTRA-EFFICIENT HEATING AND COOLING SOLUTIONS

Radiant heating and cooling
Thermally active slabs
Manifold stations
Geothermal energy stations
Controls

Zeolite Crystallization

Images from partner Uponor, Fahrenheit, CNR, Ochsner
GEOTHERMAL SYSTEMS AS FLEXIBLE ASSETS, BIM AT THE BUILDING LEVEL AND LINKED INTO BIM AT THE CITY INFORMATION MODELLING LEVEL

Enervalis

Enables the “Internet of Energy” to support next generation mass-market Energy Services As a Service

Images from partner Uponor, Fahrenheit, CNR, Ochsner
(OPEN) PILOTS

Sant’Apollinare Demo Site
Historical Building: Conference/Office Center

San Cugat Demo Site
Primary school

Talence Demo Site
Office Space

Galway Demo Site
NUIG Kingfisher Sport Center

Aran Island (IE)
Residential

4 Countries, 5 Building Types, Different Soil Conditions, 3 Different Climates
KPIS

KPI1 - Integrated management framework
• 30 % cost-time deviations (from project design to as-built phase)

KPI2 - ICT Tools, for ground research and worksite monitoring
• Radar technologies
  • Detection of more than 80% of assets detectable
  • Interface with ArcGIS, Google Street, OpenMap and Bing
  • Displacement measurement on site
• Building stability monitoring
  • Accuracy better than 0.1 mm
  • Higher than 4 mm
  • Lower than 15 s
KPIS

KPI3 - Drilling technologies
• 10% – 20% drilling time reduction
• Up to 40 % rate of penetration (ROP) improvement

KPI4 - HEX development
• Reduction of uncertainty in performance predictions by 30 – 50%
• Reduction of installation cost of 10-15%

KPI5 - GSHP
• Reduce running costs by 30 %
• Reduce initial costs by 10%

KPI8 - Demonstration
• Reduce cost deviations for design to as built in 30 % in retrofitting
• Reduction of 60% of energy consumption
Thank you for your attention

Find out more at www.geofit-project.eu
Write us directly at info@geofit-project.eu