R&D PROJECT

PROJECT PARTNERS

Comsa Corporación
IDP engineering
R2M Solutions SRL
CNR – ITAE
Ajuntament de Sant Cugat
University of Perugia
IDS georadar
Ocshner GmbH
Nobatek Technology Center
Austrian Institute of Technology
Catalana de Perforacions
Uponor
Nationan University Ireland Galway
Farenheit GmbH
Enervalis
Luleå University of Technology
Groenholland NV
Kungliga Tekniska Högskolan
Fundació Eurecat
Comet Technologies
SIART Srl
Comharchumann Fuinnimh OIleáin
Carel Industries GmbH
Aenor

DURATION

2018-2021

BUDGET

Consortium budget

€ 9.700.000

COMSA Budget

€ 961.000

COMSA Funding

€ 784.000

COORDINATOR

COMSA

CALL / TOPIC

LCE17

Project Title

Deployment of novel Geothermal systems, technologies and tools for energy efficient building retrofitting

Acronym

GEOFIT

PROJECT CONTENT

State-of-the-art

Heating and cooling system retrofitting solutions. Geothermal retrofitting has been considered as one of the most efficient and renewable approach to attain sustainability goals for existing buildings. From a technical perspective, heating and cooling (H/C) system retrofitting is defined as upgrading existing building performance over the long-lease term, such as by increasing energy efficiency, decreasing overall energy demand and providing better indoor environment for occupants10 . However, largescale implementation of easily installed and efficient H/C solutions is still plagued by lack of technical guidelines and efficient decision-making methods for existing European buildings. Industries have shown evidence that geothermal retrofitting in EU market has typically been conducted on a case-to-case basis over decades, and only occasionally in building clusters or climate basis11 . For H/C solutions-, the prevalent approach is time-demanding due to non-prefabricated H/C components, and the overall system installations and commissions are expensive. Previous technical directives from industries largely focus on individual building stock, commonly requiring multiple visits with major disturbance to the indoor environment and occupants. More systematic and well-integrated H/C solutions with geothermal were not sufficiently attained in retrofitting guidelines and technical development. Evaluation of sustainability and feasibilities of such retrofit options is not well covered in business as usual practices. As a result, following the previous innovation level how to select the suitable up-to-date H/C components and further combine them with geothermal supply, such as ground-source heat pump (GSHP), has come to be a major target in EGS development

General objectives

As retrofitting is a complex and global process where decisions cannot be taken in isolation, there is an obvious need to devise an enhanced methodology, supported by an appropriate suite of tools, encompassing new concepts for comprehensive retrofitting that will satisfy occupant requirements and comfort needs while also achieving substantial reductions in energy use. Therefore, GEOFIT has as overall objectives:

1 The development of innovative EGS, systems

2 Deploy and integrate advanced methods of worksite inspection, ground research, building structural monitoring

3 The implementation of a global, effective, energy-efficient retrofitting strategy for the stock of existing buildings in Europe

Project tasks

- WP1 establishes the baseline and Framework
- WP2- are ICT tools software tools or construction technologies
- WP3-WP4 are parallel technology developments
- WP5 Integrate developments of WP3-WP4 in an integrated system
- WP6 is the result of WP1 and WP2 specifications
- WP7 are demonstration sites where we implement all previous developments
- WP8-WP10, interact with the technical activities along the project