

# Deliverable D6.5

## Life Cycle Analysis

### WP6

**Grant Agreement number** 792355

**Project acronym** GEO4CIVHIC

**Project full title** Most Easy, Efficient and Low Cost **Geothermal** Systems for Retrofitting **Civil** and **Historical** Buildings

**Due date of deliverable** 28/02/2023

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#### ***Dissemination Level***

<b>PU</b>	Public	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	<b>X</b>
<b>CI</b>	Classified, as referred to in Commission Decision 2001/844/EC	

## **Publishable summary**

The D6.5 “Life Cycle Analysis” is a confidential document delivered in the context of WP6, Task 6.4: Life Cycle Analysis and evaluation of carbon footprint with regard to the environmental assessment of GEO4CIVHIC developments.

This document is the final version of D6.5 “Life Cycle Analysis” to be submitted on 31st of February 2023 and it aims to show the results of the environmental analysis with life cycle perspective for very low temperature geothermal systems developed in the framework of the GEO4CIVHIC project.

The study includes the analysis of the four real case studies of the GEO4CIVHIC project. The case studies are located in Malta, Ireland, Belgium and Italy and provide a broad overview of different climatic conditions, building types and uses.

Within the study, 11 different environmental impact assessment categories, 3 indicators related to the use of resources and 3 indicators of waste production have been calculated. Together, they provide a wealth of information on the environmental and energy performance of the systems studied.

In addition, the study includes a literature review on environmental systems, an in-depth analysis of the manufacturing phase of the heat pumps and heat exchangers, and a comparison of the results of the GEO4CIVHIC case studies with other traditional geothermal systems and other thermal technologies.

Most of the partners involved in the project contributed their expertise to this study and a lot of data has been collected and analysed with valuable results on the environmental impact.

The results show the environmental benefits of the geothermal systems developed in the GEO4CIVHIC project