



Deliverable D1.4

# Business Metrics I

Period September 2020- September 2021

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Issue Date:	06/12/2022	Dissemination level:	Public



The GEO-ENERGY EUROPE project was funded by the European Union's COSME Programme under Grant Agreement N° 951195. The content of this deliverable represents the views of the author only and is his/her sole responsibility; it cannot be considered to reflect the views of the

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## **Table of contents**

<b>1)</b>	<b>History Of Changes</b>	<b>1</b>
<b>2)</b>	<b>Executive Summary</b>	<b>2</b>
<b>3)</b>	<b>Methodology</b>	<b>3</b>
<b>4)</b>	<b>Business Metrics &amp; Capacity Building Content</b>	<b>4</b>
<b>5)</b>	<b>Business Development And Capacity Building Activities Through Engagement</b>	<b>5</b>
<b>6)</b>	<b>Conclusions</b>	<b>7</b>
<b>7)</b>	<b>Annex 1</b>	<b>8</b>

## 1) History of Changes

All changes were reviewed on the 6<sup>th</sup> of December 2022.

- **Updated the Executive Summary** the new timeline of the project, the objectives of GEE2 and the business clusters that compose the consortium of the project;
- **Removed the cluster operational metrics and deliverables metrics** for these were project metrics and not SMEs business metrics regarding the winning of work in the target countries;
- **Added a chapter on the Methodology** used to collect the business metrics in each business cluster;
- **Added a chapter on business metrics and capacity building content** that lists the monitored business metrics under the GEE2 project;
- **Removed the following chapters:** Turnover Derived from Operations in Third Country Markets, Contracts won in third country markets, Contracts won in third country markets, Number and relevance of procurement opportunities that are followed up on by member SMEs, Assessment of tenders reported in Think GeoEnergy over the GEE2 duration. The metrics were analysed and shared on the new chapter 5;
- **Updated the conclusions chapter** taking into consideration the covid-19 travel restrictions and the feedback of the business clusters regarding the focus of their SMEs.
- **Added an Annex** summarising the capacity activities on the geothermal sector that GEE2 members attended and/or promoted by GEE2 partners.

## **2) Executive Summary**

The purpose of the Business Metrics is to track and quantify the achievements and success of the GEO-ENERGY EUROPE Strand 2 (GEE2) meta-cluster in relation to its objectives and the activities related to the winning of work in third country markets. The lifetime of project GEO ENERGY EUROPE 2 runs for two years and three months between September 2020 and November 2022. The consortium comprises seven business cluster partners, forming a meta-cluster of European SMEs in the geothermal energy sector supported by Geological Survey Ireland as coordinator and European Geothermal Energy Council as the communications leader.

The clusters involved are:

1. French Geothermal Association of Professionals- GEODEEP (France)
2. Pôle AVENIA (France)
3. Cluster of Applied Earth Sciences- CAPES (Hungary)
4. Jeotermal Elektrik Santral Yatırımcıları Derneği- JESDER (Turkey)
5. GEOPLAT (Spain)
6. Geo Energy Celle (Germany)
7. Consorzio per lo Sviluppo delle Aree Geotermiche-COSVIG ( Italy)

The key aims and objectives of the GEE2 project are listed below and these align with the need to monitor the business metrics of the clusters in the markets of the four target countries: Canada, Chile, Costa Rica and Kenya.

- Presentation of tailored strengths of the member companies to target markets.
- Supporting transition to the green economy, utilising existing skill sets in subsurface geoscience.
- Developing new sustainable services, drawing knowledge from more traditional subsurface activities.
- Supporting the expansion of employment in niche scientific and engineering related disciplines.
- Sustainable application of subsurface knowledge, supporting the harnessing of geothermal energy.
- Enhancement of business development and capacity building activities through engagement.

The present business report covers the period from September 2020 to August 2021

### **3) Methodology**

The methodology determined to collect the needed data was through a survey sent to each business cluster part of the consortium with the aim of evaluating the performance of the meta-cluster member SMEs in the third country target markets. Under the terms of the grant agreement, the business metrics were scheduled for collection yearly: at the end of the first year (August 2021) and at the end of the project (November 2022); the first survey also asked for the business metrics at the beginning of the project as a base line for the analysis.

The geothermal industry suffered the consequences of the Covid-19 pandemic in 2020 and 2021. Positive trends from previous years came to a standstill due to health risks and travel restrictions. Several projects were stopped in their tracks, various others faced delays. For many developers, 2020 and 2021 were difficult years, as they faced delays in their ongoing projects and greater hesitation from investors and potential customers. The GEE2 project was also affected and fundamentally changed by the Covid-19 restrictions; plans to interact globally through the market visits were postponed, SMEs and economies were forced to look for local resources, including energy sources. It became clear that the SMEs members of the clusters needed to refocus on their own natural and in-place energy resources for heating of residential areas and small industries, and for the agrifood and transport sector.

Consequently to Covid-19 restrictions, all foreseen market visits to the target countries were postponed pending lifting of travel restrictions which, as it transpired, none of the market visits happened in the present reporting period. The Market Visits were scheduled for the second year of the project, from April 2022 onwards.

Attempts to engage with the member SMEs via the clusters leaders had a limited traction and precluded the collection of meaningful data to meet key requirement of the present report, such as guidance on future procurement opportunities and activities.

#### **4) Business Metrics & Capacity Building**

One of the main goals of the GEE2 project was to give the meta-cluster members tools for capacity building and knowledge to help them export their services to other country markets, especially if member companies were not be successful in the acquisition of businesses in the third country markets (Canada, Chile, Costa Rica, and Kenya). **Capacity building content** was delivered to rectify any issues that become apparent when organising the market visits.

Clearly, given the prolonged uncertainty around Covid-19 restrictions, it became apparent that the SMEs chances of success in delivering business in the third country markets were limited. Hence, it was decided to progress with capacity building content which would be beneficial, particularly in cases where clusters could make meaningful progress during the covid-19 period. It proved to be particularly more successful for some of the clusters.

The metrics were design to gauge the success of the GEE2 activities related to the winning of work in the third country markets. The metrics include:

1. Turnover derived from operations in third country markets (10% minimum threshold),
2. Contracts won in third country markets,
3. Jobs created over the project period, and
4. Number and relevance of procurements opportunities followed up by member SMEs.

Turkey, for example, continued the scaling up of its capacity by adding 30 MWe in 2021. It also has potential for high temperature power plants but has an increasing demand of electricity as the economy grew. In the case of the Turkish cluster, JESDER, a summary of their events are included in Annex 1. This is clearly evidence from the capacity building activities undertaken by JESDER in Turkey over this reporting period, JESDER also reported healthy turnover of €130,000 in this 12-month period, with a modest increase in jobs (see Table 1).

The COSVIG cluster also performed impressively during the 12-month period, generating €130,000 in turnover with two new contracts, one additional employee, spawning three follow up business lead.

The remaining clusters did not fare as well in terms of business metrics but participated in a number of standalone and collective capacity building events to engage with potential collaborative partners in the target countries.

## **5) Business development and capacity building activities through engagement**

In May 2021, the partners of the GEE meta-cluster met online with representatives of the Canadian geothermal sector to exchange ideas concerning the prospects of future cooperation and collaboration between European and Canadian companies involved in the geothermal sector around the development of international projects. This online meeting was in preparation for the future *in loco* market visit and provided a step in the consolidation of the relationship between the Canadian geothermal sector and the European geothermal industry and served as a useful capacity building event. Both regions are something of an outlier in the geothermal world, putting a stronger emphasis on the development of geothermal heating and cooling than on the conventional geothermal power. It was learned that there were significant prospects in the Canadian West for the development of geothermal district heating and cooling networks for cities, agricultural and industrial uses. The country also has a largely untapped potential for geothermal power production relatively close to major urban and industrial centres in British Columbia and Alberta.

During this virtual meeting the GEE2 business clusters had the opportunity to present its expertise and unique collective, offering that can benefit the Canadian participants. Each partner presented their cluster characteristics and added value. Both the Geological Survey of Canada and the Geothermal Canada gave insights into the potential of entering and developing the Canadian market, including an overview of Alberta No.1 - Alberta's first geothermal energy facility. GEE2 participants gained valuable knowledge and can gauge the next steps on how to approach and enter the Canadian market. Terrapin Geo, a Canadian SME focused on emission-free energy projects, provided insights into business operations in the Canadian market and potential areas for collaboration.

At the end of July 2021, GeoScience Ireland attended an online meeting with the Embassy of Kenya to discuss support to the development of natural resources in Kenya. It was learned that the Kenya Energy sector was especially interested in exploring opportunities for technology transfer with geothermal and mining among the main activities discussed. The Embassy agreed to assist with contacts in the Geological Survey of Kenya and with the Kenyan geothermal industry contacts, including KenGen and the Geothermal Development Company.

A GEE online meeting, as preparatory work for the Kenya market visit, took place on August 2021. Present were the Director of Geological Survey Ireland, KenGen's Assistant Manager Resource Development, and GEE2 partners representatives from EGEC, CAPES, CoSviG-DTE2V, JESDER, Pole AVENIA, GeoDeep and Geoscience Ireland.

These capacity building events led on to other contacts and agreement discussions between GEE2 with both the Geophysical Development Company (GDC) and KenGen.

TABLE 1	CAPES	CELLE	COSVIG	EGEC	GEODEEP	GEOPLAT	GEO SCIENCE IRELAND	JESDER	POLE AVENIA	TOTALS
Geo Energy Business Monitoring Metrics Questionnaire	Report Month 13	Report Month 13	Report Month 13	Report Month 13	Report Month 13	Report Month 13	Report Month 13	Report Month 13	Report Month 13	Report Month 13
	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21	Sept 20-Sept 21
Turnover from target third country markets	0 €	€ 0	€ 150,000	€ 0	€ 0	€ 0	€ 0	€ 130,000	€ 0	€ 280,000
Contracts won in third country markets	0 #	# 0	# 2	# 0	# 0	# 0	# 0	# 0	# 0	2
Jobs created over the project period	0 #	# 0	# 1	# 0	# 0	# 0	# 0	# 1	# 0	2
Number of relevant SME procurement opportunities	0 #	# 0	# 3	0 #	# 0	# 0	# 0	# 0	# 0	3

**Table 1 – Business Metrics for the first 12-month period**



## 6) Conclusions

The results of the business metrics survey were reviewed and used to refine the collection of procurement opportunities information of relevance to the member SMEs in the second period of the project. There was significant activity and employment in the geo-energy space across the globe; this was apparent after 12-months of the GEE2 cluster carrying out extensive market research, following a successful first strand of GEE, and having made connections in three out of four target countries throughout the first year of GEE2.

Geothermal energy is on the radar of governments across the world and more and more presents development opportunities across the entire range of the skill sets that GEE2 covers.

The GEE meta-cluster has the advantage of being diverse and highly skilled, considering the expertise and scope of the business clusters that compose the meta-cluster. The services and expertise among its members, as well as the geographical reach and range of experience globally, across the entire value chain of deep geothermal and in all aspects of geothermal energy, gives GEE2 an excellent opportunity to promote and export European SMEs knowhow and services.

GEE2 partners will continue to engage with and seek opportunities within Canada, Chile, Costa Rica and Kenya. GEE2 will exploit relationships previously made and progress connections with potential promote its objectives.

The cluster has faced unforeseen challenges throughout the Covid-19 pandemic, mainly its implications on travelling to the target countries. In terms of Market Visits, which were planned as essential to achieve the objectives of GEE2, the meta-cluster has not been able to implement these visits *in loco*. Having held the capacity building and preparatory activities virtually over the first 12 months, the cluster has been successful in obtaining market intelligence, in forming relationships in target countries and in initiating MoU's with entities of interest. However, the cluster partners and several of their SMEs feel that these events do not reach full potential as they would as if they took place in person without restrictions.

The Covid-19 pandemic has also caused economic difficulties across the globe which will continue to pose problems for the foreseeable future, making some markets potentially more difficult to enter. Proceeding into the last 15 months of GEE2, project partners aim to:

- Continue to deliver on its objectives and report GEE activity;
- Promote and export EU SMEs to its target markets;
- Continue to monitor the geo-energy market across the globe;
- Plan the remaining year of the project and beyond;
- Seek to obtain and maintain cooperation agreements with entities in its target markets.

We have witnessed a shift in the political framework for heating and cooling in 2020, where geothermal energy has been put at the center of many strategies for building decarbonization and competing fossil energy technologies are being pushed out of the market.

For the geothermal electricity industry, however, despite the positive signals coming out of Turkey with the long-awaited extension of the feed in tariffs, uncertainty remains the key word in many markets where support to geothermal power projects lacks stability. The progress noted in Turkey is reflected in the business metric results with a stronger turnover and job creation potential. The number of capacity building events organized is also impressive throughout the first 12-months.

The Italian cluster, COSVIG also reported a strong turnover and is on target to meet or exceed the project threshold of 10%. The other meta-cluster partners progress has been slower, mainly due to a change of focus to domestic business or lack of interest on international network, during the Covid-19 period of restrictions. Also, a couple of partners is more focused on the shallow geothermal sector.

## 7) ANNEX 1

Cluster	Date	Event Host	Details of the issue it sought to rectify.
JESDER	14-Oct-20	ICCI 2020	Change in Turkish Feed in Tariff by 2021
JESDER	16-Oct-20	EGEC	AB project financing
JESDER	20-Oct-20	YEVDES	Renewable Energy for municipalities and Universities
JESDER	20-Oct-20	EYODER	Green Heating meeting
JESDER	11-Nov-20	İZKA	Best For Energy Project meeting
JESDER	12-Nov-20	JESDER	GEOENVI Project meeting
JESDER	16-Nov-20	EIF	EIF 2021
JESDER	18-Nov-20	EGEC	GEOENVI Project meeting
JESDER	19-Nov-20	EGEC	GEOENVI Project meeting
JESDER	25-Nov-20	World Bank	Direct Use of Geothermal energy
JESDER	09-Dec-20	IZKA	Best For Energy Project Top.
JESDER	21-Dec-20	GÜNDER	Hybrid energy power plants legislation
JESDER	21-Dec-20	EİGM	heating Adnan Menderes Uni by renewable energy sources
JESDER	29-Dec-20	World Bank	focus woman in sector
JESDER	06-Jan-21	GENSED	Sun Summit- Turkish Sola
JESDER	15-Jan-21	JESDER	Extraction of Lithium from Geothermal sources
JESDER	26-Jan-21	World Bank	Risk sharing mechanism meeting
JESDER	27-Jan-21	TUREB	Innovations and opportunities
JESDER	04-Feb-21	TVDEN TV program	Geothermal Sector
JESDER	12-Feb-21	IZTECH SUSTAINABILITY WORKSHOP	meeting
JESDER	17-Feb-21	DENA	Green finance Germany
JESDER	17-Feb-21	GEOENERGY	Heating by geoenergy
JESDER	14-Oct-20	ICCI 2020	change in Turkish Feed in Tariff by 2021
JESDER	16-Oct-20	EGEC	AB project financing
JESDER	20-Oct-20	YEVDES	Renewable Energy for municipalities and Universities
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JESDER	12-Nov-20	JESDER	GEOENVI Project meeting
JESDER	16-Nov-20	EIF	EIF 2021
JESDER	18-Nov-20	EGEC	GEOENVI Project meeting
JESDER	19-Nov-20	EGEC	GEOENVI Project meeting
JESDER	25-Nov-20	World Bank	Direct Use of Geothermal energy
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JESDER	29-Dec-20	World Bank	focus woman in sector
JESDER	06-Jan-21	GENSED	Sun Summit- Turkish Sola
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JESDER	12-Feb-21	IZTECH SUSTAINABILITY WORKSHOP	meeting
JESDER	17-Feb-21	DENA	Green finance Germany
JESDER	17-Feb-21	GEOENERGY	Heating by geoenergy
JESDER	18-Feb-21	EGETV Gündem Özel Prog.	Geothermal Sector
JESDER	18-Feb-21	EGEC	GEOENVI WEB
JESDER	22-Feb-21	Deniz DAŞTAN	geothermal and greenhouses
JESDER	02-Mar-21	TBMM Turkish Grand National Assembly	TBMM Turkish Grand National Assembly energy commission
JESDER	13-Mar-21	IECC	Geothermal Sector
JESDER	31-Mar-21	TUBİTAK	Horizon 2 workshop
JESDER	08-Apr-21	MTA	Geothermal workshop
JESDER	06-May-21	JESDER	YEK-G seminar
JESDER	02-Jun-21	TAEF	Geothermal Sector
JESDER	03-Jun-21	IRENA	Geothermal Sector
JESDER	15-Jun-21	EGEC	KEY TRENDS POWER SECTOR
JESDER	17-Jun-21	EGEC	HEATING AND COOLING
JESDER	22-Jun-21	IRENA	Geothermal irrigation
JESDER	26-Aug-21	DENA	Turkish-German Cooperation
JESDER	18-Feb-21	EGETV Gündem Özel Prog.	Geothermal Sector
JESDER	18-Feb-21	EGEC	GEOENVI WEB
JESDER	22-Feb-21	Deniz DAŞTAN	geothermal and greenhouses
JESDER	02-Mar-21	TBMM Turkish Grand National Assembly	TBMM Turkish Grand National Assembly energy commission
JESDER	13-Mar-21	IECC	Geothermal Sector
JESDER	31-Mar-21	TUBİTAK	Horizon 2 workshop
JESDER	08-Apr-21	MTA	Geothermal workshop
JESDER	06-May-21	JESDER	YEK-G seminar
JESDER	02-Jun-21	TAEF	Geothermal Sector
JESDER	03-Jun-21	IRENA	Geothermal Sector
JESDER	15-Jun-21	EGEC	KEY TRENDS POWER SECTOR
JESDER	17-Jun-21	EGEC	HEATING AND COOLING
JESDER	22-Jun-21	IRENA	Geothermal irrigation
JESDER	26-Aug-21	DENA	Turkish-German Cooperation