

GEO-ENERGY EUROPE:

Providing Geo-Energy SMEs better access to export markets outside Europe

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ABSTRACT

Europe is a leading continent in geoscience and subsurface engineering, but has a limited level of integration between different subsurface industries. It also has limited visibility on the worldwide geothermal markets, which are currently expanding. The geothermal value chain in many European countries contains a large number of Small- and Medium- Enterprises (SME)s with specialised know-how, but lacks integration when accessing markets outside Europe.

GEO-ENERGY EUROPE (GEE) is a EU project funded under the COSME (Competitiveness for small and Medium Enterprises) Program in the mark of the “Clusters Go International” call for projects. This 2-year capacity-building program aims to create a European Strategic Cluster Partnership in geo-energy and to develop a joint internationalisation strategy to help the European geo-energy SMEs access the deep geothermal markets worldwide.

Started in 2018, GEE has brought together eight European clusters from France, Germany, Hungary, Ireland, Spain and Turkey, representing 620+ members including 340+ SMEs, into a meta-cluster that provides a platform for know-how and technology transfers, marketing and visibility, export strategy and other networking services.

In the context of climate change and energy transition, the GEO-ENERGY EUROPE metacluster is a voluntary, open alliance of complementary clusters focusing on sustainability and the transition to a decarbonized and sustainable use of geo-energy. GEE is an important tool for European geo-energy SMEs. It is aimed at facilitating access to key international markets. This presentation will focus on the importance of knowledge and technology transfers between the geo-energy industries. We'll also describe the joint internationalisation strategy and roadmap conceived by GEE, and the role of European SMEs in contributing to the industrial deployment and market uptake of sustainable & decarbonised geo-energy worldwide.

1. GEO-ENERGY EUROPE: TOWARDS A STRONGER AND MORE INTEGRATED GEO-ENERGY SECTOR AS A PILLAR OF THE INTERNATIONALISATION STRATEGY

1.1 Technology and know-how transfer as a pivotal motivation

Europe is a leading continent in geoscience, subsurface engineering, subsurface resources production engineering. These competencies include geology & geophysics, geomodelling, drilling, well operations & services, well equipment design and manufacturing, reservoir management, dynamic reservoir modelling, production engineering, etc. and all connected competencies such as associated HQSE, environmental services, specialized software development, etc.

These competencies historically developed mostly around the oil & gas industry, but also the geothermal energy industry and the geological storage industry, with a variable but overall limited level of integration between the 3 industries. A number of international professional and industry associations have been historically very active in circulating ideas, skills and technologies between industry professionals as well as between industry and academia, through congresses, conferences and workshops.

A 2015 study funded by the French Ministry of Economy has shown that the 3 above mentioned industries represent an annual turn-over of 36 G€ and 66 000 jobs in France, over 95 % of which in the upstream oil and gas industry (also called exploration-production or E&P sector). The latter is organized around one major international company, Total, a few multinational services companies such as CGG or equipment manufacturers such as Vallourec that are among the world leaders in their respective sectors, and several hundreds of SMEs working mainly for the larger groups. Between 100 and 200 of those SMEs are highly specialized and are mostly active on international markets, the vast majority (an estimated 700) is non specialized and less engaged internationally. With an annual turn-over under 0.2 G€, the deep geothermal industry appears as the infant of geo-energy industries, yet representing more jobs (1320) than the geological storage industry. The geothermal power sub-sector has been experiencing an early phase of industrialization in the last decade, with the lead of operations transitioning from research centres (mainly BRGM - French geological Survey) to industrial players that are either linked to major energy companies (Engie and EDF) or junior independent companies. Three projects are now in production stage and a few upcoming projects are currently in exploration or engineering stages. In terms of RD&I capacity, a rough estimate of 10 000 researchers work on geo-energy related subjects in France, even if not exclusively for a part of them. The upstream oil & gas industry and its multinational champions employs several thousands of them with more than 3000 in Total only. The geothermal research is more concentrated in academic laboratories and research centres as it largely depends on public funding.

This long introductory description of the geo-energy ecosystem is focused on France but would presumably show similar trends in other European countries with major oil & gas companies such as UK and BP, the Netherlands and Shell, Norway and Statoil, Italy and ENI, Spain and Repsol, all representing myriads of subcontracting SMEs and geo-energy jobs in the hundreds or thousands. It demonstrates the tremendous potential in cross-industry partnerships building via know-how and technology transfer, between countries and between mature geo-industries industries such as the upstream oil & gas and emerging geo-energy industries such as deep geothermal, with a common goal to develop high quality, competitive and sustainable geo-energy projects.

However, there had not been any initiative to build a transnational cluster, specifically aimed at increasing SMEs performance and competitiveness, in all industries concerned by the use of subsurface for energy, until the GEO-ENERGY EUROPE project came into play.

At the time of submission of the paper, but subject to evolve in the short term, the Geo-Energy Europe metacluster benefits from a large and diverse membership base, with 620+ members including 340+ SMEs, spread across 23 EU countries and covering the entire deep geothermal value chain. These members are able to provide a wide array of services, technologies, and R, D & I capacities, with a strong degree of expertise, know-how and experience, both within domestic markets and internationally.

Based on this large membership, GEE is opportune for capacity building actions that foster know-how transfer, good practises exchanges and effective feedbacks in technical, organisational fields and standardisation procedures. Through a future strand of collaboration, these actions will be further developed to all GEE members.

1.2 A partnership agreement, common member database

The GEO-ENERGY EUROPE project partners formalized the creation of a GEO-ENERGY EUROPE « metacluster » and committed to sustain its life beyond the end of the ongoing project timeframe (2018-2019) through long-term cooperation by signing a Partnership Agreement in Dublin, January 2018.

The PA states the metacluster's vision and values, objectives and specific activities, governance structure, rules and responsibilities and long-term cooperation agenda.

Based on that, it has been decided that GEE networking activities shall, directly or indirectly, contribute to:

- promote and standardize best practices and technologies to ensure a safe and sustainable use of subsurface resources
- increase public knowledge & acceptance of industrial uses of the subsurface,
- lower the technical and non-technical (economic, regulatory, etc.) barriers to sustainable and decarbonized geo-energy development.

The Partnership Agreement also sets the long term cooperation modalities in case or not of further funding which is structured around 7 key values recognized as crucial for the sustainability of the GEO-ENERGY-EUROPE metacluster through time:

- 1- Commitment to stay connected and work together to keep GEE's vision alive
- 2- Collaboration in keeping joint internationalization strategy & efforts up to date
- 3- Innovation to constantly improve sustainability of geo-energy industrial projects
- 4- Technology & methodology development
- 5- Excellence & professionalism in the implementation of common actions
- 6- Sustainability applied to both our industries and the metacluster's activities
- 7- Agility in evolving, as a metacluster structure, to best adapt to everchanging circumstances & constraints and sustain the Partnership

If the initial group reflects a subset of available and connected organizations at the time of the GEO-ENERGY EUROPE of project submission under the « Clusters Go International » call in May 2017, all such initial partners are also willing to expand the metacluster and welcome on board all interested European geo-energy and/or geothermal energy organizations, as a larger metacluster will help develop a stronger, more integrated and more exportable European sustainable geo-energy sector.

One of the first major common endeavours of the GEE partners has consisted in building a common member database. They have developed a joint communication strategy that addresses key targets such as its own members, starting with SMEs, the international markets and geothermal community at large.

1.3. Communication tools and strategy

Different communication tools enable the metacluster to better provide internationalisation solutions to the SMEs involved in Geo-Energy Europe.

1.3.1 GEE website: <https://www.geoenergyeurope.com/>

A dedicated website has been developed as part of this communication strategy implementation, which makes full use of the common members database through a mapping and filtering functionality that displays members on a geographic map and allows to filter them in or out according to their cluster affiliation, organisation type (large group, SME, R&D organisation, etc) and position in the value chain (project development/operator, geoscience, drilling, EPC, etc.) .



Figure 1: GEE value chain (GEOENERGY EUROPE)

The Geo-Energy Europe website serves as a platform to centralise information on the metacluster, and a frontpage to present it to outside stakeholders. The website is a pivotal capacity building and visibility tool for the GEO- ENERGY EUROPE metacluster, meant to accelerate the development and internationalization of its members, facilitate the sharing good practices and experiences, as well as the know-how and technology transfers between geo- energy industries as well as other sectors.

The website also includes actualities of/for members (Events and Publications) and brings to light some “Case Studies” which are examples of successful partnerships between members. The “Case studies” page is organised under a 3-entry classification (Company, location and projects types) and provides users with GEE showcase composed by project description pages.

1.3.2 Webinars: increasing level of information within the components of the meta-cluster (i.e. SMEs)

Webinars are a key instrument for capacity building as they allow to reach simultaneously a wide and diverse audience. In that regard they are particularly well suited for capacity within the Geo-Energy Europe metacluster, as the geographical repartition of the companies involved in Geo-Energy Europe makes the organisation of physical meetings more difficult. Moreover, the participation to webinar is a low-cost endeavour for companies, which minimises the weight of capacity building in the perspective of internationalising their activities. Indeed, among the companies that contributed to the GEE cluster Market prioritization survey, 38% of respondents noted that they did not have the staff available for exploring opportunities in new markets. Capacity buildings workshops with low intensity therefore benefit such companies

The organisation of webinars can also contribute to increasing the visibility of the Geo-Energy Europe metacluster in target markets, contributing to the internationalisation efforts.

Finally, webinars or webconferences are also an interesting tool to contribute to the internationalisation efforts of the GEE Metacluster through the organization of exchanges in the form of C2C (for instance a webmeeting between GEE Partners and the geothermal cluster in a target country to exchange information and potentially organize a B2B workshop), or even C2B webinars which may involve clusters from target countries presenting their market conditions to GEE Companies, or GEE clusters presenting the European geo-energy industry to potential investors in target countries.

2. THE GEE PROJECT INTERNATIONALIZATION STRATEGY:

2.1 The geothermal market:

2.1.1 Countries prioritization:

The identification of key target markets has been done following a methodology elaborated through GEE partners.

First of all, GEE members identified which components were the most relevant and in line with an export strategy aiming at winning geothermal market shares. An attractive market for the Geo-Energy Europe metacluster internationalisation should have the following characteristics:

- Well established knowledge of geothermal resources;
- Clear framework for investments in new geothermal projects (e.g. clear objectives for developments, well defined call for tenders, multiple existing ongoing projects);
- Attractiveness for foreign investors (e.g. availability of return of experience from private companies involved in a target country);
- Robust and stable political and legal framework allowing to recoup investments: the legal framework should be robust enough for investors to have sufficient certainty that non-technical and non-market factors will not prevent recouping their investments in a target country.

A global market analysis was then conducted, assessing the relevance of the geothermal market in different countries and led to a first rough selection of potential key markets. Among this primo selection, the different clusters, have consulted their respective members and have elaborated a short-listed choice of countries via a prioritisation survey.



Figure 2: GEE export strategy (GEOENERGY EUROPE)

2.1.2. Market and opportunity analysis

Ensuing, an in-depth assessment market study focused on this sharp selection was based on a robust review of the investment environment that influences the way geothermal energy development takes place in the market outlined above. In addition, this report explores the entities which are actively winning business relating to the development and delivery of geothermal energy projects within the targeted markets.

The identification of potential market opportunities and the investigation of current market leaders within the markets discussed in Section 3 of this report is balanced with considerations relating to the development of a market entry strategy.

In addition, counterbalancing company-centric actions with the need to seek outside input in exploring the viability of exporting to a new market, this report outlines key sources of local business knowledge which might provide invaluable insights to GEE companies who decide to export their services to third country markets. The consular networks of the GEE member cluster's nations and local geothermal energy associations are two key sources which have been explored in detail in this report as they are based in the target countries and may be able to facilitate contacts with decision-makers in national, regional and local authorities charged with developing geothermal energy projects. Such networks may also be able to provide connections to local partner companies who would be able to collaborate on the exploration of a market opportunity.

2.1.3. Role of innovation

Innovation can be understood in a large sense as the way GEE contributes to the proposition of an innovative approach to internationalisation for European geothermal SMEs, allowing them a new channel to strive for markets outside Europe. The mission of GEE partners also is to propose innovative, specific solutions to companies from the geothermal looking to develop activities in export markets:

- GEE partners must seek to build a common offer based on innovation
- An assessment of the competition profiles in key markets.

2.2 Instruments of the internationalization strategy

2.2.1 Business to Business meetings, Cluster to Cluster meetings

These meetings respectively have the following objectives:

- C2C meetings: meetings between cluster from target countries and the GEO-Energy Europe partners is a way to exchange in-depth information about key issues to facilitate the creation of business relationships between the members of the different clusters, such as the skill gaps in a target market and the services provides by the GEE SMEs.
- B2C meetings: depending on the configuration, these meetings may either allow the GEO-Energy Europe partners to highlight the know-how and technologies of their members, and initiate discussion with potential business partners for European SMEs in target countries. On the other hand, it may also be a setting where Geo-Energy Europe SMEs showcase their solutions and services to a cluster structuring the geothermal industry in a target country to create a relationship between a contact point in a potential export market and companies looking to provide their services to these markets.
- B2B meetings: fostering opportunities for European SMEs, by encouraging discussions between companies from the Geo-Energy Europe metacluster and companies from target countries looking to develop their national geothermal resources. B2B meetings have been identified as a valuable resource in their internationalisation process by the SMEs of the GEO-Energy Europe metacluster when responding to a survey undertaken in the framework of the GEE Market Survey, with nearly 75% of respondents highlighting this type of tool as being of interest.

2.2.2 International missions

2.2.2.1 Objectives

International missions are an essential factor of success for the internationalisation of the Geo-Energy Europe metacluster. These missions are organized by the partners of the GEE metacluster to accompany interested member companies to present the solutions they may be able to provide in a target country. They should be organized in a way to maximise the visibility of the SMEs of the GEE metacluster and to showcase the know-how of the European geo-energy industry through exhibition booths, posters, informal exchanges with participants.

If these missions are primarily based on creating opportunities for B2B meetings, they should also, as a general rule, focus on consolidating the relationship and interaction of the metacluster with key actors identified in the target markets, in particular public authorities when relevant, the financial sector – notably public financing institutions – and actors structuring the geo-energy industry such as national geothermal associations. The role of the meta-cluster in capacity building and awareness raising is particularly relevant in that regard.

These missions also contribute to engage their businesses in new markets, and to internationalise their activities.

2.2.2.2 Choice of relevant international events

The geothermal energy industry is to a large extend structured around strategic international events which represent crucial opportunities; but not all international geothermal or geo-energy conferences of events are equally valuable in the framework of the internationalisation strategy. The metacluster should focus on events that have the following characteristics:

Industry oriented: the geothermal sector being very technical, an important segment of the sector is represented by research institutes and academia. While this type of actors is indeed crucial for sound project development, and these categories are well represented within the different clusters of Geo-Energy Europe, industry-oriented events represent far more opportunities for European SMEs involved in the geo-energy sector. Industry-oriented events have a stronger focus on removing non-technical barriers to geothermal energy development such as availability of skills, financing and policy frameworks, which is a focus of the Geo-Energy metacluster.

Recognized by the geothermal sector: some international events are more recognized by the actors of the global geothermal industry due to different criteria, from the number of years they have been taking place to the dynamism of the market on which they focus. The Geo-Energy Europe metacluster should focus on such events, which have a higher likelihood of gathering the strategic partners that are key to the successful internationalisation of the metacluster.

2.2.2.3 GEE concrete actions:

GEE's partners have concretely committed in the organization of trade missions during its last semester of activity in Strand I.

In November, they will take part to IGC Turkey in Izmir. All partners are invited to encourage the venue of their SME to this pilot trade mission in order to test GEE's internationalisation strategy. GEE will have a booth to exhibit and most certainly a slot to present the project.

Another mission is also planned in Kenya at the end of the year and will be subject to a first travel of GEE's coordinator in September on behalf of the French organization "Business France", with a fact-finding ambition. Reported as a targeted country,

Kenya will be the first worldwide GEE's mission. It will have the particularity to be prepared separately from any geothermal event, and only be dedicated to implement GEE's international strategy.

3. Evaluation of a successful export strategy

The purpose of the internationalisation of the metacluster is to provide its member European SMEs with opportunities to expand their business through exports beyond the EU's border.

Assessing the success of an export strategy is an important step. The expected results from the activities of Geo-Energy Europe can be measured (for example signature of contracts between SMEs of GEE with companies or developers in non-European countries) but can also be qualitative (networking opportunities, better information and capacity buildings...)

3.1 Quantitative results

Some quantitative metrics can be used to analyse the relevance of the export strategy:

- Growth of the meta-cluster through the connection with new clusters
- International connections with non-European clusters
 - o Number of Cluster-to-Cluster meetings
 - o Signature of cooperation agreements
- Number of countries attained in the internationalisation process and number of connections per country, achievements of the roadmap.

3.2 Expected qualitative results

The internationalization strategy supposes that towards the medium term, as a result of the work undertaken by the Geo-Energy Europe project, European SMEs involved in the geo-energy sector would benefit from a more streamlined and robust framework to access information in order to develop projects in new markets. The role of the Geo-Energy Europe metacluster is to raise the awareness about the European geothermal industry know-how. Through capacity building, information sharing and awareness raising, the metacluster can have a strong indirect effect in promoting collaboration between European SMEs and actors of third country markets for developing geothermal projects and exporting the European know-how and technologies.

Some expected outcomes of the GEO-ENERGY EUROPE metacluster also include a better "sourcing" of service providers for sustainable geo-energy projects, and greater worldwide market penetration in the long run.

In addition, the networking activities spurred by the metacluster will likely lead to widespread dissemination of best practices, ongoing brainstorming efforts regarding performance improvement, cost efficiency, identification and progressive unlocking of industry-wide barriers, etc.

The GEO-ENERGY EUROPE metacluster shall therefore become a key player and a place to be for clusters in the European sustainable geo-energy sector, bringing the SMEs and export business component to the bigger picture.

4. CONCLUSION

GEE is a first of a kind initiative aiming at building a EU metacluster. If these two-years were mainly dedicated to the construction of the meta-cluster, the future ambitions will mainly address the deployment of the internationalization strategy. A new phase of financing is supposed to be launched through a strand II, under new Clusters Go International call, to be opened in the Fall of Summer 2019. If so, GEE will be mostly involved in other worldwide trade missions in targeted countries, but also in capacity building program with possible training & standard development components, etc.

Not to be forgotten, a GEE's strand II will also be based on the enlargement of the metacluster with the possibility for other European organisations to join this innovative project.

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