EGEC Geothermal Market report 2012

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ABSTRACT

In 2011, EGEC published for the first time a market report to evaluate the development of the deep geothermal sector in Europe. The 2012 issue of this market report shows that interesting new projects have since emerged.

Moreover, this edition summarises for the first time the existing financial support schemes for geothermal electricity in Europe. And some extra pages are added giving a short overview and analysis of the development in that part of the geothermal market in Europe which traditionally has the highest number of installations, the field of shallow geothermal energy.

1. INTRODUCTION

In 2011, EGEC published for the first time a market report to evaluate the development of the deep geothermal sector in Europe. We have witnessed within the last five years a resurgence of interest in geothermal power, after nearly a decade of only small development in capacity in the deep geothermal sector, both for electricity and for direct uses (mainly district heating). A substantial number of projects have been developed throughout Europe, and geothermal energy is on its way to become a key player in the European energy market.

The 2012 issue of this market report shows that interesting new projects have emerged, equally, unfortunately some other projects have been stopped for the time being. The reasons for not proceeding can be found primarily in changes in the relevant national policy framework. Some new plants, both for power and for heat, came on line this year. In this respect it should not be forgotten that the duration for project development, from the time the project is officially announced to the first heat or power delivered, is usually in the order of 4-7 years. It is for this reason that this report presents not only the plants in operation, but also those under development and others under investigation.

Some of the key findings are that:

- In geothermal electricity, the financial crisis has slowed down some development, and it is apparently a difficult time to attract the necessary investment. However, we can state the investigation into possible projects is happening in more countries than ever.
- For geothermal district heating, the need for thermal grid infrastructure is a key issue, both with new or renovated networks. Development must also pursue scalable solutions: capacities small or big, with low or high temperature, just to meet the demand.

2. ANALYSIS OF GEOTHERMAL ELECTRICITY MARKET IN EUROPE

One new geothermal electricity power plant became operational in 2012: the Insheim plant in Germany, a hydrothermal/ EGS project. In addition many new projects are being developed (86 projects) and investigated (124 projects). Indeed, a geothermal plant typically needs 5-6 years to become operational from start of the permitting process until commissioning and after some years of slower paced development in the EU, the geothermal electricity market has seen a renewal of momentum in the last 5 years. Data gathered will be collected and disseminated digitally in a web-serviced subsurface resource GIS system.

Four main conclusions from this geothermal market report 2012:

- The geothermal sector has a great future: around 90 plants are being developed and many project ideas have been announced in 2012
- The geothermal sector is nearly on track for reaching the target 2020 forecasted in the NREAPs, but more support is needed for the geothermal sector.
- The future markets are both the traditional ones with high enthalpy resources and the newcomers where EGS and/or medium-low enthalpy projects can be developed
- The geothermal sector needs more a higher public profile and more financial support for research and development (R&D budget, Insurance and Feed in tariff)

3. ANALYSIS OF GEOTHERMAL DISTRICT HEATING MARKET IN EUROPE

As highlighted in the 2011 version of the market report, after 20 years of slower development, the geothermal District Heating (GeoDH) market has enjoyed a renewed momentum in the last 3 years. Currently, there are 216 GeoDH systems in operation in Europe (Compared to 213 systems last year), with a

total installed capacity of 4,900 MWth (i.e. 200 MWth increment from 2011). The 157 GeoDH systems installed in the EU-27 display a total installed capacity of 1622 MWth. Indeed, the heating and cooling sector represents 50% of our energy demand, and geothermal is becoming more and more attractive as a competitive renewable heating source, as there is a dual need to decarbonise this sector, whilst securing the provision for heating at an affordable price for consumers.

The 'hot' GeoDH main markets in Europe are still located in France (the Paris basin, and renewed activity in the Aquitaine basin), Germany (the Molasse basin, Munich), and Hungary, but it is important to emphasise that geothermal DH systems can be installed in all European countries. We have recently seen important new markets emerging, especially in the Netherlands and the UK. By 2020, almost every European country will use GeoDH.

The first regions to install GeoDH were those with the best hydrothermal potential, however with new technologies and systems, there is an ever increasing batch of regions that are developing geothermal technology for heating and cooling applications. Systems can be small (from 0.5 to 2 MWth), or large with capacity of 50 MWth. There are some new District Heating schemes that utilise shallow geothermal resources, assisted by large heat pumps. In addition, it is worth mentioning that there are different management schemes in place according to the size of the systems, some DH systems are developed and managed by local authorities while larger systems, with higher capital costs, are developed by utility companies.

Three main conclusions can be drawn from the current geothermal DH development streaming in Europe:

- Firstly, many project announcements took place in 2012. GeoDH is currently the main market for the deep geothermal sector. The near future is very bright with more than 200 GeoDH projects in development all over Europe.

- Secondly, more financing is needed to develop GeoDH infrastructure all over Europe, in particular in dense urban areas where it is a highly competitive option.

- Ultimately, future hot markets should be emerging from Central & Eastern Europe States: Bosnia-Herzegovina (4 projects under development), Croatia (4 projects), the Czech Republic (1 project), Hungary (17 projects), Poland (2 projects), Romania (7 projects), Serbia (6 projects), Slovakia (10 projects), and Slovenia (3 projects).

4. ANALYSIS OF SHALLOW GEOTHERMAL MARKET IN EUROPE

In Shallow Geothermal Energy, the underground heat is used for providing both heat and/or cold through geothermal heat pumps (Ground Source Heat Pumps, GSHP), or for storing heat and/or cold (Underground Thermal Energy Storage, UTES). These are modern technologies for heating and cooling of buildings, making use of geothermal energy (the heat stored beneath the earth surface) almost anywhere throughout Europe. Shallow Geothermal Energy allows for savings of primary energy and to emissions reductions, as well as savings on costs for heating and cooling.

Ground Source Heat Pumps have seen a tremendous market development in some European countries over the last decade. Sweden and Switzerland have been leading since the beginning of the 1980s, however, some other countries which experienced a more difficult start in the same period, like Germany, have now caught up. In France, the development started later, but the opportunities for a widespread, successful use of GSHP are very good.

In conclusion, we can state that:

- A great future can be expected for this sector, with positive trends for the next ten years.

- Shallow geothermal is on track for reaching the targets for 2020 set forth in the NREAPs, with a total of about 2,500 ktoe actually produced in 2011.

- Future markets are comprises of both: large systems in Germany, France and UK, and small and large systems for heating and cooling in Mediterranean countries, mainly Italy and Spain.

5. CONCLUSIONS

Disturbing news has been published, forecasting that EU Member States might not reach the 20% RES target by 2020. With the economic crisis, a scapegoat is ready at hand. In the whole debate, the potential of geothermal energy did not yet receive enough attention. We need a stronger focus on geothermal, as a reliable contribution helping Europe to reach the climate and energy targets. So EGEC calls again for a level playing field, and the recognition of geothermal advantages: being a renewable energy base load, and a flexible source of energy with local supply!