Belgium is an emerging market for deep geothermal energy, with a limited installed capacity. However, in recent years, a new dynamic has set the basis for an accelerated deployment of deep geothermal projects. The commissioning of the first deep geothermal projects in Flanders in 2018 is quite a milestone in that regard. Moreover, the country already has a dynamic market for shallow geothermal, which is growing fairly rapidly as 2017 sales represent 17% of the total installed stock and have grown by over 20% from the previous year.

Public authorities play a crucial role in deep geothermal developments in Belgium, within the regional governments, public bodies develop and operate the geothermal projects. Going forward, these public bodies are likely to continue spearheading geothermal developments in Belgium, providing a basis for market uptake, but they will need to be complemented by private investors and operators.

### GOVERNANCE

**Belgium**

Deep Geothermal for Heating & Cooling capacity (GeoDH) | Number of GeoDH systems installed | Geothermal electricity capacity | Number of Geothermal power plants | Number of individual shallow geothermal systems (<50kW) | Sales of individual shallow geothermal systems
--- | --- | --- | --- | --- | ---
24 MWh | 4 | - | - | 11,337 | 1,963

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### POLICIES AND REGULATIONS

**Legislative framework**

Energy policy in Belgium is divided between the federal government and the three regions of Flanders, Wallonia and Brussels Capital-region, which have the main authority concerning renewables.

According to the 2010 federal Energy Strategy, Belgium committed to a target of 13% total renewable energy consumption by 2020. However, at the moment, renewables account for just 9.1%. Although geothermal energy did not feature prominently in the strategy, the new 2030 framework does instead take it under consideration, particularly at regional level. Both the Flanders and the Walloon region, in fact, foresee a substantial role for geothermal energy in the development of renewable heating for buildings and/or district heating.

At the same time, Wallonia’s government indicates the possible development of Geothermal electricity, though only for demonstration purposes.
Support schemes

Support schemes for energy and renewables are mainly provided at regional level. Nonetheless, for electricity the federal government established a quota system based on certificates trade, which ensures that suppliers present evidence that they have supplied a certain quota of renewable energy. Under this system, geothermal is only eligible for the regional green certificate scheme.

At regional level, all Belgian regional entities combine three main supporting schemes: the quota system based on the federal regulation, subsidies and net-metering. The support provided to geothermal energy however differs from region to region. Whereas Brussels capital region does not provide subsidies for geothermal energy, but recognize it as eligible for other support schemes, on the other hand, Wallonia excludes it from the quota system while providing subsidies for deep geothermal energy on a case-by-case basis.

The Flanders region supports all renewable energy generation technologies.

For heating and cooling, geothermal heat pumps can benefit from a wide range of subsidies in all regions. The Wallonia regions also provides a zero-percent interest loan for the installation of geothermal heat pumps based on the coefficient of performance. Nevertheless, geothermal heating is not among the technologies eligible for a national tax deduction on investment costs for renewable heating and cooling.

> Key public institutions

Service Public Fédéral FINANCES – Federal Public Service FINANCE

Service Public Fédéral Economie, P.M.E., Classes moyennes et Energie – Federal Public Service Economy, S.M.E.s, Self-employed and Energy

Ministre du Gouvernement de la Région de Bruxelles-Cap. itale, chargée du Logement, de la Qualité de Vie, de l’Environnement et de l’Energie – Minister of the Government of the Brussels-Capital region, responsible for Housing, Quality of Life, Environment

Bruxelles environnement IBGE : Administration de l’environnement et de l’énergie de la Région de Bruxelles-Capitale – Environment and Energy administration of the Brussels Capital region

Vlaamse Energieagentschap (VEA) – Flemish Energy Agency

Ministre Wallon du Budget, des Finances, de l’Energie, du Climat et des Aéroports – Walloon Minister of Budget, Finance, Energy, Climate and Airports

Service Public de Wallonie (SPw) Direction Générale opérationnelle de l’Energie (DG04) – Public Service of the Walloon region – Directorate General for Energy (DG04)
RESOURCES

Belgium’s identified geothermal resources are mostly located in the North East and the South of the Country. They are well suited for deep geothermal heating and cooling projects. However, more exploration is required in the country, to have a better knowledge of the possible resources that may be developed in the future. Moreover, the Belgium resources also allow for some development of cogeneration with geothermal electricity.
PERSPECTIVE TO 2030, AND POTENTIAL DEVELOPMENTS

The Belgium deep geothermal sector is emerging, and the administrative divisions within the country may represent a challenge for a rapid uptake, although one that can easily be overcome as well. The structure of the country’s heating and cooling sector is however a greater challenge as it is primarily focused around individual gas installations. In that regard shallow geothermal systems are a key solution for the country, but provided the right framework on policy, financing and regulation, deep geothermal can also contribute for heating and cooling, and to a lesser extent on electricity production.

<table>
<thead>
<tr>
<th></th>
<th>Baseline (ongoing projects, commissioned by 2025)</th>
<th>Market slow down</th>
<th>Current trend</th>
<th>Moderate market acceleration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating &amp; Cooling</td>
<td>+48MWth</td>
<td>+60MWth</td>
<td>+120MWth</td>
<td>+180MWth</td>
</tr>
<tr>
<td>Electricity</td>
<td>+5MWe</td>
<td>+5MWe</td>
<td>+20MWe</td>
<td>+40MWe</td>
</tr>
<tr>
<td>Shallow geothermal</td>
<td>+20000 units</td>
<td>+18000 units</td>
<td>+30000 units</td>
<td>+50000 units</td>
</tr>
</tbody>
</table>

KEY RECOMMENDATIONS

➢ Set ambitious objectives-based resources not historical trends;

➢ Set the regulatory and policy framework fit to attain these objectives, based on best practices that have proven able to deliver at the European level (e.g. the case of neighboring Netherlands);

➢ Establish a long-term local planning of heating and cooling investments according to local resources.

➢ Continue and set financial support tools to increase geothermal development for heating and cooling and CHP, notably by the establishment of a geothermal risk mitigation scheme.

➢ Introduce measures that encourage users/consumers to use geothermal heat and electricity, reflecting the lower emissions in the market price (e.g. reduction of VAT for geothermal district heat...)

➢ For shallow geothermal, the policy, financial and regulatory framework should not be a barrier to market uptake considering the technology’s benefits compared to other technologies (i.e. higher investment, lower operating costs, reduction of winter peaks in electricity consumption...)