The Czech Republic has not scaled geothermal energy up to its potential thus far, with only two operation projects for deep geothermal heating and cooling, representing 8 MWth of capacity. These projects moreover have been commissioned before the past decade, with renovation work having happened in the meanwhile. Moreover, some planned projects for deep geothermal have accumulated delays up to this point. The Czech deep geothermal sector is therefore not on a positive dynamic for a rapid scale up of installed capacity, owing to insufficient knowledge of the resource and the lack of a suitable framework for deep geothermal development. For shallow geothermal systems however, the dynamic is much more positive in the Czech Republic, with sustained sales that lead to a rapid increase of the installed stock.

### POLICIES AND REGULATIONS

#### Legislative framework

The Czech Republic’s State Energy Policy, approved in 2015, provides the main framework for the country’s energy policy with an outlook until 2040.

The SEP is complemented by the National Renewable Energy Action Plan (NAP RES), which specifies measures and tools concerning RES, and by the National Energy Efficiency Action Plan (NAP EE) concerning energy efficiency improvement measures and expected or achieved energy savings. Both documents will be replaced after 2021 by the new National Energy and Climate Plan.

Under the current framework, geothermal energy production is considered almost exclusively for research and development (R&D) activities. Nevertheless, the SEP estimates that geothermal energy could reach up to 6.1% of total RES consumption by 2040 (including heat pumps), while the draft NECP indicates that geothermal production could rise in 2030 up to 404.1 TJ for electricity (150 in 2020) and to 1,610.0 TJ for heating and cooling (310 in 2020).
Support schemes

Geothermal electricity is included among the technologies that can benefit from a system of Feed-in tariff (State-purchasing Price) or a Premium tariff: Green Bonus. The measures are available only for geothermal plants up to 100 kW that were put into operation before 31 December 2015 and their building permit was issued before 2 October 2013.

For heating and cooling, Geothermal energy does not benefit for any specific subsidies scheme, but it is eligible for an exemption from the real estate tax if the generated heat is supplied to other customers.

Concerning R&D, Basic research is carried out primarily by the Czech Academy of Sciences, which was created especially for this purpose, and is supported by the Grant Agency of the Czech Republic. Furthermore, the Czech Republic has established a specific technological platform for geothermal energy, RINGEN (RESEARCH INFRASTRUCTURE FOR GEOTHERMAL ENERGY), to activate private-sector involvement, provide R&D support and offer services and expertise in deep geothermal energy exploitation and related areas such as underground construction, or oil and gas exploitation.

> Key public institutions

Ministerstvo životního prostředí (MŽP) – Ministry of the Environment

Ministerstvo průmyslu a obchodu (MPO) – Ministry of Industry and Trade

Energetický regulační úřad (ERÚ) – Energy Regulatory Office

Agentura pro podnikání a inovace (API) – Business and Innovation Agency

CzechInvest – Agentura pro podporu podnikání a investic – Investment and Business Development Agency
RESOURCES

Considering the low intensity of geothermal developments in the Czech Republic, more data about the deep geothermal resources would need to be collected to obtain a better perspective of the geothermal potential of the country. Currently available geological data however reveal the availability of resources dotting the country from the North West to the South East. Despite the lack of geothermal electricity project currently online, the Czech Republic does have the resources to enable such projects (e.g. EGS).

Maps based on available geological data (GeoELEC, GeoDH)
The Czech geothermal industry needs a new dynamic to be instigated in order to scale up deployment. Setting ambitious objectives, accompanied by a sound financial and regulatory framework, as well as exploration campaigns is key to enable tapping into the Czech geothermal energy potential. A sound, forward looking and stable policy, financial and regulatory framework is also key to maintaining the dynamic of the shallow geothermal industry in the Czech Republic, which can scale up to put the Czech heating and cooling sector in line with the requirement of the Clean Energy Package.

### 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;
- 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 for attracting private investors and developers.
- 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 be 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...)

<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>+30MWh</td>
<td>+35MWh</td>
<td>+50MWh</td>
<td>+100MWh</td>
</tr>
<tr>
<td>Electricity</td>
<td>+5MWe</td>
<td>+10MWe</td>
<td>+20MWe</td>
<td>+50MWe</td>
</tr>
<tr>
<td>Shallow geothermal</td>
<td>+15000 units</td>
<td>+20000 units</td>
<td>+30000 units</td>
<td>+50000 units</td>
</tr>
</tbody>
</table>