EGEC Position on the agenda of the next European Commission

Setting the right level of ambition for Climate & Energy in 2030 and 2050

➢ More than 50% emission reductions by 2030
➢ Engaging towards net-zero by 2050

One of the key issues of the current debate on the next European Commission regards the priorities that should shape its action over the next five years, the matter of ambition for the energy transition is at the foreground. Among the proposals put forward, are calls to enshrine the objective of carbon neutrality at least by 2050, and to review upward the EU’s carbon emission reduction target for 2030 to 55%. Achieving these proposals would require the EU to increase its action on the energy transition. Specifically, to engage towards net-zero by 2050 and 55% emission reductions by 2030 the EU Member States need to seriously tackle the decarbonisation of the energy sector.

The EU Clean Energy Package sets a minimum 32% binding target for renewables in 2030, and a - regrettably indicative - target of 32.5% energy efficiency improvements. EGEC was among the few organisations openly advocating for ambitious binding targets for renewable energy and energy efficiency, an attestation of their complementarity.

The new legislations from the EC must be the basis for a more ambitious European climate and energy regulatory framework, in order to notably allow the accelerated development of geothermal energy.

Figure: Shares (%) of EU28 final energy consumption in the energy sector (1143 Mtoe) and sectorial penetration of RES (source: SHARES, Eurostat, 2016)
A dynamic integrated approach to decarbonisation: avoiding emission lock-ins and narrow views

The decarbonisation of the European economy concerns all dimension of this economy. It is particularly the case in the energy sector, which is responsible for around 80% of EU emissions. The EU’s energy system is made up of three sectors, heating and cooling, electricity and transport, which respectively represent 47%, 25%, 28% of the EU’s final energy demand.

Reducing emissions in the heating and cooling sector, combining RES and efficiency, the last untapped climate policy prospect

The heating and cooling sector is by far the largest segment of energy consumption in Europe. The production of heat accounts for most of the energy demand of the residential, tertiary and industrial sectors. Heating and cooling represents nearly half of the energy consumption in the EU (around 530 Mtoe) - nearly as much as the electricity sector (ca. 290 Mtoe) and the transport sector (ca. 320 Mtoe) combined. It also is by far the sector where the largest amount of renewable energy is produced in absolute terms (more than 100 Mtoe).

The decarbonisation of the heating and cooling sector is however far from being finalized, as 81% of the energy used in this sector remains fossil energy: gas, oil and very much coal as well.

Achieving the decarbonisation of the European economy requires a specific focus on allowing the development of solutions for the decarbonisation of heating and cooling. In that regard, technology solutions are already well identified, proven and often commercially available or at a high level of technology and market readiness. Thermal renewable technologies, among which geothermal energy, have proven that they are a solution to reduce emissions, create jobs and value for communities. These technologies can be scaled up rapidly as a robust European industry exists for their deployment, often only hindered by regulatory uncertainty and lack of awareness by the public. The European geothermal heating and cooling industry is for instance a world leader, well positioned to scale up deployment on the EU market, and to continue exporting European technology and know-how to third countries.

Decarbonising the heating and cooling sector however requires a sound regulatory and policy framework. Indeed, geothermal energy and other thermal renewable technologies do not compete in a fair market. On the contrary geothermal energy solutions, either large scale systems or geothermal systems for an individual household, have to compete in a market characterized by the dominant position of fossil fuel actors, which continue to benefit from different forms of subsidies and public aid.

Finally, the decarbonisation of the heating and cooling sector is not a simple political object with a unique solution. Much in the spirit of EU policies, it is a policy priority that needs to respect the principle of subsidiarity, where local authorities need to be involved and armed with the tools to identify and develop their local energy resource. For the geothermal sector for instance, the lack of awareness about resources is a major barrier to new deployment. Top-down solutions that simplify the issue should not be considered as the answer by EU policy makers. We should not simplify the debate with key words but propose the tools that enable the actual shift from fossil fuels toward renewable energy sources and energy efficiency. Calls for direct electrification of heating and cooling or the use of hydrogen or other synthetic gases fail to account for the complexity, the size – H&C is twice the current electricity sector – or the economic reality of the H&C sector. On the contrary, such solutions are more likely to lead to keeping open existing fossil assets such as large coal plants to meet the need for additional electricity production.
Key Messages:

- Heating and cooling sector represents half of the energy consumed in the EU. It should be at the center of any decarbonisation policy.
- Simplification is not a solution. EU policy on the heating and cooling sector need to focus on providing the tools to accelerate the penetration of proven solutions such as thermal renewables, notably by empowering local authorities.
- EU climate and energy policy need to focus on being world leader in renewables and prioritise energy efficiency.

Reducing emissions in the electricity sector, consume less & produce green power

A rational, consistent and far sighted approach to electricity supply is critical for ensuring a full decarbonisation of the power sector. The lack of a secure and affordable source of energy is always highlighted as one of the critical point in the energy transition; by removing dependence on fossil fuel imports dispatchable RES such as geothermal energy alleviates a big burden.

The electricity system has several challenges for grid management, and therefore to security of electricity supply. This new reality calls for urgent measures in order to stabilise the grid. Flexible generation is one of the four pillars to make the power system flexible along with demand-side management, interconnections, and storage, ensuring stability to the power system.

Despite their potential and benefits, the role of flexible electricity generation from RES technologies such as geothermal, small hydropower, solar thermal electricity (STE, also known as concentrated solar power - CSP), biomass and biogas, is not sufficiently taken into consideration today in energy policies and scenarios.

![Net electricity generation, EU-28, 1990-2016](image-url)

Source: Eurostat (online data code: mrg_105a)
A stable electricity system needs to be based on a variety of green sources and technologies, producing power close to demand centres, where it has the highest value and ensure electricity security. This approach can alleviate the need for additional transmission and distribution infrastructure as well as costly storage. Overall, a focus on flexible renewable energy sources will result in lower system costs, lower imports of fossil fuels, and more social support for the transformation of our energy system.

The main advantage of geothermal power is its base load capability. In contrast to other volatile renewables, geothermal power plants are dispatchable and can produce for around 8000 hours per year. This means a capacity factor of over 90%.

Geothermal electricity production has among the highest capacity factor of electricity production, and is competitive with fossil energy on LCoE basis – a measure that is not very interesting to measure the value of an energy source in terms of grid stability for instance. The barriers to geothermal energy can be overcome should the right framework be in place, which the effort to decarbonise the whole European energy supply would require.

With the implementation of energy efficiency legislation and ambitious energy efficiency programmes in Europe, further GHG emissions reduction are expected in the future power sector. It will lead to lower demand for EU gas consumption and less need for additional generation and grid capacities with higher energy efficiency levels.

Key Messages:

• EU policies need to focus on avoiding the lock-in of carbon intensive infrastructure, notably to prevent a quick increase in electricity consumption before electricity is indeed decarbonised and renewable based.

• Dispatchable power plants from stable renewable energy sources such as geothermal, have to be largely deployed for covering half of the power consumption in 2050, providing the desirable flexibility option along with demand-side management, interconnections, and storage.

Reducing emissions in the Transport sector, e-green mobility & less traffic

To reduce the EU's energy related emissions, it is crucial to engage in a switch away from fossil fuels, towards renewable energy sources in the transport sector. In addition, this transition must be done following the principle of energy efficiency first, meaning, the consideration of the usefulness of the energy used and avoiding wasting energy in terms of quantity and in terms of quality, but also using available renewable resources in a dynamic and integrated manner. For the transport sector, it implies firstly less car and air traffic.

Despite the efforts undertaken the European economy, the transport sector is dominated by non-renewable energy sources (fossil fuels and nuclear), which represent 93% of supply for transport.

As a whole, it is uncertain whether the EU is on track to meet its objective of 20% of renewable energy by 2020. This is notably due to a lack of progress both in the heating and cooling and the transport sectors, which did not engage in the transition fast enough. By contrast, the strong policy focus put on the electricity sector allowed it to progress further towards decarbonisation, although much of the current renewable electricity production predates the Renewable Directive.

The transformation of transport sector to become greener includes a comprehensive range of clean mobility solutions. The decarbonization of this sector will be based on a system approach that combines alternative fuels fossil-free and smart transport systems.
Key Messages:
• The future energy system should make a strong link between its three sectors: electricity, heating & cooling, transport. Smart energy grids will play an important role in the future smart cities and communities by ensuring a reliable and affordable energy supply to various customers with renewable energy sources like geothermal energy.

RECOMMENDATIONS

In order to reach our climate objectives for 2050, it is crucial to trigger a prompt fuel switch to renewables. Beyond 2020, existing measures should be strengthened, addressing the full decarbonisation of the heating, cooling, transport and electricity sectors.

The European Geothermal Energy Council puts forward the following recommendations to achieve this goal (full version):

➢ A level-playing field is needed. Fossil fuels subsidies must be phased-out with the utmost urgency. Carbon outside the ETS sectors should be priced. Where this is not politically feasible fuel switch to renewable sources of heating should be supported. Concerning the ETS, the Market Stability Reserve is a first step to fix the system, yet it is not sufficient to trigger fuel switch to flexible RES technologies. Tailor made enabling policies are therefore needed.

➢ It is crucial to mobilise existing Structural and Investment Funds to finance RES heating and cooling and flexible renewable electricity generation. Financing tools must include risk capital, guarantees and grants.

➢ Implementation of existing legislation is essential. Member States must notably launch large national information campaigns to increase awareness of citizens and facilitate access to information regarding RES h&c suppliers and installers.

➢ In the heat sector it is crucial to collect and update regularly reliable statistics on and distinguish between energy sources, enablers, and end-users. This would enable informed decision making.

➢ The EU should continue supporting technological development. RD&I in geothermal technologies is needed to reduce costs, enhance system performance, and facilitate the integration of into existing infrastructure. It is also needed to increase the temperature level provided by geothermal technologies and cover additional industrial sectors.

➢ Horizon Europe and national R&D programmes are also much needed to develop the new generation of flexible renewable energy technologies as well as to improve the flexibility of their electricity production. In the period beyond 2020, a strong boost can come from the new Innovation Fund.
This should see the EU making upfront funding available at an early stage and bearing part of the risks.

➢ In the framework of the Commission’s work on a new market design and of the Member States’ implementation of the new EU state aid rules, it is crucial to value energy capacity and, most importantly, the flexibility that renewable energy sources can offer to system operators.

➢ In line with the European Parliament’s call, the Commission should submit an analysis of how stable sources of renewable energy can complement variable renewable sources. As a follow-up, the Commission and Member States should develop a strategy to further deploy flexible renewable energy sources in order to boost the flexibility of the power system.

KEY PRINCIPLES

Renewables for heating and cooling and flexible renewable electricity generation, such as geothermal, must be a pillar of the EU’s strategy for long-term greenhouse gas emissions reductions.

- Efficient renewable heating and cooling (h&c) technologies, including geothermal, can provide a cost-effective contribution to the decarbonisation of the energy sector, while increasing security of supply and render heat affordable. On the contrary, electrification of the heat sector should not be overestimated. As renewables represent only 30% of the electricity consumption today, the electrification of the heat sector would make decarbonisation more difficult.

- Dispatchable power plants from stable renewable energy sources such as geothermal, have to be largely deployed for covering half of the power consumption in 2050, providing the desirable flexibility option along with demand-side management, interconnections, and storage.

- A continuation of the three-targets approach, including binding targets for renewable energy covering all sectors (electricity, heating and cooling and transport), will be needed to achieve the 2050 targets in the most cost-efficient way. Alongside renewable energy, an ambitious energy efficiency binding target is necessary as well for a successful decarbonisation.

- When assessing costs of policy measures it is of paramount importance to be as transparent as possible. In the power sector this means taking decisions based on the full costs to society (including system costs and other externalities) rather than on the LCoE (Levelised Costs of Energy) of single generation technologies. The difference in market value of predictable and controllable power output versus power output dictated by external natural variations should be included in the assessment of the value of the renewable power production;
• The EU ETS is neither promoting innovation nor competitiveness and jobs. A 2050 framework for energy and climate policies based on a greenhouse gas approach is needed but is not sufficient to drive investments for decarbonising the economy;

• EU energy and climate policies should aim to achieve competitiveness and affordable energy prices while taking into account all costs to society. Reducing the share of imported energy to improve our trade deficit should be one of the pillars on which such a policy has to be designed. Such an approach addresses the competitiveness of the EU as a whole and not only of those supposed declining sectors;

• The GHG emissions reduction potential in non-ETS sectors (the Effort Sharing Decision) was underestimated and targets were set too low. By setting more ambitious GHG emissions reduction targets in non-ETS sectors, the EU can achieve decarbonisation in a much more cost-efficient way;

• There is a need to strike the right balance between a bottom-up approach and top-down guidance from the European Commission. Attention should be paid to reducing the overall costs of decarbonisation;

• The 2050 strategy for EU energy and climate policies requires increased focus on energy system integration and local/regional energy supply (in line for instance with the Smart Cities and Communities Initiative). Investments in local renewable energies (such as geothermal) and energy efficiency can boost local economies and improve urban environment conditions.