

POSITION PAPER

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Heat sector can be entirely decarbonised by 2050

The Energy Roadmap 2050, to be tabled by the European Commission, is an important initiative to achieve the full decarbonisation of the European heat sector by 2050. This goal can be reached by the combination of energy efficiency and renewable heat, as underlined by the Re-thinking 2050 scenario (EREC 2010) and supported by the European Renewable Heating and Cooling associations (AEBIOM, EGEC, EUBIA and ESTIF) of the biomass, geothermal and solar thermal sectors.

Currently, almost 50% of the total energy consumption in Europe is for heat generation, either for domestic or industrial purposes. Most of this energy is produced from fossil fuels combustion, such as oil, gas and coal, with a negative environmental impact due primarily to the associated greenhouse gas emissions and also from the resource extraction process.

With a few exceptions, cooling is predominantly produced by electricity usually generated by burning fossil fuels. The social, environmental and economic costs of climate change are such that we must now move swiftly toward a more sustainable energy economy, based on renewable energy sources.

Geothermal, Biomass and Solar Thermal represent the perfect replacement for conventional systems to decarbonise the heat sector by 2050. Renewable heating and cooling is vital to achieve both energy efficiency and decarbonisation of the heating & cooling supply. Substituting RES to fossil fuels to generate heat will provide more efficient and cheaper options, resulting in reduced fuel imports and the creation of local jobs.

1) For today's buildings and beyond

While the Energy Efficiency Plan 2011 acknowledges that most of the energy consumed in the EU (i.e. 83% in buildings) is used for heating, cooling and hot water, the EC Low Carbon Roadmap states that "the built environment provides low-cost and short-term opportunities to reduce emissions, first and foremost through improvement of the energy performance of buildings." Improvements in the energy performance of a building cannot be separated from the integration of renewable energy sources– they are two faces of the same coin. Therefore, these issues should be addressed together, whether in a new build or a major renovation, exploring obvious synergies in preparation for the future life of the building.

Renewable heat technologies provide market-ready, efficient and completely carbon-free energy solutions; other options such as waste heat derived from processes using conventional fuels should only be considered for a transition period.

Similarly, the heat sector electrification should not be encouraged when other truly renewable heat technologies are available and deliver better solutions.

Thermal needs should be primarily supplied by thermal sources and decentralized energy demand should also be primarily supplied by decentralized energy supply; as a result, lower costs and better efficiency will be achieved. Therefore, reducing the electrification of heating & cooling will relieve

the stress on the power system and shave peak-loads, especially during summer when the cooling demand increases throughout Europe.

2) For 2020 and beyond

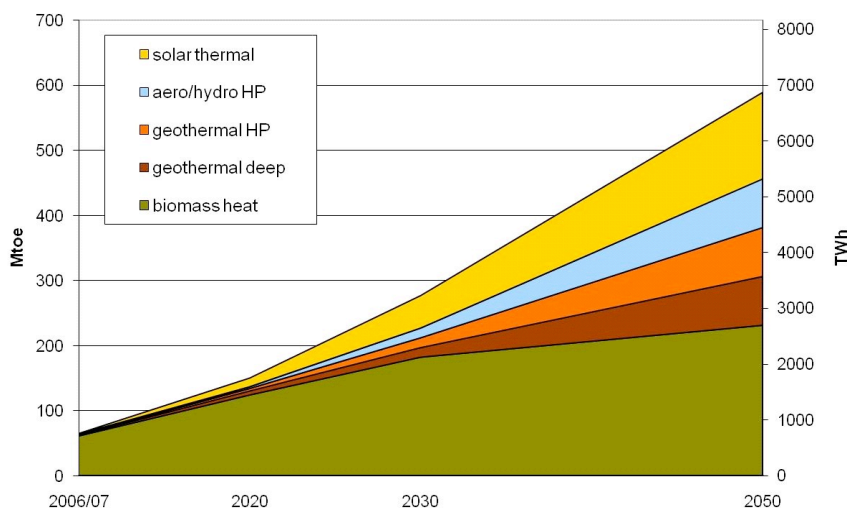
At the moment, competition in the heating and cooling market is distorted, mainly because no studies exist on levelised costs for renewable heating and cooling technologies. Hence, comparison with conventional energy sources is often made on the basis of capital costs and not levelised costs, omitting most of the negative externalities associated with fossil fuels. This creates unfair market conditions preventing the creation of a level playing field.

A costs analysis (both from a macro and micro-economic perspective) is crucial for measuring the potential of Renewable Heating & Cooling solutions. In this respect, the renewable heating and cooling sector is lagging behind, especially compared to its 'sister' RES electricity. Renewable Heating & Cooling has not experienced the intense debate and analysis that lead, for instance, to the introduction of strong and durable support mechanisms for the RES electricity sector.

Furthermore, the Renewable Heating and Cooling sector potential has also been largely underestimated, simply because the exact size of this market has also been undervalued. The statistical analysis of the energy provided by Renewable Heating and Cooling systems is extremely complex, mainly because of the high level of decentralization as well as the variety of solutions and options offered. The increasing incorporation of renewable heating and cooling sources in district heating, CHP and other small scale initiatives, as promoted by ESCO's (Energy Service Companies), is just an example of the sector's potential which is not reflected adequately in statistics and action plans.

Creating a level playing field requires more information and understanding of the potential presented by Renewable Heating and Cooling options as well as a pragmatic evaluation of the negative externalities from options using fossil fuels.

According to the Renewable Heating and Cooling technology platform, by 2050 the combined potential of RES even exceeds the expected heating demand. The long-term scenario with 100% renewable heat will result in a dramatic reduction in greenhouse gases emissions associated with fossil fuels consumption. When outlining the potential of RES, it is important to use internationally agreed definitions of "primary" and "final" energy. All figures presented here refer to the potential of RES to meet the EU's final energy demand.



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3) For tomorrow’s green jobs and beyond

Compared with other more ‘conventional’ options, Renewable Heating and Cooling offers benefits well beyond the environmental scope and, in economic terms, they represent the most sensible approach. They promote economic growth at local and national level by channeling future energy revenues into local investments and jobs, as their applications are mainly decentralized. The RES-H generated jobs will not be delocalized; even when components are imported, most of the value chain jobs are at locally-based, e.g. in marketing, planning, installation and maintenance. Many European companies have a competitive edge in the global market thanks to R&D and innovations. Although these technologies compete effectively in today’s marketplace, there is still some room for technological and cost-efficiency improvements.

Moreover, producing energy from biomass, geothermal and solar thermal technologies will help toward reducing imported energy dependency, ensuring better energy security at national level. It will also relieve inflationary pressures by removing from the balance of payments the burden of an excessive dependence on scarce and ever increasing costly energy sources.

In conclusion, the Energy Roadmap 2050 must set the vision for an energy strategy sustainable on environmental, economic and political grounds. Moving toward a 100% renewable energy goal is only achievable through decarbonising the heat sector. By acting now, it is possible to contemplate a future with 100% renewable energy, simultaneously reducing drastically the heating requirements through energy efficiency and using renewable heating and cooling.

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