



European Geothermal Energy Council

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## EGEC response to the EC public consultation on the "FINANCIAL SUPPORT FOR ENERGY EFFICIENCY IN BUILDINGS"

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**EGEC**, the European Geothermal Energy Council, was founded in 1998 as an international non-profit association in Brussels, with the aim of promoting the use of geothermal energy. **EGEC** has 120 members from 22 European countries: private companies, national associations, consultants, research centres, geological surveys and other public authorities.

### Questionnaire and replies from EGEN

Based on the clusters of barriers identified in the previous chapter, stakeholders are requested to provide answers on the following questions:

#### (1) Addressing market failures

(a) Are the barriers identified in this document the most important ones? If not, which barriers are missing and why are they important?

An important barrier which was not enough underlined in this report concerns the lack of integrated approach between energy efficiency and the heating and cooling sector. **Heating represents 50% of the final energy consumption.** In buildings, heating, cooling and domestic hot water represent 80% of the energy consumption.

**Figure: EU-27 households' energy consumption at home, %**



Source: Odyssee indicators, [www.buildup.eu](http://www.buildup.eu)

Today, however, the heat is mainly provided through the combustion of fossil fuels (81%). The decarbonisation of this sector is therefore crucial and it can be made only through increasing renewable heat: biomass for heat, geothermal and solar thermal provides only 12,5% in 2010.

In order to reach our ambitious energy efficiency goals in buildings, the combination of energy efficiency measures and the installation of renewable heat systems is required. Increasing the share of RES H&C from 12.5% in 2010 to 50% in 2030 will allow saving 100 Mtoe

Yet it will only be possible if a level-playing field is established for the heat market, with a fairer competition by integrating system costs and externalities to fossil fuels.

**(b) Which market failures would be most urgent to address? At what level (i.e. EU, national/regional/local) would these failures be best addressed?**

As heating and cooling represent 80% of the overall energy consumption in buildings, a market design for heat is needed.

Market-based instruments:

- Removal of gas, diesel and non-renewable electricity subsidies;
- Structural reform in the heat sector promoting private investment and competition;
- Green fiscal reform: carbon tax, less income taxes;
- Contracts for payment for environment services to owners;
- Subsidies for renewable heat as long as market barriers are not completely removed and a level-playing field is established;
- Urban development and housing policies promoting smart cities: electricity and thermal grids

- Innovative financing: a Fund for no-interest loans to renovate buildings with renewable heat and energy efficiency;
- zero VAT rate for RES materials: renewables help energy efficiency!
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**(c) How could these failures be best addressed? For example; how could behavioural change needed for quicker uptake of energy efficiency measures by society be triggered at the national level? How could the development of an energy services market for households be further stimulated? What could be done to increase awareness raising and promotion of energy efficiency in buildings? How could the business community (e.g. building sector, ESCOs, local banks, etc.) be better supported in delivering energy efficiency in buildings? How could the split incentive problem be best tackled?**

Heat must be recognised as key for energy efficiency in buildings and renewable heat must be seen as the solution for reducing energy consumption and decarbonise the sector.

Tackling heating and cooling with energy efficiency would result in a rapid reduction of fossil energy consumption and thus decarbonise the energy system whilst ensuring the security of energy supply. Furthermore, direct electricity used for heating applications should be replaced by renewable heating technologies resulting in significant reduction of conversion losses<sup>1</sup>.

Considering that energy efficiency measures do not entirely eliminate the heat demand either for space heating or for domestic hot water, this heat should preferably be provided by the most effective RES technologies for heating and cooling, such as geothermal, solar thermal and biomass; hence contributing to dramatic reductions in primary energy consumption and CO<sub>2</sub> emissions.

These are the main reasons why the nearly zero energy consumption in buildings is defined as follows in the EPBD:

*“nearly zero-energy building’ means a building that has a very high energy performance, as determined in accordance with Annex I. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby”.*

Also significant is the fact that building refurbishments for energy efficiency purposes provide a unique opportunity to integrate renewable heating and cooling solutions at substantially lower costs. Moreover, recently refurbished buildings are unlikely to undergo further improvements for quite some time, including the integration of RES. Therefore, an approach addressing energy efficiency and renewable heating and cooling in an integrated manner would be more than economically viable: it would also be economically responsible.

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<sup>1</sup> Energy conversion losses occur due to a lower efficiency of electricity production compared to the production of heat onsite or via district heating. These conversion losses can be as high as 60-70%.

In brief, to reach the long term CO<sub>2</sub> emissions reduction goal, namely the 80-95% target by 2050, a large deployment of RES Heating and Cooling is required, in particular in combination with energy efficiency measures.

## **(2) Improving access to financing**

**(a) Are the current EU-level financial tools for energy efficiency in buildings effective? How could the uptake of EU-level funding for energy efficiency (including cohesion policy funding) be improved? As a complement to tailor-made national or regional financial instruments (e.g. set up with a contribution from cohesion policy funds), what could be the future role of centrally-managed financial instruments at EU level in this context?**

System costs and externalities are still not integrated in the cost of fossil fuels.

EGEC supports the EC efforts to introduce a CO<sub>2</sub> tax by revising the current Energy Taxation Directive and urges EU member states to seriously consider the proposal of the Commission also for the heating sector. The CO<sub>2</sub> tax, if introduced, will not only reduce CO<sub>2</sub> emissions and improve energy efficiency but will also significantly increase the member states budget revenues.

Roughly half of the EU GHG emissions are already covered by Emissions Trading Scheme (ETS - for plants higher than 20 MW), although here the price should be more than 20 €.

The EC proposal to revise the Energy Taxation Directive and to introduce a carbon tax of 20 Euros/ton CO<sub>2</sub> at EU level would cover all the applications below 20 MW.

A carbon dioxide tax has many additional advantages:

- It promotes energy efficiency and energy savings;
- It reduces the dependence on imported fossil fuels and stimulates the investments and the use of domestic renewable energy sources;
- It ensures the 'polluter pays principle' and has a direct impact on price and thus on consumer behaviour. It helps the consumers to make the right choices in future investments. In such a way, environmental costs (external costs) are internalised and made a part of the total cost of the polluting activities.

Many households are unfortunately dependant on fossil fuels for heating. It is certain that due to the scarcity of fossil fuels reserves and consequently rising prices, energy poverty will increase in the future. In order to avoid it, the transition to a more sustainable energy system should be undertaken as early as possible. Some of the income from a carbon tax can be used to alleviate energy poverty. For example, Sweden has lowered its' income tax by 7 billion EUR during the years 2007-2010.

The tax increases the cost for those consumers and companies that use fossil energy in large amounts or in an inefficient way. But it also makes it more profitable to invest in measures that reduce energy related costs such as insulating homes, installing better

windows or switching heating systems or district heating from coal, oil and gas to renewable heat.

For Europe as a whole, a carbon tax is a necessary measure to reduce greenhouse gas emissions in a market oriented way. It puts a price on carbon in all sectors of society outside the emission trading scheme, thereby, creating a level playing field between different business sectors. A carbon dioxide tax is already successfully introduced in countries like Sweden, Finland, Denmark, Slovenia and Ireland. Other EU Member States should, therefore, seek to introduce such a tax instead of opposing it.

**(b) How could more private financing (both from institutional investors as well as building owners) for energy efficiency projects be mobilised? What would be the role of public funding (both at EU and national level) in this context? Is access to (project development) technical assistance an issue and how could it be provided most efficiently at the national, regional and local level? How could both national and EU financing schemes be improved to best cover all segments of the market (residential, commercial, public buildings, etc.)?**

An idea deserving more attention may be the creation of pool of buildings or cities in order to benefit from better loans from banks, by mutualising risks and costs.

When several entities unify their efforts, their bargaining power before financial institutions is stronger.

Public funding may co-finance projects by bringing funding for the initial capital investments.

The next Multiannual Financial Framework which will be adopted in 2013 should reflect this urgent priority and enable better financing of renewable energy integration in buildings. Against this background, it is fundamental to maintain the proposed ear-marking of funds aimed at “supporting the shift to a low-carbon economy” in the discussions around the next EU budget for the years 2014-2020, and to ensure that a significant amount of such funding support integrated investment approach in energy efficiency of buildings and renewable heating and cooling.

On the other hand, Member States should consider that the use of Structural Funds for improving energy efficiency in buildings is an investment and not mere expenditure.

**(c) Is there a need for guarantee systems related to building efficiency investments? If so, what guarantee systems for efficiency investments would be necessary and how should they be designed? Is there a need for other enabling mechanisms (e.g. risk-sharing, investment vehicles)?**

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**(d) How could the capacity, knowledge and risk perception regarding energy efficiency investments be improved, both at financial institutions as well as with private investors and administrations at all levels?**

The capacity, knowledge and risk perception regarding energy efficiency investments may be improved notably by recognising the importance of heat consumption and the need of combining energy efficiency measures with renewables.

**(e) Are there examples of good practice at national or regional level (with data on costs and benefits) that could be applied more widely?**

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### **(3) Strengthening the regulatory framework**

**(a) Is there any need for further EU-level regulation to stimulate energy efficiency investments in buildings beyond the Commission proposal for a new Energy Efficiency Directive? If so, what should these measures entail?**

The recast of the EPBD and the new Energy Efficiency Directive are both steps further in the right direction. However, this frame entails no specific targets regarding refurbished buildings which represent 99% of the buildings stock and the first cause of CO2 emissions before new buildings.

Both EPBD are positive but they are incomplete:

- Renovation of existing buildings must be increased
- Deployment of renewable heat must be accelerated

- Building renovation rate – Member States would need to start renovating 2.5% of the total floor area of public buildings with a total useable area of more than 250 m<sup>2</sup> by January 2014, or find alternative ways to achieve equivalent energy savings, such as giving priority to "deep" renovation projects; we should now start considering measures for the other existing buildings

- Promotion of energy efficiency in heating and cooling - Member States would need to put in place "national heating and cooling roadmaps" by January 2015 for developing high-efficiency cogeneration and efficient district heating and cooling networks. These roadmaps should be based on detailed cost-benefit analyses of specific climate conditions, economic feasibility and technical suitability for each region. Regrettably, the above-mentioned roadmaps are not yet intended for the development of small scale installations such as Ground Source Heat Pumps.

- **An Action Plan or Green Paper at EU level on Renewable Heating and Cooling must be urgently carried out in order to better understand the heat sector and envisage the ways to decarbonise heat through a level playing field.**

**(b) What could be specific measures to be taken at national level to implement and complement most effectively the EU-level regulatory framework for energy efficiency?**

### **RES Building obligation:**

Renewable heat ordinances are regulations requiring that RES provides a minimum share of the heating demand. Usually, they apply to new buildings, those undergoing major refurbishment and sometimes when the heating system is being replaced.

A decade ago, the idea of making the use of renewable energy compulsory sounded radical and politically unrealistic in most parts of the world. However, building obligations have now been adopted or are being discussed in a number of countries, regions and local authorities in Europe and beyond.

Building obligations are probably the single most powerful tool for promoting the use of renewables in new buildings. Practical experience shows their numerous benefits. However, building obligations fundamentally change the way in which the RES market grows and customers will often search for the cheapest possible solution. Therefore, such an obligation must include appropriate quality assurance measures.

**(c) What are the specific needs for policy guidance and awareness raising among different stakeholder groups?**

Heating and cooling represents 43%, and by far the largest share of the final energy consumption in Europe. Although this sector is not only huge in size but also already provides low and no-carbon solutions it has largely been overlooked in all the scenarios presented in the several roadmaps presented by the Commission in 2011, i.e. Roadmap for moving to a low-carbon economy in 2050 and Energy Roadmap 2050.

As a result, the Roadmaps fail to deliver a coherent and future-proof vision. In addition to achieving carbon-neutrality, a future proofing strategy implies affordability for all citizens and positive effects on local welfare including the creation of employment.

The Energy Roadmap 2050 rightly acknowledges that renewable heating and cooling is vital to decarbonisation and that a cost-optimal policy choice between insulating buildings and systematically using RES heat needs to be found. Yet, a thorough analysis of the heating and cooling sector is omitted.

Therefore, to meet most efficiently the European target of an almost entirely decarbonised energy system by 2050, EGEC calls not only for a further analysis of heating and cooling, but also that it is put at the forefront of the current and future policy debate.

Mapping out the future of the European energy system requires a more holistic approach involving all forms of energy (i.e. heat, transport and electricity) and fully reflects their interdependencies. Neglecting the production and use of thermal energy inevitably leads to distorted results, in particular to a complete reliance on electricity in decarbonising the energy sector, leaving aside possibilities to simply meet heating and cooling demands by direct use of renewable and waste heat sources.

For the successful development of a post-2020 energy policy framework, Europe needs to understand thermal energy flows within and across sectors, i.e. how buildings are heated and cooled, in which form heat is used to drive industrial processes and how thermal energy can generate electricity.

Up to now a systematic data and information collection on heating and cooling markets is not available at European level. As a result there is insufficient adequate analysis and modeling on which policymaking must be based. To remedy this unsatisfactory and unacceptable situation, the European Union must obtain urgently the relevant statistics, enhance analytical capacities and reassess future scenarios.

While the European Union is about to embark on deciding its future energy policy, EGEC urges the European Institutions and the Member States to adopt, and to swiftly execute, an ambitious European heating and cooling policy. To achieve a better overall energy integration, replete with significant economic opportunities, political measures and infrastructure funding must be directed towards local RES solutions already available today. Rethinking the energy system can only bring benefits if more attention is paid to local and decentralised renewable resources and if action is taken on heating and cooling!