

Support schemes for geothermal heat pump technology: What key successful factors?

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ABSTRACT

Support schemes for geothermal and other renewable energy sources are defined as instruments that compensate for market failures and unfair competition. They are also intended to favour the deployment of a given technology by creating a secure investment environment catalysing an initial round of investment and thereby allowing the technology to progress along its learning curve. For geothermal heat pump technology, support schemes also serve the purpose of increasing awareness and boosting consumer confidence in the technology.

Geothermal heat pump technology has hitherto been supported mainly through fiscal incentives and investment grants, in certain cases accompanied with or substituted with zero interest loans. Operational aid similar to a feed-in tariff system is now beginning to be explored in some Member States. But the competitiveness of geothermal heat pumps technology must be measured against broader market conditions, including subsidies for competing technologies, carbon pricing, electricity tariffs, etc.

This presentation will discuss some results of the IEE-project FROnT (Fair Renewable Heating and Cooling Options and Trade), notably on the key successful factors for support schemes.

1. INTRODUCTION

The primary objective of public financial incentive schemes is to promote the general interest and compensate for market fail. In the energy sector, market prices do not fully capture negative externalities from fossil fuels such as atmospheric pollution and climate change and positive externalities from sustainable renewable energy sources, including local economic development and reduced imports from unstable suppliers.

In order to contribute to the global efforts to mitigate climate change, the EU has the objective of reducing greenhouse gas emissions by 80-95% by 2050

compared to 1990. According to the Inter-governmental Panel on Climate Change, this is in line with the necessary reductions by developed countries as a group in order to achieve an overall global reduction of 50% by mid-century.

In theory, the most efficient way to internalise negative externalities of energy resources extraction, transportation, transformation, and consumption, is through a carbon tax. Yet, it may not be sufficient to deliver the wide range of carbon neutral technologies at the necessary scale needed to decarbonise the economy. This is because other market failures occur, including knowledge spillovers in R&D, time-inconsistent preferences, information asymmetries, non-competitive markets, principal-agent problems.

Therefore, a mix of policy instruments is appropriate to support renewable technologies like geothermal heat pumps when they are not yet competitive under current market conditions.

Based on the on-going assessment carried out within the framework of the IEE-project FROnT (Fair Renewable Heating and Cooling Options and Trade), co-funded by the European Union, we will present which are key successful factors for the deployment of geothermal heat pumps and other renewable heat technologies in Europe. Those factors have been identified within the framework of the project, following extensive consultation at the EU level, and more in particular in Austria, Portugal, Spain, The Netherlands, Poland, and United Kingdom.

2. CONCLUSIONS

At the time of writing (June 2016), the project work on the above issues is still on-going. The available results will be presented during the conference.

