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Renewable energies heat act and government grants in Germany

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ABSTRACT

In Germany renewable energies in the heat market are promoted by the Renewable Energies Heat Act (EEWärmeG) and by government grants. Ultimately, these two instruments are not only about short-term market success, but rather about the perspectives of climate protection and resource conservation. The focus of this report is therefore on the long-term significance of the current design of government grants and EEWärmeG. We will introduce and discuss the quantitative goals and structural changes strived for as well as – on a slightly shorter time horizon – the quality assurance regulations which must accompany the steady and stable growth of renewable energies. In the process, we will elaborate in particular on heat pumps, which have recently been added to the government support programme, along with solar collectors. Some explanations regarding the structural relationships between EEWärmeG and government grants round off this contribution.

1. Policies with long-term goals in MAP and EEWärmeG

1.1. Fundamental promotional structures

The Renewable Energies Heat Act (EEWärmeG) is operative since beginning of 2009. It provides a legal framework for the long-established programme for government grants, the so called "Marktanreizprogramm (MAP)". § 13 EEWärmeG promises potential funding of up to 500 million Euros annually in the financial aid budget of MAP, corresponding to more than twice the funding previously available. The additional budget is meant to be refinanced through the income expected from the auctioning of emission certificates.

EEWärmeG regulates the obligation to use renewable energy in new buildings. Old buildings are not yet covered by EEWärmeG. As a consequence, § 15 EEWärmeG limits MAP funding opportunities for new buildings. MAP financial support for renewable energy in new buildings is only then legally admissible if MAP system specifications are quantitatively or qualitatively stricter than EEWärmeG ones.

Each year, the number of newly constructed buildings is less than 1 % that of existing older buildings – a figure which emphasizes the significance of older buildings. Thus, the fact that MAP supports the addition of renewable energy to old buildings makes it more significant than EEWärmeG in its current form, as EEWärmeG only requires the use of renewable energy in new buildings.

1.2. Objectives of MAP and EEWärmeG

The purpose of MAP and EEWärmeG is to promote climate protection through the increased use of renewable energy. Effective climate protection must be established over decades. Therefore, MAP and EEWärmeG need to be integrated into a long-term strategy. The German Federal Environment Ministry (BMU) applies the guidelines presented in the "Lead Study 2008" [1], among others, which envisage an increase in renewable energy use in the total German heat market (including process heat, excluding electricity for heating purposes) from 6.6% (2007) to 14.4% by 2020. The expected long-term development in the space heating sector is shown in Fig. 1. By the year 2050, the share of renewable energy in meeting the demand for space heating adds up to 62%.

This development is not possible without substantial structural changes in the heat market. These include a strong expansion of heat networks since they feature several advantages:

- Cost-efficient large-scale systems for solar heat and (deep) geothermal energy are possible.
- Seasonal heat stores can also be used by existing buildings (solar district heat).
- Biomass CHP and the use of cost-efficient but problematic biomass components is possible.

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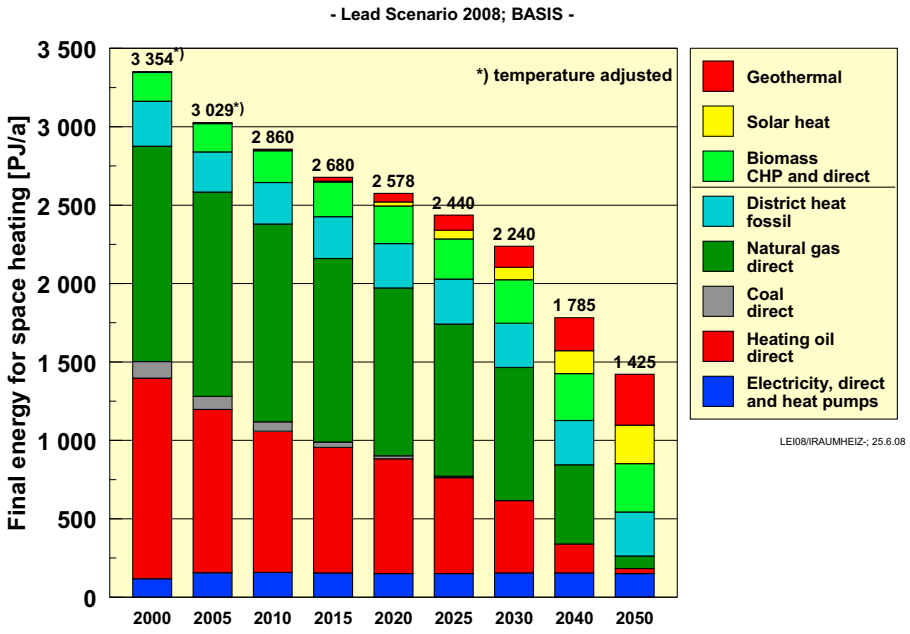

Fig. 1. Development of energy use for space heating [1].

- Larger CHP plants (incl. fossil-fired) achieve higher electrical efficiencies.

Fig. 2 indicates the amounts of heat which are distributed by heat networks. Today, the share of pipeline-bound heat is still about 12%. A sustainable development requires that this share increases to 56 % by 2050 (shares referred to the final energy demand for space heating and hot water per year). At the same time, the share of heat produced by renewable energy increases rapidly. According to the Lead Study 2008, three quarters of the network heat is generated by renewable energy. The significance of heat networks and large-scale systems for sustainable development must also be reflected in the instruments used to promote renewable energy in the heat market.

1.3. Large-scale systems and district heat in MAP and EEWärmeG

Besides the expansion of local district heating schemes for biomass, it is also particularly important for the long-term success of renewable energy to develop market sectors which have been neglected in the past. Especially solar collectors are poorly represented in the market sector for large-scale systems. Paradoxically, exactly this market sector is the one which is expected to first cross the profitability threshold even without public aid. This has been already demonstrated in Danish district heating systems [3]. The prerequisites are that present obstacles are overcome and a sufficiently large market volume evolves. EEWärmeG and MAP each favour the implementation of large systems and district heat in different ways.

Larger systems, and therefore also larger solar collector systems are favoured by EEWärmeG in § 6, which allows that heat produced with renewable energy exceeding the legal obligation (e.g. due to a generously dimensioned solar heating system) can be deducted from the obligation of neighbouring buildings. Furthermore, EEWärmeG facilitates solar district heat in that a grid connection already fulfils the obligation if the share of solar heat is at least 15 %. In other respects EEWärmeG is principally geared towards individual buildings and is therefore less suited for the promotion of large solar collector systems.

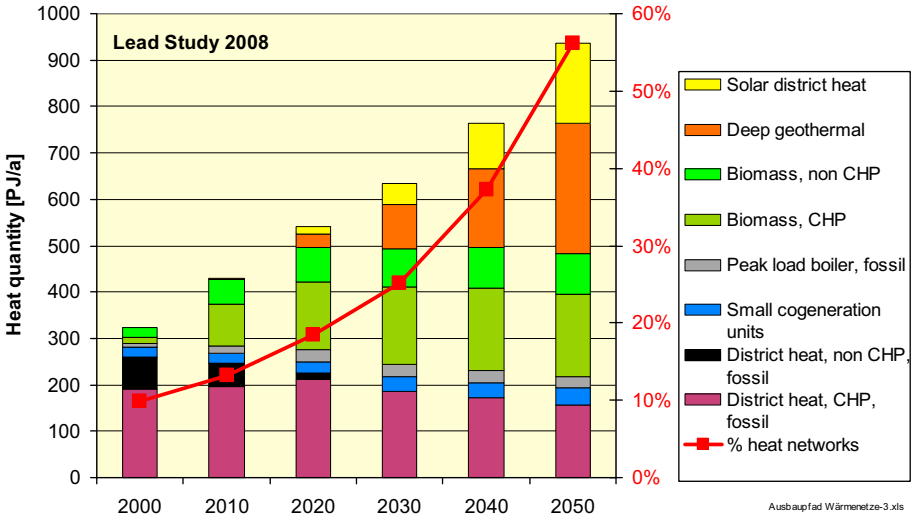

Fig. 2. Heat quantities from heat networks [2].