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## Biomass District Heating in Salzburg – Contribution towards Kyoto-Target

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The reduction targets for CO<sub>2</sub> emissions specified in the Kyoto-Protocol have become stringent for Austria by the resolution of the European Council on April 25<sup>th</sup>, 2002 (2002/358/EG). Austria has to reduce the CO<sub>2</sub> emissions by 13% based on the level in 1990. In the Austrian strategy to fulfil the Kyoto targets (Klimastrategie 2008/12), which was decided by the Austrian government in June 2002, it was fixed to reduce the CO<sub>2</sub> emissions caused by heating purposes to 10.5 t/a (i.e. a decrease of 28% based in the level of 14.6 t/a in 1990)

However, for instance in Salzburg the CO<sub>2</sub> emissions increases from 1990 till 2001 by 24 % (*Bundesländer Luftschadstoff-Inventur 1990–2001, Umweltbundesamt*). Thus, the CO<sub>2</sub> emissions caused by heating have to be reduced by 380,000 t/a from 2001 till 2010. The significant improvement in the thermal quality of new buildings cannot hinder the increase in CO<sub>2</sub> emissions due to the increase in number of buildings, though the rate of increase could be reduced. Thus, besides a significant enhancement of refurbishment of old buildings a fuel switch from fossil fuels to renewable ones is essential. So, the program to fulfil the Kyoto targets for heating purposes in Salzburg gives the necessity for a fuel switch from fossil fuels to renewable ones for the equivalent of 40,000 flats.

In order to fulfil these targets, district heating with biomass had a significant contribution, which will gain even more importance in future. In 2003 there were 44 biomass district heatings with an average thermal power of 1,500 kW in Salzburg. These reduce the CO<sub>2</sub> emissions by 60,000 t/a and substitute 23 million litres oil by the renewable local fuel wood (approx. 300,000 bulk m<sup>3</sup>/a). Most of these plants (i.e. 63%) were erected and operated by local farm cooperatives. In this way the rural regions and local agriculture is strengthened.

Due to the law for the supply of power from renewable fuels setting sufficient prices the interest on combined heat and power (CHP) plants from biomass increases significantly. These plants produce efficiently electrical power, which is supplied to the public grid. The waste heat of these processes is used for district heating.

Moreover a district heating grid between Hallein and Salzburg is under construction. Here industrial waste heat and heat from biomass combustion is used for the district heating of the city of Salzburg, which should be supplied by thermal energy without usage of any fossil fuel in summer.

This and other future projects (approx. 40 plants till 2008) as well as the existing plants will reduce the CO<sub>2</sub> emissions by 160,000 t/a. This will be an important step towards the target of the Kyoto protocol.