

## Other countries focusing on pollution from smaller systems

The debate on pollution from wood-burning stoves and smaller boiler systems is not only taking place in Denmark. Other countries, in particular Switzerland, Sweden and Norway, are also focusing on this area, supporting research into catalysts, after-burners and electro filters, amongst other things.

By Anders Evald

For Task 32, a task group working within the International Energy Agency, emissions originating from biomass incineration have obtained a minimum new area of focus. Interestingly, many countries are now looking at the smallest systems, e.g. wood-burning stoves and boilers for single household heating. Several studies have shown that such systems are the biggest sinners when it comes to emission of harmful substances, and based on these conclusions, a range of comprehensive research and development projects on small-scale systems have now been initiated in Sweden and Austria, amongst other places.

Because the high emission levels are related to consumer behaviour and a technology featuring some very basic limitations, the problems pertaining to



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small-scale systems give rise to quite a few headaches. Technological developments, e.g. catalysts for wood-burning stoves; fitting of afterburners on existing stoves; small electro filters or additives, will not solve the problem on their own. Initiatives such as information campaigns about correct wood firing procedures; requirements regarding accumulation tanks on boilers, or exchange of wood-burning stoves for pellets stoves, are needed as well.

### Emission factors

Thomas Nussbaumer from Switzerland has carried out a study on emission factors in anything from heating systems to biomass units in different countries. Large country-to-country differences in results and measuring methods exist. A

*The pollution from wood firing is not only connected to the chosen technology. Even the best boiler has a disproportionately big escape of harmful substances if you like here burn wet trees.*

detailed report on this topic is available at [www.ieabcc.nl](http://www.ieabcc.nl).

In connection with the latest task group meeting in Jyväskylä, Finland, a seminar on ultra-fine-grade particles stemming from biomass incineration was held. Whereas coarse particles are relatively easy to handle in treatment plants for combustion gasses, the very small particles make up a big problem; partly because of their health-related importance and partly because it is complicated to reduce their plant emission levels.

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## International company wants to utilise Danish

**An international company is looking to utilise Danish knowledge in the field of bioethanol in order to increase the output from their first-generation plants.**

Recently, the Danish technology company BioGasol entered into a cooperation agreement with the international company Tate & Lyle, one of the leading food ingredient producers worldwide. The goal of the cooperation is to develop a process that allows fibre-containing residual products from existing bioethanol plants to be turned into more ethanol and forage. Basically, it is all

about obtaining more from existing first-generation plants and creating a better protein residue that is more suitable as animal forage.

The conversion of fibre-containing residual products from existing ethanol plants requires new solutions with regards to pre-treatment and fermentation, and this is where the knowledge and patented technologies held by BioGasol play an important role. On the other hand, Tate & Lyle are able to contribute with know-how on industrial production processes in order to facilitate an integration of Biogasol technologies into existing processing plants in practice. *TS*

## Supergrass

**Researchers are constantly on the look-out for new energy crops, and in Sweden, a new grass crop has been identified: szarvasi-1 or supergrass as the farmers call it.**

The grass type has been refined throughout the last 15 years by a group of researchers located in Hungary, and Swedish researchers have been participating in the project since 2003. In Hungary, the dry matter yield has reached a level of 20 tons/hectare, and the Swedes are hoping to obtain a minimum of 12 tons/hectare.

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