

NO. 3 / 2023

HOT|COOL

INTERNATIONAL MAGAZINE ON DISTRICT HEATING AND COOLING

TECHNOLOGY & SUSTAINABILITY



Sign up
to receive
Hot Cool



DBDH

CIRCULAR BIOMASS ENERGY

WITH CITIZENS HEATED BY THEIR GARDEN-PARC WASTE



By Ann Bouisset, Cand. Oecon/MBA,
General Sales Manager, Dall Energy

Operational for over a year since its inauguration, Sorø Bioenergy converts garden-parc waste from the municipalities into heat and electricity. The 12 MWth biomass plant is a perfect example of using local biomass resources correctly. AffaldPlus, the plant owner, collects the garden-parc waste in 13 waste-receiving depots located throughout the six municipalities and prepares the garden-parc waste in their biomass platform in Næstved, Denmark. Here the garden parc waste passes through a simple two-stage process: it is shredded and screened into three fractions, fines for composting, fuel ready for biomass gasification, and oversized, which is put back into the shredder again. Annually 53,000 tons of garden waste is aggregated. Of this, 11,000 tons are used in the gasification process to create heat, and 32,500 tons are composted.

Unique patented gasification technology makes it possible.

The Dall Energy gasification furnace allows the Sorø Bioenergy plant to use very inhomogeneous biomass, with qualities that vary substantially over the year. The flexibility of mixing a wide range of fuels and with humidity levels from 20-60% makes it possible to use biomass that could previously not be used.

The technology also allows for a great load-flexibility, from 100% right down to 10%, without compromising on emissions such as dust, NOx, and CO. This flexibility is crucial, especially for plants operating without accumulation tanks like the Dall

10,000 tons CO2 reduction per year

The Sorø Bioenergy plant converts approximately 30,000 tons garden-parc waste to climate friendly heat and electricity.

By utilising garden-parc waste instead of gas 10,000 tons of CO2 is saved per year. This saving is equivalent to each of their customers driving 1.3 times around the earth in a car.

Energy plant in Rouen, France with Dalkia, or where there is solar heating in the district heating mix like in the Silkeborg, Denmark or Salon de Provence, France projects.

The gasification process allows for very low emissions without bag or electro-filters.

The Dall energy furnace combines updraft gasification with gas combustion in the same chamber, which results in full performance and environmental benefits without the historical problems related to external combustion. Primary air injection is about half of what is used in traditional grate incineration, which results in very low NOx emissions. The gas velocity in the bottom part is very low, so dust emissions out of the oven are between 30-60 mg per Nm³. Also, most of the particles are subsequently removed by a quench bringing the dust levels down to 10 -20 Nm³, thus complying with EU standards without using expensive bag or electro filters.

The advantages of Dall Energy gasification technology are recognized not only in Denmark but also in France.

The advantages of the technology receive great recognition. Dall Energy recently signed a contract for a 20 MW biomass gasification plant with Silkeborg Forsyning in Denmark and several contracts in France with large energy companies and industrial customers.



For further information please contact:
Ann Bouisset, apb@dallenergy.com

Left: The 12 MWth / 1MWe cogeneration Sorø Bioenergy plant.
Middle: The gasification furnace can use a mix of difficult fuels such as garden-parc biomass.
Right: The top of the Dall Energy gasification furnace in Sorø



Photos: Steen Knarberg

