



Case Study: Gasification

Waste Planning Practice Guide – Case Study Supplement

1.5.3 Two-stage gasification

Sarpsborg, Norway

Borregaard Industries is a major supplier of wood-based chemicals in Sarpsborg, Norway. It has used heat an existing ENERGOS designed plant to provide it with process heat since 2002, and Borregaard recognised that additional energy cost savings and carbon reductions could be realised if a second plant was built to supply more renewable energy.

Working with Hafslund Heat and Power AS, a contract was awarded to ENERGOS in February 2008. The plant was commissioned in 2010.

The new plant produces 32MW of renewable heat, delivered as high quality process steam to a number of nearby chemical process plants. The gasification facility treats 78,000tpa of residual commercial and industrial waste. It operates at an energy conversion efficiency of greater than 80%.

The facility generates up to 250GWh/annum of steam and reduces carbon dioxide emissions by approximately 40,000 tpa

The new facility compliments the existing 27MW (thermal) ENERGOS facility that has been generating 185GWh/yr of steam, bringing the total capacity for residual waste treatment to 156,000 tpa.

The waste is fed into a gasification chamber, where it is used to produce a syngas. This syngas is transferred to a secondary high temperature oxidation chamber where it is fully combusted under tightly controlled conditions which results in very low emissions.

The resulting heat energy is used to produce steam, which can be used to supply renewable heat and/or generate renewable electricity.

The design is very flexible and suitable to treat wastes with calorific values between 8 and 18 MJ/kg. The design is modular in the range of 40,000 tpa to 200,000 tpa.

Further Information on case study¹

Energ-Group:

<http://www.energ-group.com/energos/information-centre/case-studies/sarpsborg,-norway/>

¹ The Welsh Government is not responsible for the contents of these sites.