

CASE

RELIABLE UPGRADE TO GREEN ENERGY

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It is not a bad smell...it is renewable energy, with environmental and financial potential for the community. We have to change the way we perceive organic waste products. They represent a vast and valuable energy resource right in front of us. Lemvig Biogas has, with assistance from BWSC, realized the potential.

Biogas has the potential of replacing up to 25% of Denmark's consumption of natural gas to replace the Danish natural gas resources starting to decline from 2015.

In 2009, the Danish government launched an ambitious plan to promote 'Green Growth'. A significant element in the plan is to utilize half of the country's livestock waste into energy by 2020. Ten years prior to this deadline, we are utilizing approximately 7%. So it will take a substantial effort to reach the target.

The most obvious means is to build 40-50 new, large scale biogas plants. Leading experts are, however, not convinced that this is feasible within the time frame. Another means is to expand the treatment capacity on existing plants.

"No matter which means we choose, the potential is there," says CEO Sigurd Ø. Andersen from Denmark's leading energy plant developer, contractor and supplier, Burmeister & Wain Scandinavian Contractor A/S (BWSC). "But we must change the way we perceive biomass. We tend to see the source as waste only. But in reality, these surplus bi-products are valuable energy and fertilizer resources which we have in abundance right in front of us."

In an environmental context, the potential has even more important significance, because we have to dispose of the 'waste resources' anyway – with minimal environmental impact. Then why not benefit by its energy potential? And that is exactly what they have done in Lemvig in West Jutland. Here, an existing biogas plant has recently been expanded to take in even more biomass, thereby increasing biogas production and expanding Lemvig's Biogas' commercial potential.

Lemvig Biogas is one of the largest plant of its kind in Denmark, and it doubled its fermentation volume in 2008 to almost 15,000 m³ coupled with an upgrade all performed by BWSC.

The expansion and upgrade have provided Lemvig Biogas with a potential to expand their business beyond the present customer, Lemvig District Heat and Power. Now other district heat and power plants in the vicinity can have the benefit of the biogas to replace a part of their current fossil energy source.

Develop for the future

Back in 1992, BWSC built the original Lemvig Biogas plant and was also selected to expand and upgrade the plant in 2008. The purpose was to increase the gas output from the biomass and to develop the plant for the future.

The fermentation tank capacity had to be substantially increased to ensure both sufficient and efficient digestion of the biomass supply from livestock waste combined with other industrial material such as fish waste, slaughterhouse waste, bacteriologic contaminated foods etc.

The new tank was serial-connected to the existing tanks to improve digestion even further together with an upgrade of the pasteurization at the plant. And the original gas treatment system was upgraded to be able to handle the increased production.

Reliable long-term solutions

A local study in Lemvig showed that the community could increase their financial benefit through a more efficient utilisation of the biogas plant, so the decision to expand the plant was evident. And the decision to contract BWSC to perform the expansion was not hard to make either.

BWSC has built some of the most efficient and longest serving biogas plants in Denmark and that is no coincidence.

"We strive to use our vast knowledge and experience in the turnkey field to design plants specifically to the customer's needs," explains Sigurd Ø. Andersen. "We use solid and well-proven concepts and equipment with high reliability and predictability of the biogas plant, which together with the management of the organic waste resources at the plant provide a solid basis for the financial performance of the plant for the customers."

But Sigurd Ø. Andersen is also aware that BWSC's biogas enthusiastic customers cannot realise the 2020 targets by themselves. "Biogas is a sound and sensible energy alternative which represents double sustainability – both environmentally and financially – for a society very much in need of such solutions. Therefore, we can only hope that the good intentions behind the 'Green Growth' plan will be followed through with the sufficient framework conditions to ensure that the target is reached," he concludes.

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