

## Manure and cooking oil heat Plönninge

**At the Plönninge agricultural college outside Halmstad, waste from the college's own farm and used cooking oil from a burger restaurant are converted to biogas. The facility supplied nearly 300 MWh of energy to heat the college premises in 2007.**

The biogas plant at the Plönninge agricultural college is a good example of a pilot plant to test and develop techniques for what is known as on-farm biogas production. On-farm biogas is still difficult to deal with on a strictly financial basis. But with rising fuel and energy prices and the falling production costs entailed by increasingly efficient biogas plants, it is probably close to becoming financially viable.

The project began in 2000 with the aid of money from the local investment programme (LIP).

### POSITIVE ENVIRONMENTAL AND ECONOMIC IMPACTS

- Reduction in ammonia emissions of 700 kg/year.
- Reduced emissions of nitrogen to water.
- The plant supplies hot water to the youth hostel and camp activities in Plönninge during the summer. This water was previously heated by an oil-fired boiler.

The principal purpose of the plant has not been to improve the environment on the farm or produce a financial return but to serve as a pilot and demonstration plant for on-farm biogas production.

Photograph: Plönninge Bioenergicentrum



## IMPLEMENTATION

A digestion chamber was installed on the farm in which manure from livestock on the college's own farm and smaller quantities of silage and vegetable waste are collected. These are heated to 37 degrees for 20 days. Biogas is formed during the heating. To improve the yield, used cooking oil from a restaurant is added at regular intervals.

The solid material left behind can be used as a fertiliser with a better nitrogen content, fewer weeds and bacteria and less odour than the original manure. The plant is very easy to maintain. The gas is used to heat the farm.

The project has led to continued efforts at Plönninge to process the gas into a motor fuel through grants from the climate investment programme Klimp. There are also plans to make it possible to take other raw materials such as reject fruit and reject dairy products, and a regional biogas centre is planned in Plönninge.

## POTENTIAL AND FUTURE BENEFIT

Biogas is an important element in the transition of society from fossil to renewable fuels. Biogas produced from waste and residues offers several benefits. It eliminates a waste management problem with possible adverse effects on the environment, and production does not lead to conflicts over the use of land, for example to produce foods.

### WHY BEST PRACTICE

The plant shows that on-farm biogas production plants are a good way of producing renewable energy locally.

The project has attracted strong interest, from farmers, agricultural and bioenergy organisations, colleges and universities, local and national politicians and both the technical and local press. Danish universities and organisations have also shown great interest.

The project plays a great role in disseminating information on on-farm biogas plants, both because the plant demonstrates good solutions and because it is a tool to be used in finding better solutions for future plants.

### FOR FURTHER INFORMATION

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#### Contractors/providers:

The biogas plant was supplied by Läckeby Water in Kalmar.  
The electronics and software were supplied by Apptronic in Kalmar.  
The earthwork contractor was NCC.

The project on the Internet:  
[www.plonningebioenergi.se](http://www.plonningebioenergi.se)

For further information on Best Practice:  
[www.swedishepa.se/bestpractice](http://www.swedishepa.se/bestpractice)  
[www.naturvardsverket.se/mir](http://www.naturvardsverket.se/mir)

### FACTS

LIP Halmstad 2000  
Action 2  
Environmental investment: SEK 5.8m  
Grant: SEK 1.5m

