

Country report - Sweden - May 2007

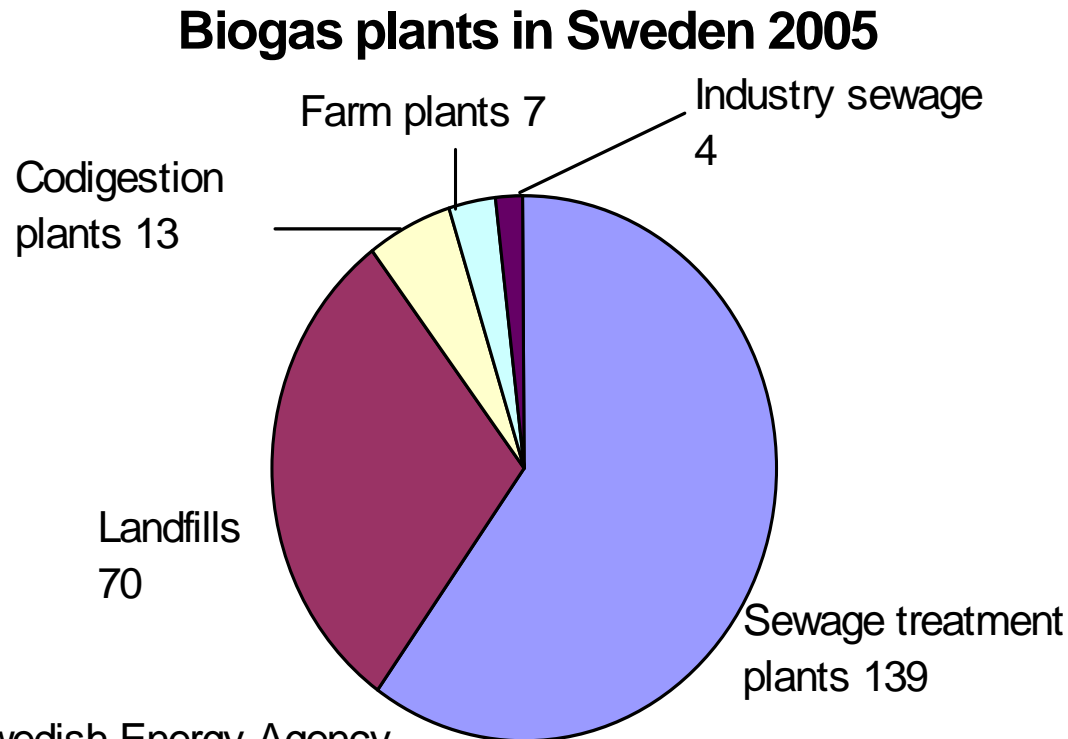


Summary of news from Sweden

- **First biogas statistic of production and utilization in nine years, annual statistics now expected**
- **Voluntary agreement of emission control at biogas plants now officially started**
- **Since April 2007 - 1 000 €bonus when buying a new eco-car**
- **Norrköping biogas plant – digesting grain and residue from ethanol production – now in operation**

Biogas plants in Sweden 2005

- 233 biogas plants
- Total production of 1,3 TWh → less than 1996

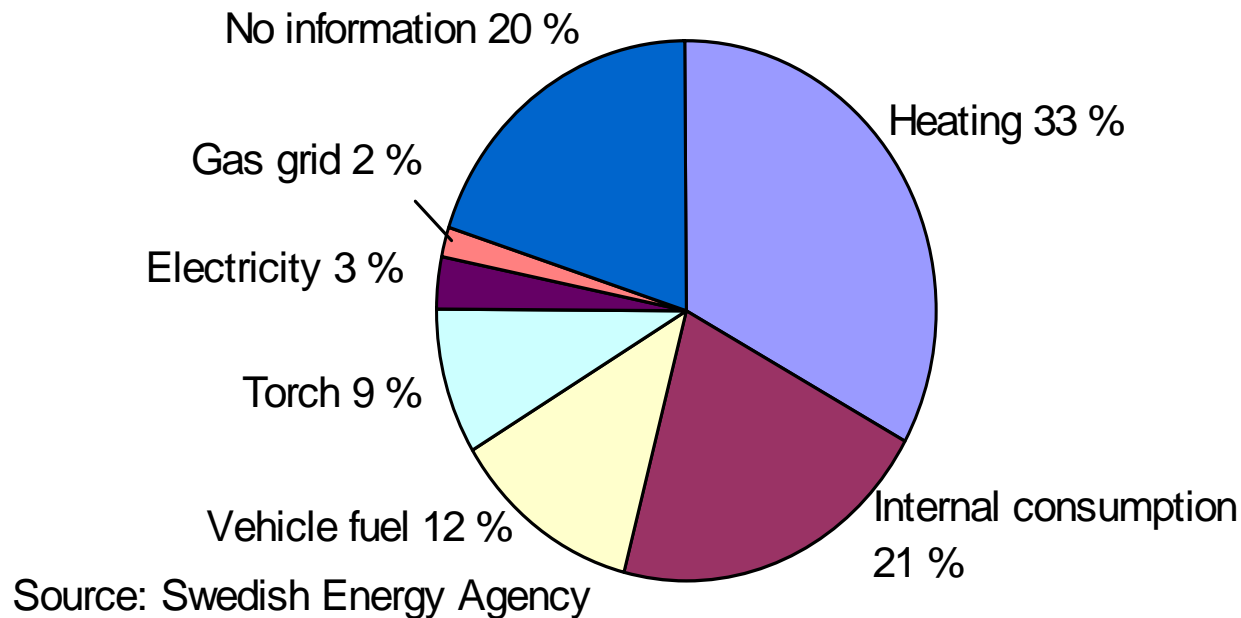


Source: Swedish Energy Agency

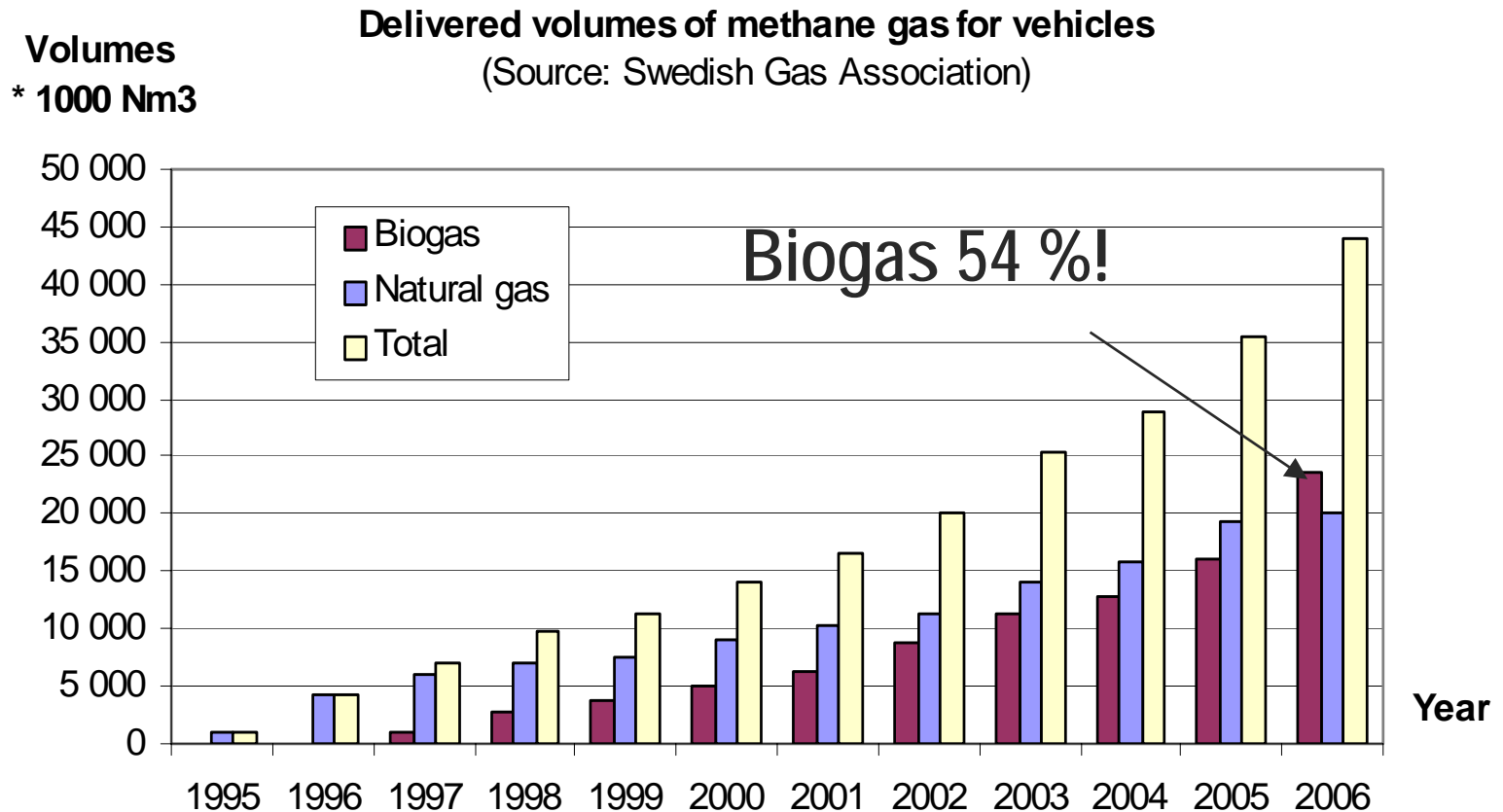
Biogas utilization in Sweden 2005

- 160 GWh vehicel fuel 2005, 230 GWh 2006

Biogas utilization in Sweden 2005

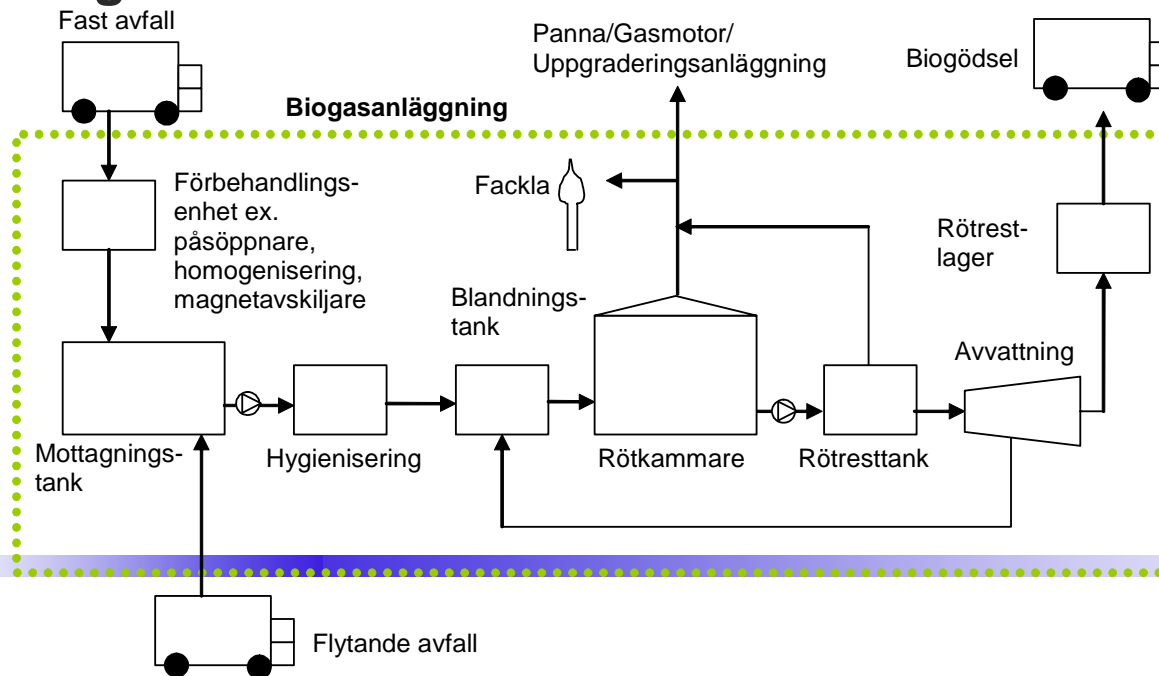
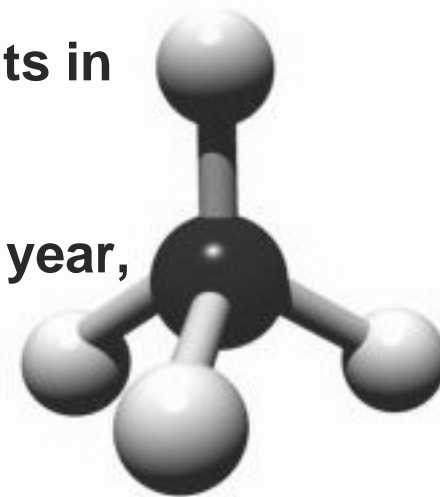


Development of gas vehicle market



Voluntary agreement of emission control

- Co-ordinated by the Swedish Waste Management (SWM)
- So far 11 biogas plants (majority of co-digestion plants in Sweden) and 7 upgrading plants joined
- Thorough investigation of CH₄ emissions every third year, starting 2007



Institutional framework

- **Since 1 April 1 000 € Bonus to new Eco-cars**
- **Proposal to reinforce congestion fees in Stockholm from 1 August 2007, gas vehicles, ethanol and electricity hybrids will be excepted.**
- **New car tax since October 2006. Tax based on fuel and CO₂-emissions. Gas models reduced with about 50 % compared to petrol.**
- **Compulsary to provide biofuels at filling stations, 5 & 10 M€ 2006/2007 as 30 % investment help for biogas. Now 5,6 M€ granted to 57 filling stations.**

Institutional framework

Discussions, not finally proposed nor decided on;

- **Specific investment support to farm plants, based on manure digestion**
- **Specific support for utilization of bio fertilizers**

Government policy on Environmental Targets – May 2007

- **85% (last year target 75 %) of all new governmental cars should be Eco friendly, 25 % of all new emergency services vehicles**
- **New government has launched a commission for a sustainable development**

Selected news from SE biogas plants

- General – large over capacity in co-digestion plants
- General – discussion of local grids for farm plants
- Norrköping - new biogas plant with raw material from ethanol plant, biogas used for vehicles
- Bjuv – new plant (25 GWh/year) manure and organic industry waste, upgrading with PSA and injection into the gas grid built with out investment support
- Lidköping – new plant for organic waste from food industry studied

Selected news from SE biogas plants

- Örebro, Östersund, Falköping, Lund, Varberg, Helsingborg – ongoing projects for new upgrading plants (sewage)
- Water scrubber dominating method



Seminars

- **Nordic Biogas Conference 5-7 March 2088
Malmö, Sweden**



R & D – example of two ongoing projects

- **Pre-treatment with electroporation**
 - waste and sugar beet
 - goal – reduce hydraulic retention time with 30 %
 - goal – 10 % increase in m³ CH₄ per ton TS
 - evaluating hygenisation
 - Luleå University
- **Software for optimizing of biogas process**
 - goal - Increase load in digestion chamber
 - goal – less process disturbance and downtime
 - Bioprocess Control
 - Svensk Biogas