
Country report Sweden



The Swedish biogas situation (2009)

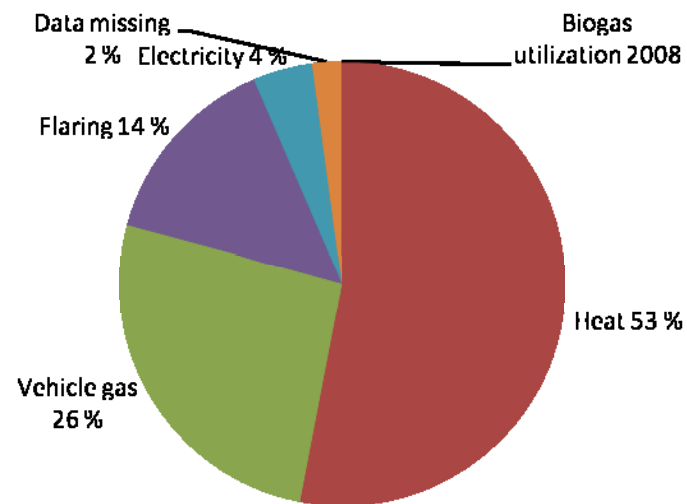
Type of plant	Number	Production (TWh/year)
Municipal sewage treatment plants	136	0.605
Landfills	57	0.335
Co-digestion plants	21	0.299
Farm plants	12	0.018
Industrial wastewater treatment plants	4	0.106
Sum	230	1.363

Biogas upgrading in Sweden

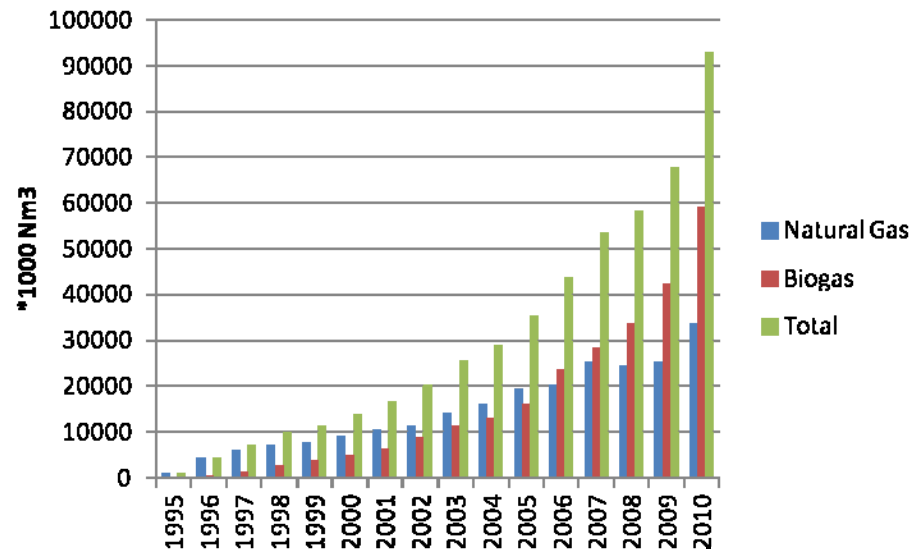
- In Sweden today:
 - Water scrubber (33)
 - PSA (8)
 - Chemical absorption (6)
 - Cryogenic (1)



Utilization of biogas in Sweden (2009)



Sold amounts of vehicle gas



Factors affecting the market I

- Taxes
 - Energy tax
 - Carbon dioxide tax
 - Carbon dioxide differentiated vehicle tax
 - Reduced fringe benefits tax for cars
- Market-based mechanisms
 - Carbon emission trading
 - Electricity certificates

Factors affecting the market II

- Support systems
 - Investment grants (100 million SEK)
 - LIP KLIMP
 - Support for filling stations
 - Investment grant within agriculture (300 million SEK)
 - Green car premium
 - Discount on vehicle tax
 - Free parking and local support
- Regulations
 - Law about renewable fuel at filling stations

Biogas strategy

- Presented 31st of August 2010
- Some conclusions:
 - Biogas from waste gives unique benefits
 - Biogas from manure gives large environmental benefits; manure bonus
 - The potential is 3-4 TWh annually
 - Continued research and development; gasification

Manure bonus

- Suggested in the Biogas Strategy
- 0,20 kr /kWh produced energy from manure = 2 Eurocents/kWh
- Is given due to avoidance of methane emissions from manure
- Not decided yet



News and plans

- First public filling station with LMG (Oct. 2010)
- LNG –terminal in Nynäshamn (close to Stockholm) will open (May 2011)
- First upgrading plant for landfillgas (2012)

Research and Development, some ongoing SGC-projects

- Impurities in biogas
- Biogas from lignocellulose
- Kitchen waste disposers for biogas production
- Development of siloxane analysis
- Dry digestion of waste streams from food waste pretreatment
- Handbook for methane potential measurements
- Two-stage digestion of sewage sludge
- Increased biogas production by more efficient treatment of sewage sludge
- Technical and economical evaluation of vehicle gas production on farms
- Evaluation and development of measurements of methane emissions
- Evaluation of the Swedish standard for upgraded biogas

Research and Development, some recently finished SGC-projects

[SGC Report Biogas folder 2011](#)

Anneli Petersson 2011

[SGC Rapport 225 Market potential for metan-diesel engines for machinery, trains and boats](#)

Staffan Johanesson, Lotta Göthe 2011

[SGC Rapport 226 Demonstration of collection of foodwaste from restaurants](#)

Mimmi Bissmont 2011

[SGC Rapport 227 Handbook methane measurements](#)

Magnus Andreas Holmgren 2011

[SGC Rapport 223 ComfortPower Design, construction and evaluation of a combined fuel-cell and heat pump system.](#)

Fredrik Silversand, Catator AB 2010

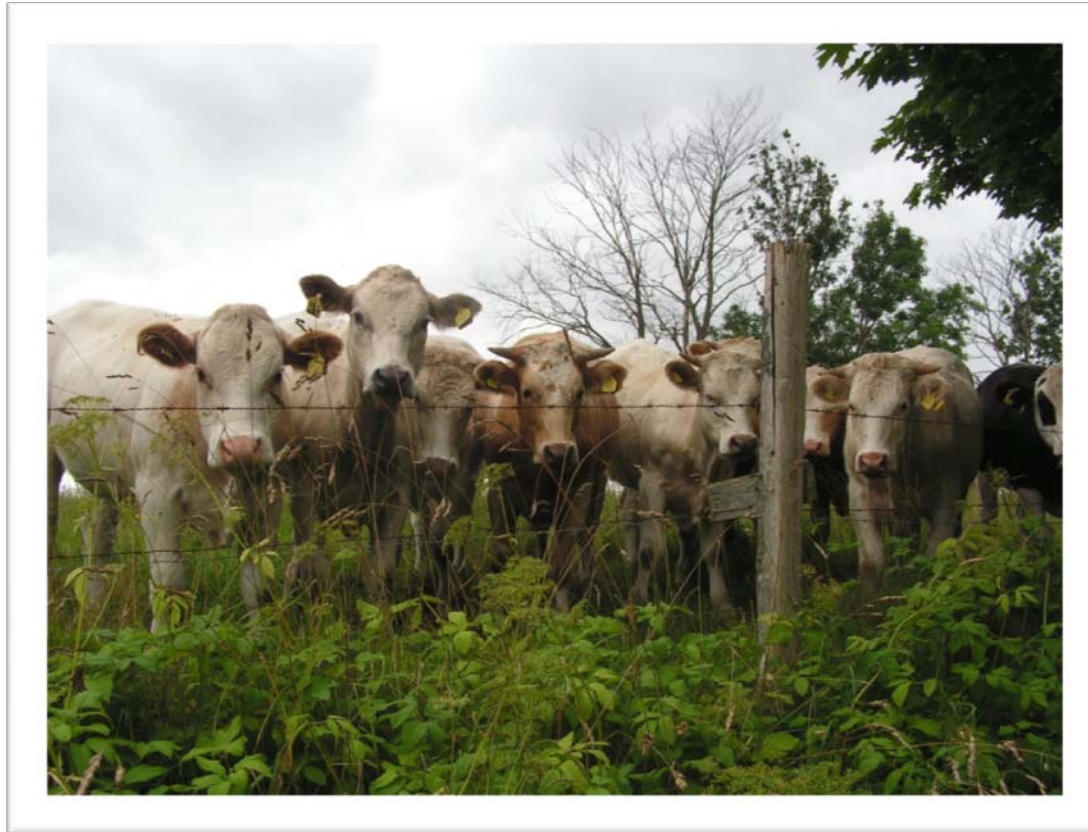
[SGC Rapport 222 Green LPG](#)

Christian Hulteberg, Jan Brandin, Andreas Leveau 2010

[SGC Rapport 221 Digestate treatment – technologies and suppliers](#)

Carl Dahlberg 2010

Thank you for your attention!



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