

Country Report Sweden

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Biogas Plant Inventory

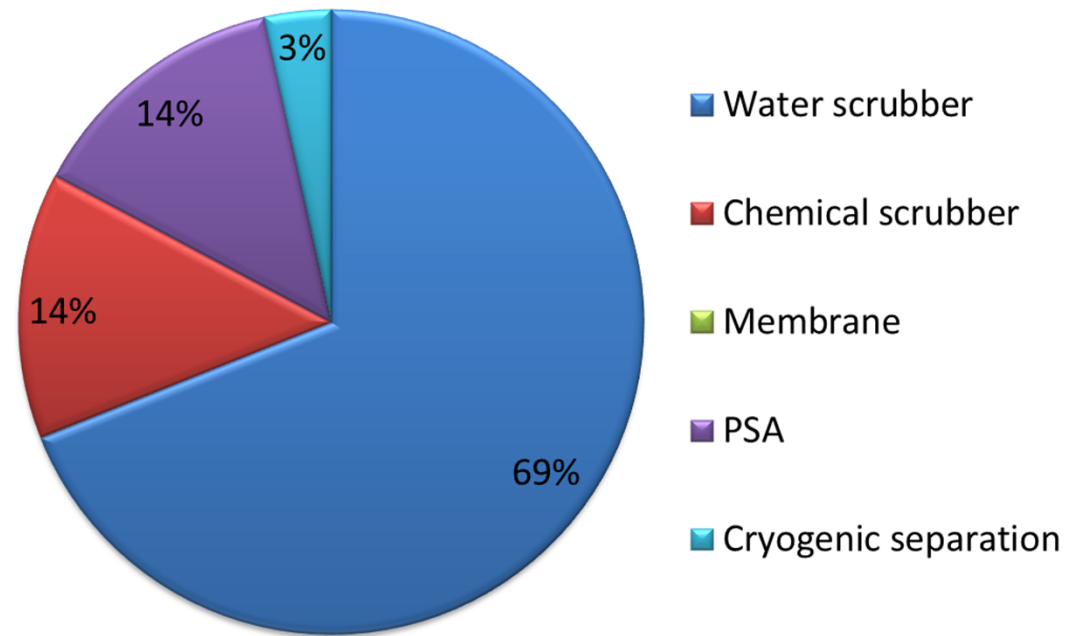
Anaerobic digestion plants (2011)

Anaerobic digestion plants	Number	Production (GWh/year)
Sewage sludge	135	638
Municipal (biowaste)	19	416
Agriculture	19	20
Industrial	5	129
Landfills	55	270
Sum	233	1 473

Biogas Plant Inventory

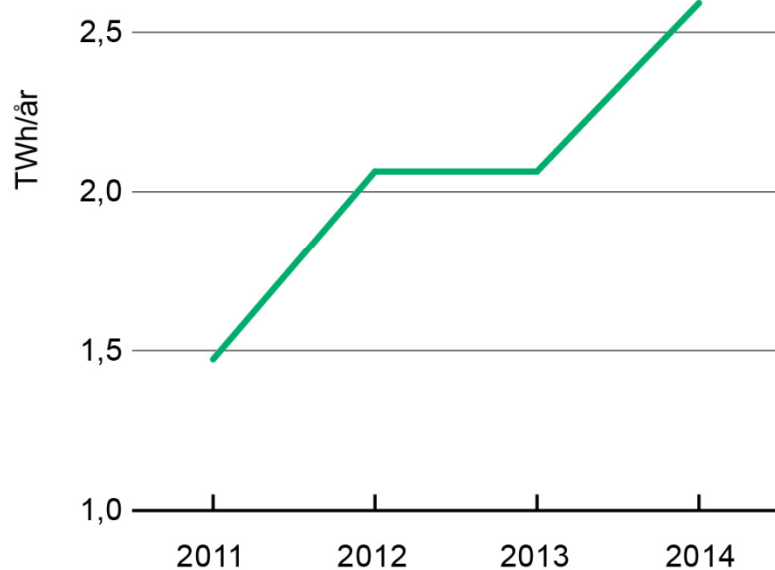
Upgrading plants (2012)

Number of biogas upgrading plants: 57



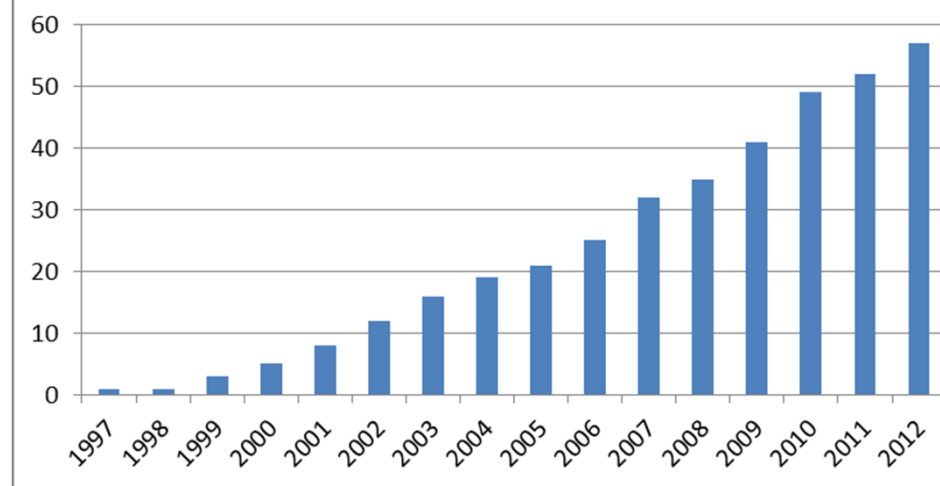
Biogas Plant Inventory Trends

Expected development of biogas production in Sweden including gasification



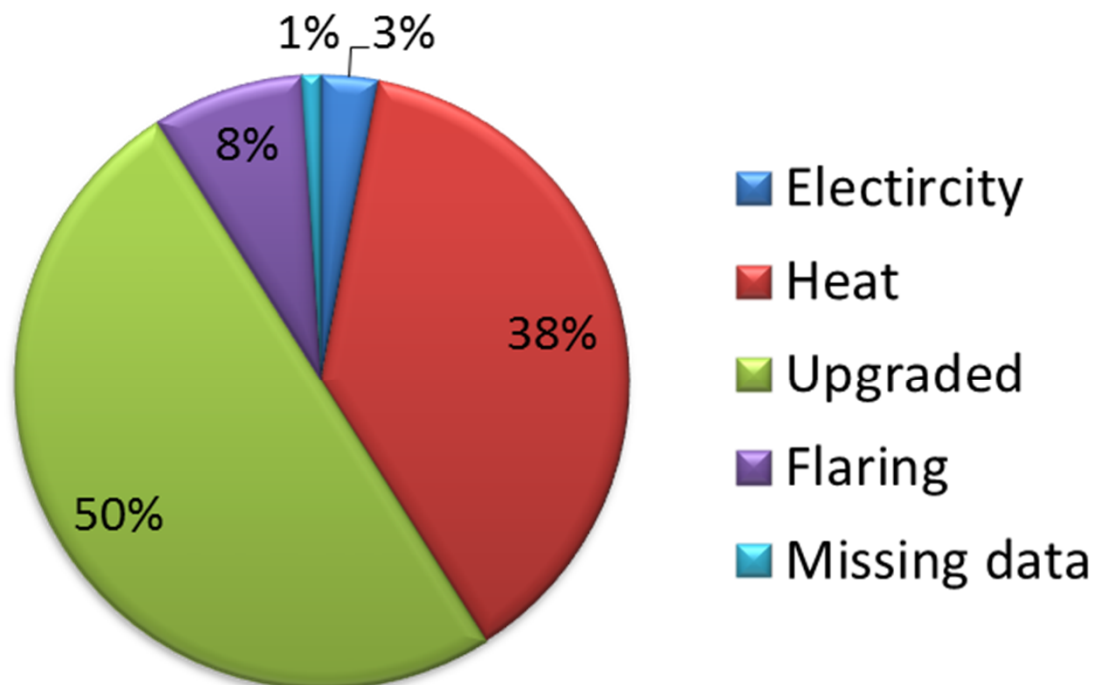
Källa: Energigas Sverige

Number of upgrading plants



Biogas Plant Inventory

Utilisation of the annual production of 1.5 TWh



Biogas as a vehicle fuel

- *44 000 gas vehicles
(1800 busses, 600 heavy duty vehicles)*
- *60% biomethane in the biogas*
- *138 public and 57 non-public filling stations*
- *A few filling stations for LBG also exist*



Financial support systems

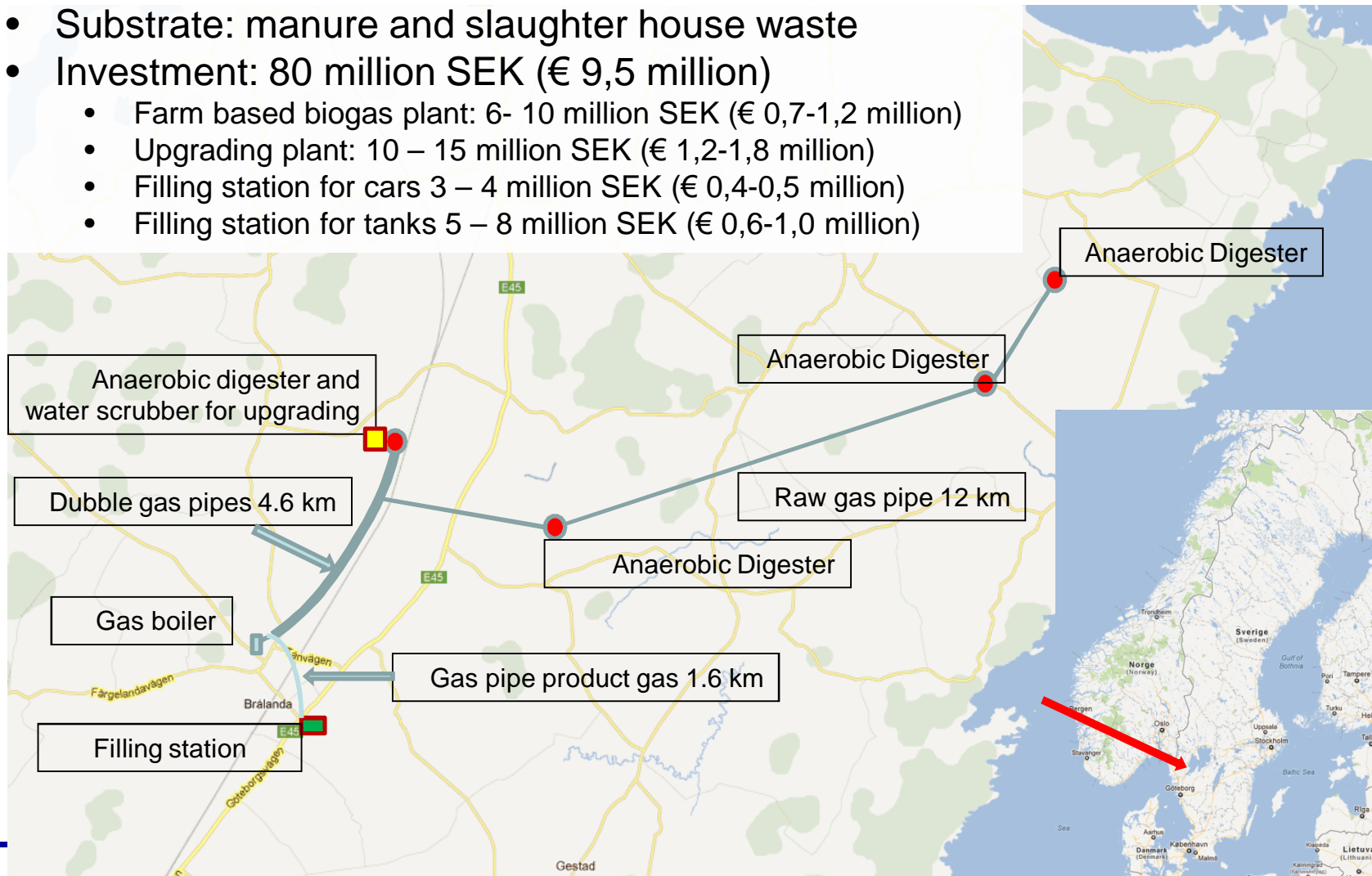
The support system in Sweden is mainly focused on increasing the usage of biomethane as vehicle fuel. The existing support systems are:

- No carbon dioxide or energy tax on biogas. Today this correspond to a value of 68 € / MWh compared to petrol and 52 € / MWh compared to diesel of which 26 € / MWh is from the carbon dioxide relief and the remaining part is from the energy tax relief.
- 40% reduction of income tax for use of company NGVs until 2017
- Investment grants for marketing of new technologies and new solutions for biogas during 2013-2016. Maximum 45% or 25 MSEK (~3 M€) of investment cost
- A joint electricity certificate marked between Norway and Sweden. The producer get one certificate for every MWh electricity produced from renewable resources and electricity consumers must buy certificates in relation to their total use. Average price 2012 around 17-22€/MWh

Some new plants

Brålanda – biogas hub

- Total capacity: 1.7 million Nm³
- Substrate: manure and slaughter house waste
- Investment: 80 million SEK (€ 9,5 million)
 - Farm based biogas plant: 6- 10 million SEK (€ 0,7-1,2 million)
 - Upgrading plant: 10 – 15 million SEK (€ 1,2-1,8 million)
 - Filling station for cars 3 – 4 million SEK (€ 0,4-0,5 million)
 - Filling station for tanks 5 – 8 million SEK (€ 0,6-1,0 million)



Dry digestion plant in Mörrum for food waste

Capacity: 20 000 ton/Y

(15 000 ton food waste / 5000 ton green waste)

Thermofil digestion 55C

Retention time: 27 days

Gas production: 1.7 million Nm³/y

Upgrading with water scrubber

Total investment: 54 MSEK

(-19 MSEK as Investment grants for marketing of new technologies)