

State of the art report EU

**State-of-the-art of biogas production
and injection into the grid in the European Union**
(Sander Lensink, Hamid Mozaffarian)

Primary production of biogas (EurObserver 2006)

Landfill gas

2.81 Mtoe (2004) → 3.17 Mtoe (2005)

Sewage sludge gas

0.92 Mtoe (2004) → 0.93 Mtoe (2005)

Biogas from solid/agricultural waste treatment

Biogas from codigestion

0.54 (2004) → 0.85 Mtoe (2005)

Future production from landfills

Landfill directive (1999/31/EC)

- By 2006, waste to landfills

< 75% of 1995 production of biodegradable municipal waste

- By 2009, waste to landfills

< 50% of 1995 production of biodegradable municipal waste

- By 2016, waste to landfills

< 35% of 1995 production of biodegradable municipal waste

Biogas production potentials shift from landfills to digestion

Application of biogas (EurObserver 2006)

Heat production

Heat plants only

0.288 Mtoe → 0.288 Mtoe

CHP plants

0.112 Mtoe → 0.136 Mtoe

Electricity production

Electricity plants only

6.76 TWh → 7.36 TWh

CHP plants

6.03 TWh → 7.30 TWh

Member state characteristics

United Kingdom

*Land fill electricity production
due to Renewable Obligation Certificate System*

Germany

*Small agricultural installations
850 (in 1999) → 2700 (in 2005)
due to favourable tariffs in EEG*

France

*High biogas potential (agriculture, solid waste, food-processing)
until 2006, insufficient purchase prices*

Member state characteristics

Sweden

Mostly from land fill, sewage

Biogas as transportation fuel

Denmark

Biogas CHP well developed

Netherlands

Co-digestion, land fill, mainly for electricity

Old feed-in law only subsidized electricity production

New feed-in law will subsidize biogas injection as well

EC White Paper COM(97)599

Estimation of potential

*landfill gas and digestible agricultural wastes in EU
more than 80 Mtoe (3.35 EJ)*

Estimation of 2010 exploitation (objective)

15 Mtoe, if effective measures are implemented

Current trend

*Production and application of biogas is rising
but insufficient to meet 2010 objective*

EC conclusion in COM(2004)366

*Biogas development requires a coordinated policy
in the field of energy, environment and agriculture*

***BIOCOMM (regulation draft of
biogas commercialisation in gas grid)***

Gas directive (2003/55/EC)

*mentions biogas in the internal market of gas
Biogas receives 'equal treatment', but no priority*

Biofuels directive (2003/30/EC)

mentions biogas under the definition of biofuels

Biogas absent

*in discussions about Security of Supply
in perceptions of grid connected renewable energy sources
which could replace a high percentage of natural gas*

BIOCOMM identified non-existing normatives

Priority for biogas energy

(like in Renewable Electricity Directive EC/2001/77)

Harmonisation of compatibility of upgraded biogas

Normatives and hygienic standards are missing in many Member States

Renewable heat

*Heat technologies have substantial potential for growth
coherent targets between EU and member states are necessary*

Production of energy crops (set aside norm)

Criteria for biofuels *(promotion for biogas as biofuel)*

EC renewable energy roadmap COM(2006)848

While policies and practices vary widely across the EU,
there is no coordinated approach,
no coherent European market for the technologies,
and no consistency of support mechanisms.



EC renewable energy roadmap COM(2006)848

“The absence of legally binding targets for renewable energies at EU level, the relative weak EU regulatory framework for the use of renewables in the transport sector, and the complete absence of a legal framework in the heating and cooling sector, means that progress to a large extent is the result of the efforts of a few committed Member States.”