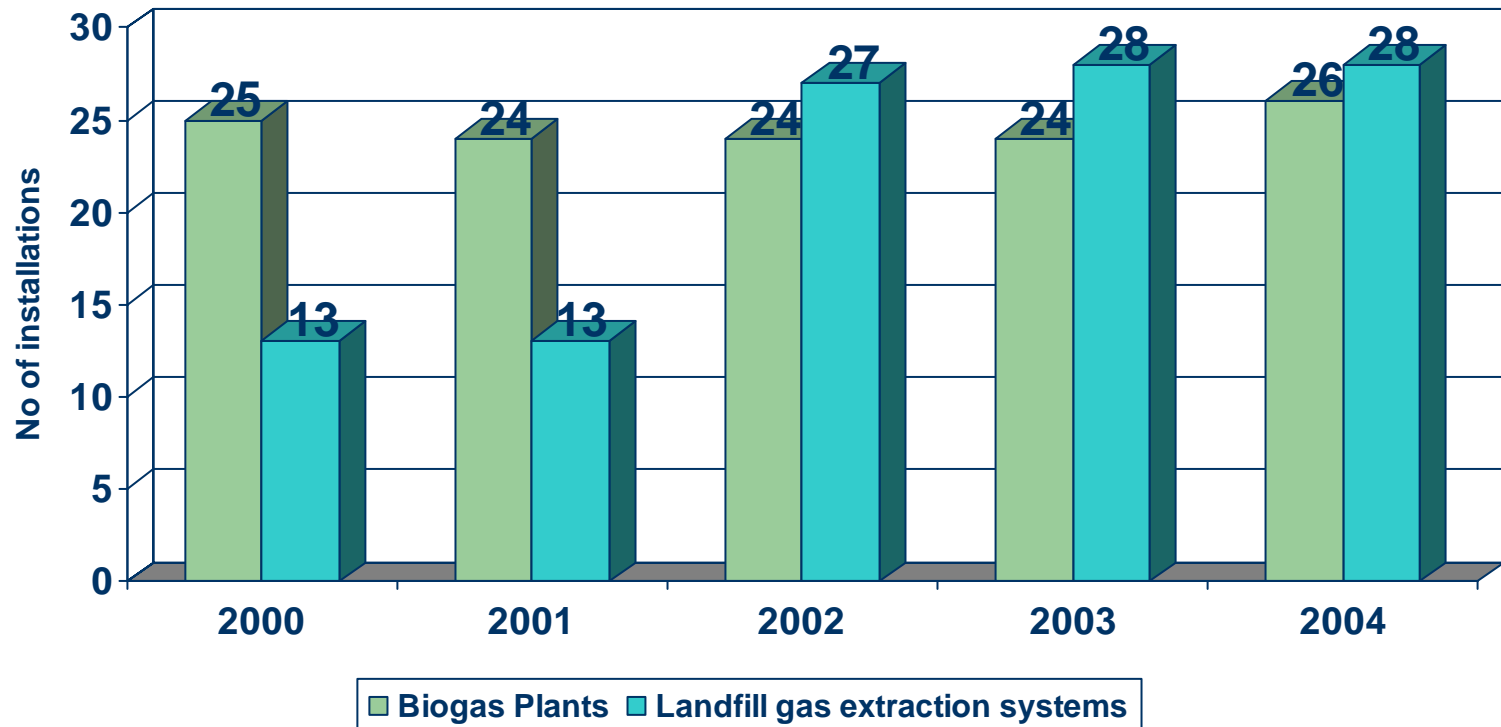


Landfill Gas and Biogas in Finland in year 2004

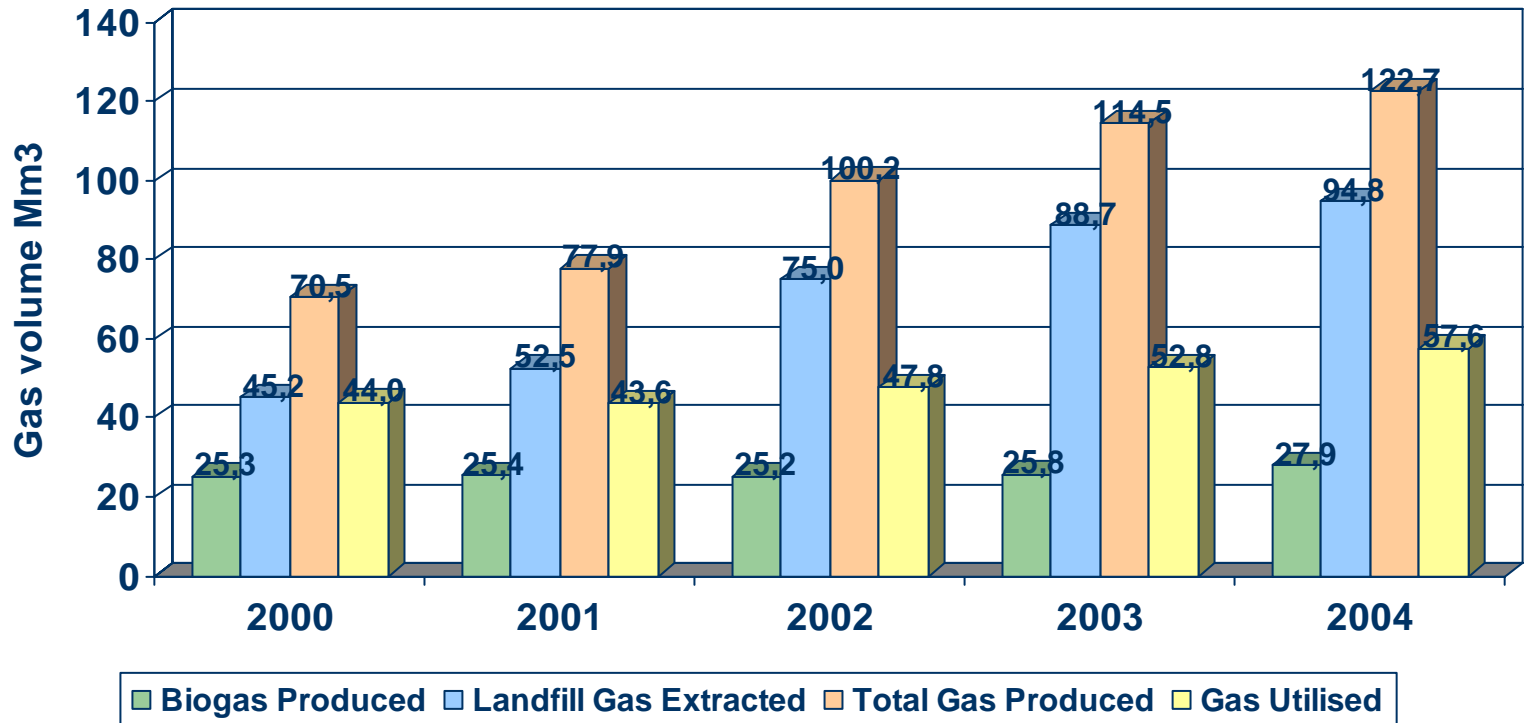
- **Landfill gas extraction systems**
 - in total 28 landfill gas extraction systems
 - biogas produced in 2004: 94,8 Mm³
 - biogas utilised in 2003: 33,9 Mm³ (36 %)
 - power produced in 2004: 10,0 GWh
 - heat produced in 2004: 136,3 GWh
 - mechanical energy produced in 2003: - GWh
- **Biogas plants**
 - in total 26 plants (sewage sludge:15; industrial waste water 4; ofmsw 1; co-digestion 1; farm waste 5;
 - biogas produced in 2004: 27,9 Mm³
 - biogas utilised in 2004: 22,4 Mm³ (85 %)
 - power produced in 2004: 29,3 GWh
 - heat produced in 2004: 93,7 GWh
 - mechanical energy produced in 2004: 5,4 MWh

No of Installations in Finland – Update 21.9.2005



Source: Finnish Biogas Register
IV - VIII

Biogas & Landfill Gas Production and Use – Update 21.9.2005



Source: Finnish Biogas Register
IV - VIII

New laws and official policies - Update 21.9.2005

- **Waste Law 1072/1993 amendments**
 - latest amendments in force since 1.9.2004. Comprehensive reform is planned.
- **Fuel Tax Law 1280/2003**
 - biogas used as fuel in motor vehicles is exempt from taxation. In force since 1.1.2004.
- **The National Biowaste Strategy of Finland**
 - the Government accepted the strategy in December 2004.
 - amount of biowaste 2,1 Mt in 1994. Landfilling to be reduced to 1,6 Mt by 2006, 1,0 Mt by 2009 and 0,7 Mt by 2016.
 - the means proposed: 1) Reducing of quantity 2) Increasing recycling 3) Increasing of biological treatment – both composting and digestion 4) Incineration
 - separation, pre-treatment, reuse and building new plants to be decided regionally.
 - investment of new incineration plants is to be decided by power producing companies
 - needed new utilisation capacity 0,6 Mt by 2009 and 1,2 Mt by 2016
 - investment costs of new plants and renovation of the existing ones is 0,8 M€ by 2016
 - increase of the capital and operation costs from 0,28 M€ in 2000 to 0,35 M€ in 2009 and 0,45 M€ in 2016.

New Projects – Update 21.9.2005

- **Ilmajoki Co-digestion Plant**
 - 55.000 tpy (75 % sewage sludge, 9 % industrial sludge, 16 % biowaste).
 - new invitation to tender. Previous contract award invalidated by Market Court
 - construction scheduled in 2006-2007
- **Klaukkala Sewage Sludge Digestion Plant**
 - 10 000 tpy (100 % sewage sludge TS 10 %)
 - start up in October 2005
- **Köyliö co-digestion Plant**
 - 20 000 tpy (30 % pig manure, 30 % sewage sludge, 30 % industrial waste, 10 % source separated biowaste from households)
 - environmental permit applied. Preliminary contract agreement.

News in Brief – 21.9.2005

- **Refuelling stations within the natural gas network**
 - Gasum Oy (co-owners Fortum 31 %, OAO Gazprom 25 %, State of Finland 24 % and E.ON Ruhrgas 20 %) will open two new natural gas filling stations in Helsinki Metropolitan Area in 2005 thus increasing the total number of filling stations to 3.
 - In addition Gasum has 3 filling stations for their private use.
 - As planned Gasum will establish more gas filling stations in South of Finland. The first biogas filling station is going to be established in Jyväskylä region.
 - The number of gas fuelled vehicles in Finland is about 200.
- **Report on Energy and Climate Policy in Finland**
 - the Government Report is delayed from the original schedule. As expected the report will be given to the Diet in next few weeks.
 - The report is being waited with big interest. Which way the Finnish Energy and Climate policy will go – more nuclear power? – more waste massburn? – support of renewable energy as a whole? – promoting the use of natural and biogas as traffic fuel?

R & D and Technical Training

R & D

- Several projects with energy crops: e.g. screening different crops and harvesting times, storing and pre-treatment of crops, process design.
- Effects of hygienisation regulations on biogas process performance, pathogens and environmental impacts in co-digestion of biowaste with manures.
- Cheaper reactor designs
- Development and demonstration of biogas upgrading facilities for vehicle use.

Technical Training

- AEL – Centre of Technical Training with a staff of 180 and network of 3 000 experts organised two day seminar on the Production and Use of Biogas in November 2005. Twenty participants, fourteen lectures.
- The seminar with revised content will be arranged again in October 2005.
- AEL aims improving the technical expertise of Finnish engineers working on biogas technology also in long run.