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

Source: Finnish Biogas Register
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**

- **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.

- **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 vechicles 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.