

**ECN/ORBIT e.V. Workshop 2008 „The future for Anaerobic Digestion of Organic Waste in Europe“  
 Pres. Nr. 24 „The Need for Cost Effective Anaerobic Digestion Solutions in Enlargement Countries  
 - the Example of Latvia“ – Dr. R. Bendere**

**The Need for Cost Effective Anaerobic  
 Digestion Solutions in Enlargement  
 Countries - the Example of Latvia**

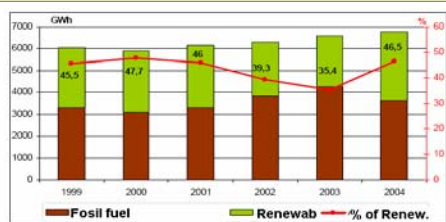
Dr. R. Bendere,  
 Waste Management Association  
 of Latvia

**The main prepositions for bio gas production in  
 Latvia**

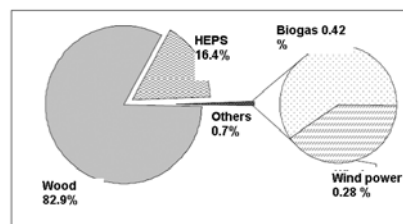
- The development of biogas production will increase the part of renewable energy sources in the total energy consumption in Latvia
- The usage of biogas will support the independence of Latvia in the energy market
- It will reduce the pollution created by unsuitable disposal of bio waste and emissions of CO<sub>2</sub> and metan gas.

(The program for development of biogas production, years 2008-2011)

**The structure of energy supply in Latvia and  
 the part of renewable energy in it, year 2004.**



**The structure of renewable energy source in  
 Latvia, year 2004**



**The part of energy production from renewable  
 source( data on 2007 and planed till 2010)**

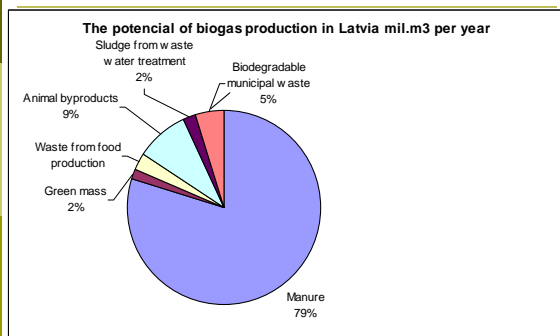
Type of renewable source	2007	2007 (real data of 9 months)	2008	2009	2010
Hydroelectric power stations (> 5 MW)	41,28 %	39,69 %	39,32 %	37,35 %	35,39 %
Hydroelectric power stations (< 5 MW)	1,04 %	0,83 %	1,06 %	1,08 %	1,10 %
Wind generators	1,48 %	0,69 %	2,78 %	4,08 %	5,37 %
Biogas production facilities	0,38 %	0,35 %	1,07 %	1,77 %	2,46 %
Heat production facilities using bio mass or biomass together with fossil fuel	0,44 %	0,02 %	1,95 %	3,46 %	4,97 %
<b>Totally</b>	<b>44,62 %</b>	<b>41,58 %</b>	<b>46,18 %</b>	<b>47,74 %</b>	<b>49,30 %</b>

**The potential for biogas production in  
 Latvia**

- The total theoretically estimated potential 174 mill. m<sup>3</sup> per year
- The main components –
- biogas from manure - 95 mill. m<sup>3</sup>
  - biogas from green mass 16,8 mill. m<sup>3</sup> per year
  - (The consumption of natural gas in the year 2006. was 1,7 mill. m<sup>3</sup>).

**ECN/ORBIT e.V. Workshop 2008 „The future for Anaerobic Digestion of Organic Waste in Europe“  
 Pres. Nr. 24 „The Need for Cost Effective Anaerobic Digestion Solutions in Enlargement Countries  
 - the Example of Latvia“ – Dr. R. Bendere**

**The potential of biogas production in Latvia**



**The main guidelines for the implementation of the renewable energy resource program, year 2006.-2013.**

- The document accepted by the Cabinet of Ministers in 31. 10. 2006.
- There are stated the present situation of energy consumption in Latvia, estimated the potential of renewable energy sources, detected the main political aspects for development of renewable energy production
- The main results representing the development :
  - 49,3% of electro energy must be produced from renewable energy sources in the year 2010.
  - more than 35% of the total energy must be produced from renewable sources

**The results of provided impact assessment of the program**

**Economical and social**

- The creation of new work places in energy production sector ( There are estimated to create ~ 1600-1900 new work places till the year 2010)
- The additional tax incomes (8.6 millj. LVL - 17.2 millj. LVL)

**Environmental**

- The reduction of total CO2 emissions (460 thousands tons - 613 thousands tons, the biogas production will reduce 900 000 tons)

**The planed financial instruments for implementation of biogas program**

- **The investments from state budget for investigations and information and dissemination activities** (till year 2007) ~ 250 000 LVL
- **Financed pilot project** (till year 2006)
  - one project 300 000 LVL
- **Support from EU Structural funds (till year 2013) :**
  - Development of co- generation plants 17 millj. LVL
  - Use of biomass for heat production 7 millj.LVL
  - Biogas production from agricultural byproducts and green mass 5,6 millj. LVL
- **Norwegian financial support**
  - Development of renewable energy sources ( open tender)- ~ 1.5 millj.LVL

**The main statements included by biogas production program year 2007.-2011.**

**The are estimated to produce:**

- 3.4 millj. m3 of biogas in year 2007;
- 6.0 millj. m3 in year 2008;
- 9.0 millj. m3 in year 2009;
- 11.0 millj. m3 in year 2010;
- 13.0 millj. m3 in year 2011.

**The bio gas production facilities in Latvia**

The total energy production from biogas – 7.7 MW per year:

- Ltd. "Rīgas ūdens" waste water bio treatment facility "Daugavgrīva" produce 2.096 MW from anaerobic sludge digestion;
- Sanitary landfill "Getliņi" ( Rīga district) produces 5.24 MW of energy from landfill gas;
- Sanitary landfill "Kivites" in Liepāja region produces 450 kW of energy from landfill gas (there is planed additional generator of 1 MW).

Energy production facility from biogas in  
“Getlini” landfill



The cogeneration engine in “Getlini”  
landfill (Jenbacher JMC 320)



The main reasons limiting the  
development of biogas production :

- ❑ New, unknown for Latvia technology which are developing yet, lack of pilot projects;
- ❑ In comparison with other bio treatment methods it is more expensive;
- ❑ The production technology and its product biogas is new on the energy production and consumption market
- ❑ The environmental degradation effects is not sufficient economically tested and calculated , they are not compared with the investments for biogas production.

References

- ❑ The program for development of biogas production, years 2008-2011 [/www.vidm.gov.lv](http://www.vidm.gov.lv)
- ❑ Management of municipal bio waste, WMAL, Rīga, 2006
- ❑ The proposals for for bio mass treatment strategy in Latvia, WMAL, 2005
- ❑ The environment regulations of the Cabinet of Ministers [/www.vidm.gov.lv](http://www.vidm.gov.lv)
- ❑ The action programm for reduction of total emissions <http://ppd.mk.gov.lv/ui/DocumentContent.aspx?ID=2947>
- ❑ Elaboration of the methodology for bio waste treatment in Latvia, report (reģ. nr. 1-08/89/2006)