Energy recovery from waste in Slovakia

WASTE TO ENERGY
Ľubomír Augustín / Tanzer Consulting Slovakia, s.r.o.

2nd Interregional Seminar
10 March 2011, Bratislava
Energy recovery has its place in the hierarchy of waste management.

Waste is considered to be an energy source in the EU.

Calorific value of mixed municipal waste is on the level of brown coal (10 – 13 MJ/Kg).

Currently, there is more than 400 devices for energy recovery in use in Europe. The overall capacity is more than 67 mil. tons/year.

Waste incineration, contrary to landfill, prevents emissions of greenhouse (mostly methane).

Extensive legislation (directives, regulations, strategies for waste incineration, landfills, air protection, integrated prevention).
Situation in the EU: Energy recovery from waste

- **Landfill**
- **Recycling**
- **Combustion with the use of energy**

Zdroj: EEA 2007
Situation in SR:
Waste management in 2008 (except municipal waste)

11,492,078 t

- 42%: D1 Skládkovanie odpadov
- 35%: D2-D10 Ostatné zneškodnenie
- 9%: D11-D15 Nakladanie s odpadmi
- 5%: R1 Energetické zhodnocovanie
- 5%: R2-R11 Materiálové zhodnocovanie
- 4%: R12-R13 Úprava a skladovanie
Situation in SR:
Waste management with municipal waste in 2008

1.790.691 t

- D1 Skládkovanie odpadov
- R1 Energetické zhodnocovanie
- R3 Recyklácia alebo spätné získavanie organických materiálov
- R4 Recyklácia alebo spätné získavanie kovových zlúčenín
- R5 Recyklácia alebo spätné získavanie iných organických materiálov
- R12-R13 Úprava a skladovanie
- Iné nakladanie
Incinerators for municipal waste ........... 2
Incinerators for dangerous waste ........ 5
Incinerators of hospital waste ............ 8
Cement ............................................... 4
Biogas ............................................... 21
Overall ............................................... 40

Zdroj: Enviroportal, URSO
Incinerators of municipal waste

Source: Enviroportal, Zoznam spaľovní a zariadení na spoluspaľovanie

<table>
<thead>
<tr>
<th>Operator</th>
<th>ton/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLO a.s. Bratislava</td>
<td>125 640,33</td>
</tr>
<tr>
<td>KOSIT a.s. Košice</td>
<td>70 637,00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>196 277,33</strong></td>
</tr>
</tbody>
</table>

Operator

2nd Interregional Seminar - 10 March 2011, Bratislava
Incinerators of hospital waste

Source: Enviroportal, Zoznam spaľovní a zariadení na spoluspaľovanie

Incinerators of rendered fat
Incinerator of hospital waste
Incinerators of dangerous waste

<table>
<thead>
<tr>
<th>Operator</th>
<th>tons/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duslo a.s. Šaľa</td>
<td>6182,02</td>
</tr>
<tr>
<td>Slovnaft a.s. Bratislava</td>
<td>4018,36</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10 200,38</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operator</th>
<th>kg/hour.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemko Light Strážske</td>
<td>0,14 - 0,18</td>
</tr>
<tr>
<td>Fecupral, s.r.o. Prešov</td>
<td>0,15</td>
</tr>
<tr>
<td>.A.S.A. Slovensko Žilina</td>
<td>0,31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0,6 - 0,64</strong></td>
</tr>
</tbody>
</table>
Cement

Source: Enviropaortal, Zoznam spaľovní a zariadení na spoluspaľovanie

<table>
<thead>
<tr>
<th>Operator</th>
<th>tons/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holcim a.s. Rohožník</td>
<td></td>
</tr>
<tr>
<td>Cemmac a.s. Horné Sínie</td>
<td></td>
</tr>
<tr>
<td>Považská cementáreň a.s. Ladce</td>
<td></td>
</tr>
<tr>
<td>VSH a.s. Turňa</td>
<td></td>
</tr>
<tr>
<td>Spolu za rok 2009</td>
<td>200,000</td>
</tr>
</tbody>
</table>
### Biogas plants in SR 2010

<table>
<thead>
<tr>
<th>Biogas plants in SR 2010</th>
<th>Total installed capacity (kW)</th>
<th>Number of permits URSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater treatment plant</td>
<td>3809</td>
<td>13</td>
</tr>
<tr>
<td>BPS</td>
<td>6042</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: URSO
Evolution of the number of incinerators

Source: SAŽP 2008
Where is the mistake?
Absence of legal definition of energy recovery from waste.

Waste Act

Ministry of Environment Decree number 53/2004 as amended by Decree number 102/2005, they set up conditions for the quality of fuels – there are not any alternative solid fuels.

Waste as an energy source is not mentioned in any Slovak strategic material (Energy policy, Energy Efficiency Act, Law on the promotion of RES – there is a biomass, POH SR – is vague).

It is necessary to connect the waste energy management with other departmental concepts (energy, agricultural, etc.)

Absence of integrated waste management systems on the regional level.

Competence of local governments in the field of municipal waste.
BARRIERS:

Economic
- Prices for the waste disposal in landfills
- Capital intensive projects
- Absence of mandatory collection of heat

Investors
- Absence of energy recovery in strategic materials
- Public is not informed about the investor intention
- Unprofessional approach

Public
- Negative attitude of non-governmental organizations
- Excessive caution of local and regional politicians
- Poor awareness about the energy recovery of waste
Energy policy of EU

Main goals

- Increase of the security of supply
- Ensuring of competitiveness of European economies and the availability of affordable energy
- Promoting of environmental sustainability and combating the climate change
Energy policy of Slovakia

- Slovakia imports 90% of primary energy sources (Russia)
- Electricity consumption increased by 3% in last three years.
- Energy intensity in Slovakia is:
  - 2x higher than the OECD average and
  - 4x higher than the EU 27 average
Waste = energy

1.800.000 t KO = 18 mil. GJ

Average calorific value KO 10 MJ/kg
Goal for WMP SR for 2010

1.800.000 tons
Municipal waste (330 kg/area/year)

20% ERW

360.000 tons

Lack of infrastructure
Potential for 2020

2.750.000 tons

Municipal waste (500 kg/area/year)

20% ERW

550.000 tons

40% ERW

1.100.000 tons
Potential for regional projects

Projects with the capacity between 80 – 150.000 t KO
Conclusion

- Resolving the energy recovery from waste in SR (energy waste management in SR, strategic materials in this field)
- Remove of legal and economic barriers in ERW
- Discussion about advantages and necessity of ERW
- Use of time and sources of OPE
- Support for the projects on ERW in SR
Thanks for your attention!

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