Cycle-Based Waste Management in Oslo
IEA Task 37 in Oslo

19.04. 2012
Marketing Director Øystein Ihler
Waste-to-Energy Agency
City of Oslo
Political objectives in Oslo

- 50% reduction in emissions of greenhouse gases by 2030.
- Plan for residual waste treatment;
  - 50% recovery of materials in by 2014.
  - Source sorting of food waste and plastic packaging - 2012.
- Increased use of renewable energy:
  - Basis for increased use of district heating, 1 - 2 TWh.
  - Change from fossil fuels to renewable fuels for the district heating system.
  - Public city transport on renewable fuel by 2020
    - 1000 buses
    - 3000 taxis
A complete solution for a cycle based waste management system in Oslo
Source sorting in coloured plastic bags – optical sorting
Romerike biogas plant
Romerike Biogas Plant, Esval, Nes

The plant is designed and delivered by Cambi AS

Products:
Liquified Biogas (LBG)
Bio-fertilizer (Liquid & Solid)
From Food Waste to Biogas and Biofertilizer
Food waste + sewage = biogas
# Biogas Production – Key Figures

<table>
<thead>
<tr>
<th>Agency</th>
<th>Amount upgraded Biogas</th>
<th>Gas Volume - number of buses</th>
<th>Sales and Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAV Sewage</td>
<td>CBG -2.2 mill Nm³/a (01.01.2010)</td>
<td>65</td>
<td>AGA AS, Linde group</td>
</tr>
<tr>
<td>EGE Food Waste</td>
<td>LBG - 4,5 mill Nm³/a (01.04.2013)</td>
<td>135</td>
<td>AGA AS, Linde group</td>
</tr>
</tbody>
</table>
Biofertilizer production – key figures

Total amount:

• Liquid biofertilizer
  – 90 000 m³ (dm 4.5 %)
  – Fertilizer for 100 medium-sized farms.

• Dewatered biofertilizer
  – 15 000 m³ dry bio-residue (dm 25 %)
  – 12 000 m³ bio-concentrate (dm 15 %)