Impacts of the biogaz plants on added value and the employment in France

Biogaz in the local value chain: agriculture and waste management
## Biogas Plants Inventory (2016)

<table>
<thead>
<tr>
<th>Plant type</th>
<th>Number of plants</th>
<th>Electricity production (GWh/year)</th>
<th>Heat production incl. injection (GWh/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage sludge</td>
<td>88</td>
<td>41</td>
<td>416</td>
</tr>
<tr>
<td>Biowaste from MSW</td>
<td>16</td>
<td>67</td>
<td>22</td>
</tr>
<tr>
<td>Industrial</td>
<td>80</td>
<td>7</td>
<td>350</td>
</tr>
<tr>
<td>On-farm and centralized plants</td>
<td>319</td>
<td>712</td>
<td>607</td>
</tr>
<tr>
<td>Landfills with biogas recovery</td>
<td>113</td>
<td>953</td>
<td>294</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>616</strong></td>
<td><strong>1780</strong></td>
<td><strong>1689</strong></td>
</tr>
</tbody>
</table>

26 biomethane injection sites (+53% in 2016)
On-farm and centralized AD plant development forecast by 2020

Number of built units and MWe installed, ADEME Jan. 17

Electric power cumulated in Mwe

Units in operation

2015 : 60 new plants / y → not sufficient to reach the target
3 studies on economic impacts

✓ « Markets and jobs related to the energy efficiency and to the renewable energies 2014-2015 », 2017

✓ Biogaz in Burgundy : Impacts on jobs and the economic flows at the regional and national level », 2015 »

✓ « Agriculture and renewable energies : state of art and opportunities for the farmers », forthcoming
Markets and jobs related to the energy efficiency and to the renewable energies

BIOGAZ between 2014-2015

✓ Increase of 7.4%, 391 M€

✓ Increase due to the sale of energy (50.1%)

✓ Stability of investments (196 M€) due to:
  - lack of rentability;
  - dysfunctions of certain units
  - waiting of the new rates of purchase of electricity

✓ Continuous rise of employment since 2006: 3 % between 2014-2015
  1550 jobs
3 studies

Markets and jobs related to the energy efficiency and to the renewable energies


- Equipment made in France: 50%
- Imports of equipment: 10%
- Installation, preliminary studies: 30%
- Operation-maintenance-energy sales: 10%

Jobs: 1550 (2015)

- Equipment made in France: 48%
- Installation, preliminary studies: 41%
- Operation-maintenance-energy sales: 10%
3 studies

Biogaz in Burgundy : Impacts on jobs and the economic flows at the regional and national level », 2015 »

4 studied biogaz plants :

<table>
<thead>
<tr>
<th>Biogaz plants</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>technique</td>
<td>liquid</td>
<td>batch</td>
<td>liquid</td>
<td>liquid</td>
</tr>
<tr>
<td>Electric power (kW)</td>
<td>30</td>
<td>65</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Investments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>coût total (€ HT)</td>
<td>502 450</td>
<td>653 700</td>
<td>2 366 500</td>
<td>2 645 300</td>
</tr>
<tr>
<td>Geographical destination of investments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>régional</td>
<td>44%</td>
<td>29%</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>national</td>
<td>42%</td>
<td>47%</td>
<td>29%</td>
<td>41%</td>
</tr>
<tr>
<td>Foreign countries</td>
<td>14%</td>
<td>24%</td>
<td>51%</td>
<td>41%</td>
</tr>
</tbody>
</table>

More than 50% of investments stay in France and more for the small units
3 studies

Biogaz in Burgundy: Impacts on jobs and the economic flows at the regional and national level, 2015

4 studied biogaz plants:

- More than 50% financial flows stay in Burgundy
- More than half work is made by regional companies and 90% by French companies
Agriculture and renewable energies: state of art and opportunities for the farmers

✓ Agricultural biogaz: 26% of biogaz, 239 unit but low power
3 studies

Agriculture and renewable energies: state of art and opportunities for the farmers

✓ Agricultural biogaz: 26% of biogaz, 239 unit but low power

✓ Turnover: 88 millions of €uros (1 000€ of euros for biofuels), 0.13% of turnovers of the agriculture

✓ 155 created agricultural jobs

✓ Biogaz unit (250kW):
  Biogaz income 9 000 € - agricultural income 25 400€
Agriculture and renewable energies: state of art and opportunities for the farmers

- Biogaz: still fragile sector in 2016
- But with new feed-in tariffs
- Biogas: Real opportunities
  - to create local added-value and employment for territories
  - To maintain agricultural income and employment on the farms
Thank you for your attention

marc.bardinal@ademe.fr