

Energy from anaerobic digestion of biomass

Opportunities and challenges from an Energy Company's perspective

– Asja Ambiente Italia –

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Agenda

- > The company
- > The biomass sector in Italy
- > The legal framework: opportunities and challenges

ASJA Ambiente Italia: 1995-2008

- > We generate Electricity from Renewable Energy Sources
- > We are active in reducing GHG emissions within the Kyoto Protocol

Biogas



Wind



Solar



Hydro



Clean Energy



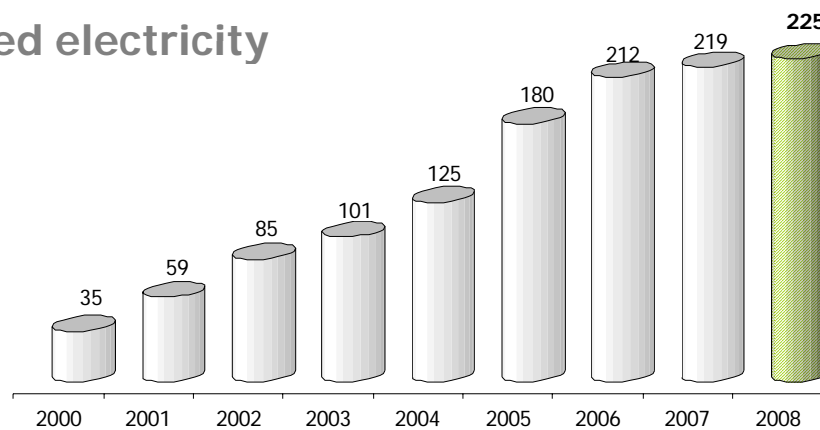
Kyoto Protocol



A few numbers...

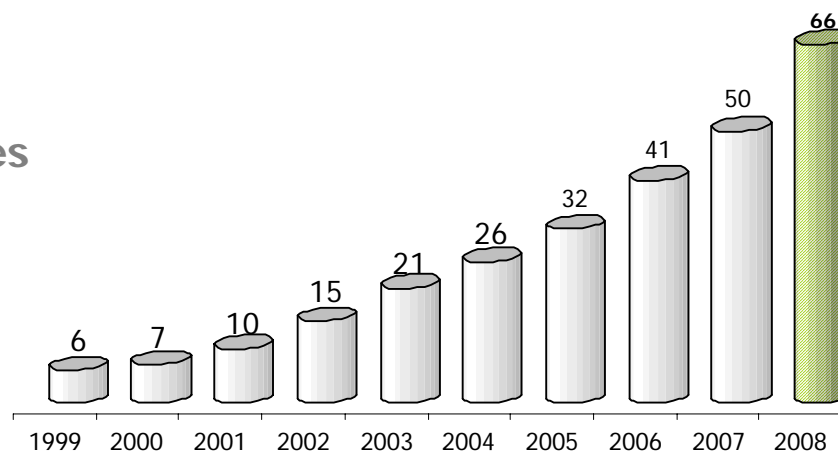
Generated electricity

Million kWh



Revenues

Million Euro



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The Biomass Sector in Asja Ambiente Italia

Asja develops, designs, builds and operates cogeneration power plants based on biogas resulting from anaerobic digestion of biomass

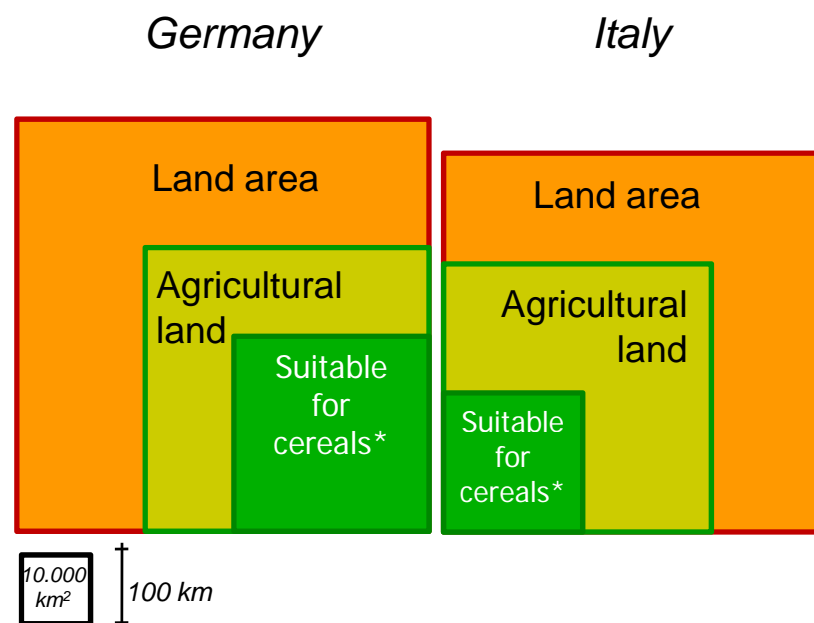
Asja partners with agricultural farms, cattle farms and food processing industry to develop new renewable energy ventures based on biogas



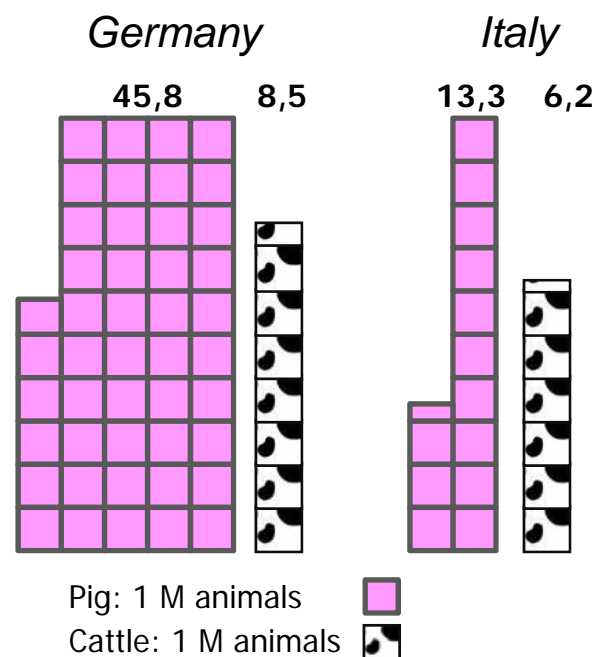
The Biomass sector in Italy: an interesting potential

Compared to the largest EU biogas market (Germany), Italy shows an interesting resource potential

Energy crops



Livestock



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Source : FAO STATS, average 2000 – 2006
 (*) Mais for grain and silage, wheat, barley, rye

The legal framework

1. The incentive scheme
2. Biomass input to a biogas plant: legal status
3. Output from the biogas plant: legal status
4. The permitting framework



The incentive scheme: the framework

- Brought about by the Budget Law 2007 (D.L. 159/2007)

Incentive (EUR / MWh)		Source of biomass	
		Within 70 km	Farther than 70km
Plant size	< 1 MW el	300 Eur / MWh	220 Eur / MWh
	> 1 MW el	260 Eur / MWh	190 Eur / MWh

- Duration: 15 years from plant startup

The incentive scheme: the issues

1. Straight after the Budget Law (D.L. 159/2007) was passed in December 2007, general elections took place with a new government: the "**Operating Decrees**" defining what exactly must be done have not been issued
2. **Revision**: the Budget Law states that the incentive value "may be revised after 3 years": uncertainty about:
 - ? applicability: the incentive change affects only the new plants coming online after the revision, or all plants ?
 - ? revision criteria: based on what?
3. Source of biomass and **distance** from plant:
 - How is the distance calculated? What evidences shall be given?
 - The distance criterion may not be entirely rational, as different types of transport (road, rail, sea) have significantly different environmental performances but this is not reflected in the legal framework (e.g. unit fuel consumption $\text{kg}_{\text{fuel}}/\text{kg}_{\text{freight}}/\text{km}$ by road can be 2x to 7x than by sea)

Biomass input to a biogas plant

Farm perimeter

From farm

- Animal waste
- Agricultural waste
- Energy crops

Biomass

**Biogas
plant**

*Digestate
= waste*



External farms

- Animal waste
- Agricultural waste
- Energy crops

Biomass

Waste

Food industry

- Residues

Issue: the same (or very similar)
input is treated differently!

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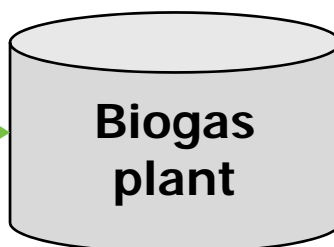
Output from the biogas plant

Farm perimeter

From farm

- Animal waste
- Agricultural waste
- Energy crops

Biomass



Digestate



Issue: the same (or very similar) output is treated differently!

External farms

- Digestate spreading on agricultural fields



Compost firms

- Composting



Digestate = waste

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The permitting framework: issues...

- Biogas plants are under the authorisation procedure for Renewable Energy plants not requiring Environmental Impact Assessment (D.L. 387/2003)
- The procedure converges into a **single act** (*Autorizzazione Unica*)
- The central authority for the procedure is the Region (20 entities in Italy):
 - within 30 days calls for a Conference of Parties (CoP)
 - within 180 days must decide the matter, based on the CoP's judgment

BUT...

- the **duration** of 180 days is not always respected: the procedure allows for requests of additional information, during which the day-count is stopped; also, there is no penalisation on the authority not respecting the deadline
- many Regions do not define openly and officially the **criteria** followed in evaluating acceptance / rejection of a project → lack of rational, evidence-based decision-making



... and improvements

- **Procedure streamlining:** *Region Puglia* recently (decision of Regional Government n. 35/07) simplified the authorisation phase:
 - plants with installed capacity < 1 MWel are subject to *the Declaration of Beginning of Construction* (D.I.A.), which does not require a decision from local authorities
- Evidence-based **decision making**: different regions are writing / have issued Regional Energy Whitepapers which cover:
 - review of **energy context** (energy demand and generation capacity)
 - **targets** for new renewable capacity to be developed
 - **criteria** for acceptability of new projects (capacity, locations, technologies, ...)

Ideally, projects complying with all the above (i.e. right size, technology, place) should not be denied the authorisation

Take-home messages

- **What's good:**
 - **incentive scheme** able to attract investors and promote the development of biogas power
 - **simple procedure:** already a single act (*Autorizzazione Unica*) is required
- **What could be better:**
 - certainty of procedure **times**
 - certainty of **criteria** for acceptability of new projects (evidence-based)
 - definition of **detailed requirements** and actions from the developer
 - greater **rationality/ consistency** of converging legal frameworks (e.g. biomass vs waste, distance from input source)

Thanks for your attention

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