Biomethane in the frame of the European and Italian Bioeconomies

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Biogas in Europe and in Italy

Number of biogas plants and total installed capacity in Europe 2010 -2014

17,240 biogas plants in Europe (31/12/2014)
Total installed capacity of 8,293 MW_{el}
The European & Italian Bioeconomy

In Italy: about 255 Bil €/y and 1.7 Mil of jobs
In Europe: about 2.000 Bil €/y and 20 Mil of jobs
Recovery of energy & Landfilling

Bioeconomy & Circular Economy

- Production of feedstocks;
- Socio-econ. growth in rural/costal areas;
- Regeneration of abandoned lands/sites

In EU by 2030:
- +30% resource saving;
- -50% CO₂ emission;
- +7% PIL;
- +2 M jobs

Reuse and (bio)conversion of by-products/waste to valuable products

The European Bioeconomy Strategy (a)
(under revision)

- Productive and resource-efficient primary production systems
- Sufficient supplies of safe and high quality food and bio-based products, including bioenergy
- Competitive and low carbon value chains.
In Europe: about 2,000 Bil €/y and 20 Mil of jobs
a) Improve sustainably the productivity and quality of products of each of bioeconomy sectors and sectors interconnection with the creation of longer, locally routed value chains;

b) Exploit national terrestrial/marine biodiversity, ecosystem services and circularity, and regenerate abandoned/marginal lands;

c) Create: i) a wider and more coherent political commitment, ii) more investments in R&I, spin off/start up, education, training, communication, iii) a better coordination between regional, national and EU stakeholders/policies, iv) a better engagement of a public dialogue, and v) tailored market development actions.
Biomethane opportunities: new biobased products coupled to AD

Recovery \rightarrow (Bio)Conversion \rightarrow Bioproducts, PHAs

Purification \rightarrow (Bio)Conversion \rightarrow Bioproducts

BIOWASTE

H₂

VFAs

H₂O digestate

Processing \rightarrow fertilizers

Algal biom. production

CH₄
Biomethane opportunities: better integration of AD in Biorefinery pathways

Proper enzymes and/or microbes in suitable biotech processes

Physical & biochemical treatment

Biomass

Sugars, Lipids, proteins, etc. Lignin, Feeds, fertilizers

Fatty acids, aminoacids, phenols, antioxidants, fibers, pigments

Biospecialties
Food ingredients
Pharmaceuticals
Fine chemicals

Biomaterials
Biopolymers
Lubricants, fibers, pigments, proteins

Base Chemicals
Organic acids
I & II Metabolites

Biofuels
Methane, Hydrogen

Biofuels

Energy Fuels

Food

Pharma

Chemical

BioCosmetics

Chemical Textile Pulp/Paper

BioCosmetics

Food

Livestock

Agriculture
Horizon2020, the EU Commission research and innovation funding programme (~79 Billion, 2014-2020)

**Excellent Science**
- European Research Council
- Future and Emerging Technologies
- Marie Curie Actions
- Research Infrastructure

**Industrial Leadership**
- Leadership in enabling and industrial technologies (NMPB)
- Access to risk finance
- Innovation in SMEs

**Societal Challenges**
1. Health, demographic change and wellbeing
2. Food security, sustainable agriculture, marine and maritime research & bioeconomy
3. Secure, clean and efficient energy
4. Smart, green and integrated transport
5. Climate action, resource efficiency and raw materials
6. Inclusive, innovative and reflecting societies
7. Secure societies

www.ec.europa/research/horizon2020
A Public-Private Partnership on Bio-Based Industries

Realising the European Bio-economy Potential

€ 3.7 Billion (75% private) 2014-2020

WP2017, € 81 M. Deadline: Sept 7, 2017
http://www.bbi-europe.eu/sites/default/files.awp_

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