City of Ljubljana

CiVITAS FORUM 2015

CIVITAS ANNUAL CONFERENCE | 7-9 OCTOBER 2015 | LJUBLJANA

The BIOMASTER Project – Biomethane for Transport

Ljubljana

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Who is ISIS

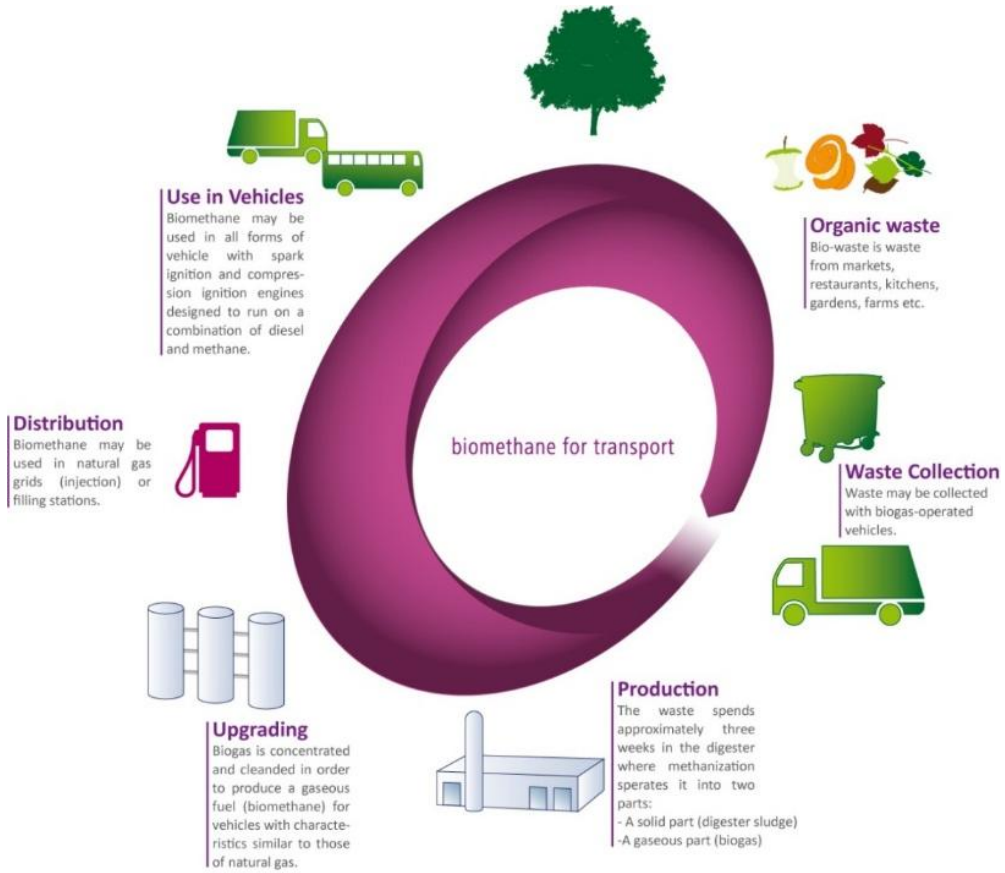
- Research and consultant Institute founded in **1971**
- Consolidated experience in **energy efficiency, sustainable mobility, territorial systems, environmental sustainability**
- **20 members** staff with **multidisciplinary** background in engineering, statistics, economics, politics and informatics
- Long story of collaboration at **national** (Ministries, Regions, Provinces and Municipalities) and **international** level (European Commission, World Bank, European Bank of Investments, foreigner Ministries, Regions e Municipalities, etc.)
- Specialised skills in **coordination** of projects, analysis of and support to **policies**, **impact assessment**, **evaluation** of policies and technologies energy efficiency, **monitoring** of participation processes to policies.

What is Biomethane

- Biomethane is produced through the **anaerobic digestion** process when bacteria break down organic material into methane, carbon dioxide, water and other impurities

- The methane can either be used to generate **electricity** and **heat** or in its upgraded form as **fuel** or **injected** into **natural gas grids**

- Residual digestion–based products may be used as **fertilizer** or **compost**



Source: Biogasmax Project - www.biogasmax.eu
Design: FGM-AMOR

Why Biomethane

- **Diverse, abundant and self-supplying feedstock**: sewage sludge, municipal bio-waste, waste and crops from the agro-food sector
- **Unique combination** of low-carbon, low-emissions, low-noise transport
- Biogas production to improve **environmental efficiency** of waste treatment processes
- **High productivity** per hectare of biogas from crops, decreasing competition for arable land
- Upgraded biogas similar to natural gas:
  - CNG infrastructures and vehicles can be used
  - Natural gas can be complementary in security of supply
  - Upgraded biogas can be injected in and transported by the natural gas grids

Source: CIVITAS TRENDSETTER Project – www.civitas.eu
Design: FGM-AMOR

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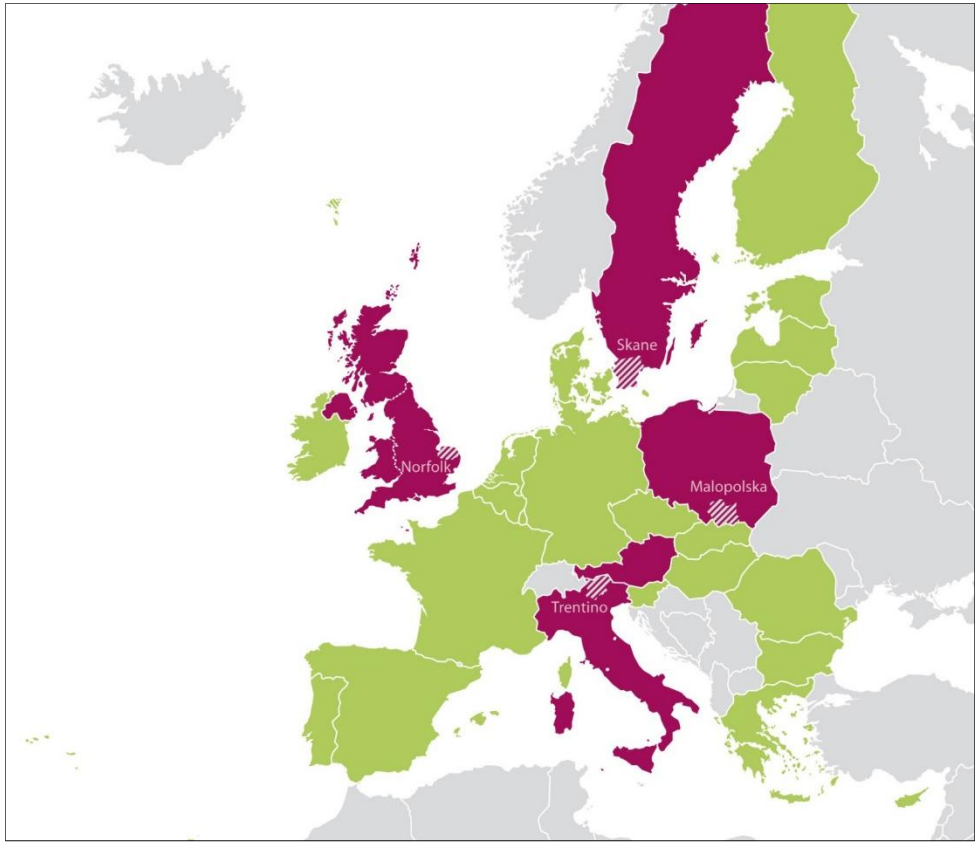
Background of the BIOMASTER Project

- **BIOMASTER** was a project of the Intelligent Energy Europe Programme
- 17 partners, 5 Country members, 4 application sites
  - Małoposka Region (PL)
  - Norfolk County (UK)
  - Skåne Region (SE)
  - Trentino Province (IT)
- **36** months duration (01 May 2011 – 30 April 2014)
- Around EUR **1.700.000,00** EU co-funding
- Uptake of biomethane **production**, **distribution** and **use in vehicles**
- **"Well-to-wheel"** partnerships, with set-up of local networks
- Studies, analysis, training, seminars, conferences, dissemination, publications, events, meetings.



Challenges at European Level

- **Directive 2009/28/EC: 10%** of transport fuel from renewable sources
- Need for European **biomethane standards**
- Promote and facilitate **injection** of biomethane into **natural gas grid**
- **Waste** Framework Directive, **Water** Framework Directive, **Nitrate** Directive (and legislation on **bio-waste** with possible EU Directive)
- **Digestate** to replace **artificial fertilisers**

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Challenges at National & Local Level

- Avoid **market distortion** of **green certificates** system for power and heat
- Legislation to secure **investments** for production, refuelling infrastructure, etc.
- **Simplified permissions** for building of biogas plants and connection with the gas grid
- **Economic incentives** for vehicles and fuels
- **Security of energy supply** from local resources instead of fossil fuel **dependency** and **import**
- Increase and optimise the **bio-waste** collection, treatment and recycling
- Adapt/build gas grid for **injection** and increase **gas filling stations**

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Challenges at Business Level

- Improve **range** and **energy efficiency** of gas vehicles (storage and engine)
- Increase **availability** of vehicle models
- Investments in driver **trainings** for gas vehicles
- Higher frequency of vehicle **maintenance**
- Comprehensive **service contract** for vehicles

Results & Impacts

- **4** detailed feedstock assessments in the 4 BIOMASTER sites
- **4 regional networks** established, one in each BIOMASTER site
- **9** other regional networks in each partner country (2 in Italy, 1 in UK, 4 in Sweden, 2 in Poland)
- **9** new biogas/biomethane production plants, at different stages of implementation
- **5** new injection points into the gas grid
- **54** new public biomethane filling stations
- **3,284** new CNG/CBG vehicles

Impacts (2014)	**€96 M** Cumulative Investment made by European stakeholders in sustainable energy	**14,832** toe/year Renewable Energy Production triggered	**23,147** T CO2e/year Reduction of Greenhouse gas emissions

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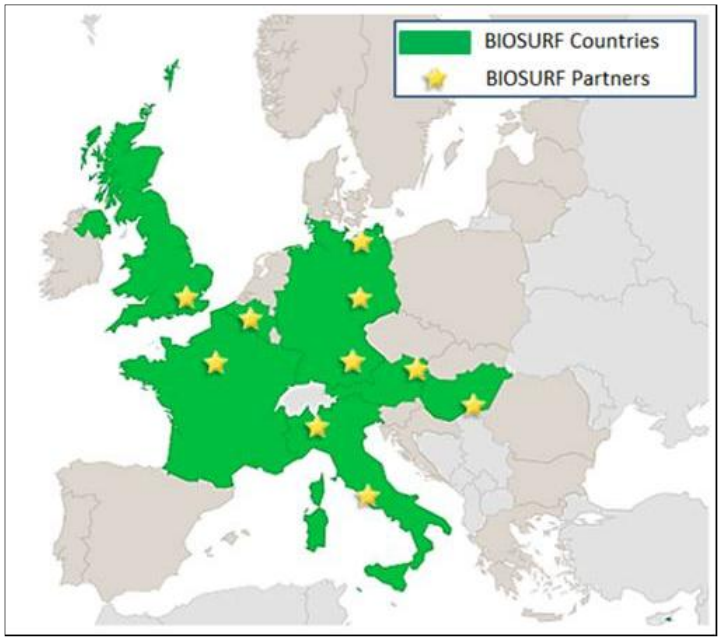
Conclusions

- Biomethane as **existing** and **viable** option;
- Biomethane as an important factor for the **20-20-20 targets** and **security of energy supply**;
- Need of a political, legal, economic and fiscal as **favorable** and **stable**;
- **High investment costs**, but significant return in the creation of **jobs** because economy-intensive work;
- Need of **participatory processes** and **marketing/awareness campaigns** to defuse the "**NIMBY**" resistance;
- **Technical developments** to reduce costs and improve efficiency;
- Intervention by **public authorities** (e.g., with captive fleets, refueling infrastructures, appropriate incentives) to develop the market of "niche“ of biomethane and influence market prices and industrial choices.

"New Born" Project: BIOSURF

- **BIOSURF**: **BIO**methane as **SU**stainable and **R**enewable **F**uel (**HORIZON 2020**): www.biosurf.eu
- **36** Months (since January 2015);
- **11** partners in **7** countries (among others several national associations of biogas/biomethane);
- **1.873.000 €** of EC funding (100%);
- **Activities:**
  - National registries of biomethane;
  - Cooperation among national biomethane registries;
  - European mass balancing system for biomethane;
  - Free market biomethane trade;
  - Sustainable raw material supply;
  - Methodology for entitlement of CO2 emissions;
  - Regional specificities (IT, AT, FR);
  - Networking and cooperation;
  - Transferability of the results beyond the project countries;
  - Dissemination, communication.



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Thank you!

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