

# The BIOMASTER Project – Biomethane for Transport

**Stefano PROIETTI**  
**ISIS**

**Istituto di Studi per l'Integrazione dei Sistemi**

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INNOVATION FOR SUSTAINABILITY

## IN THIS PRESENTATION

- INTRODUCTION
- WHO WE ARE AND WHAT WE DO
- CHALLENGES TO WORK ON
- RESULTS
- CONTACT

# 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.

# INTRODUCTION

Biomethane ...?

# Why Biomethane?

- **Diverse, abundant** and **self-supplying** feedstock: sewage sludge, municipal bio-waste, residues 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

# Supplies are unlimited ...

## ORGANIC RESIDUES

Sewage sludge  
Energy crops  
Slaughterhouse waste  
Manure  
Organic household waste



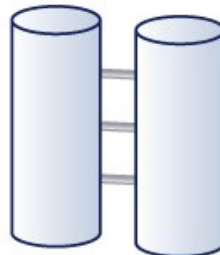
Digestion



Rawgas



Upgrading



CNG-Quality



Bio Fuel



Fertilizer



Source: CIVITAS TRENDSETTER Project – [www.civitas.eu](http://www.civitas.eu)

Design: FGM-AMOR

# Supplies are unlimited ...



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# BIOMASTER

## The project



# Project Summary

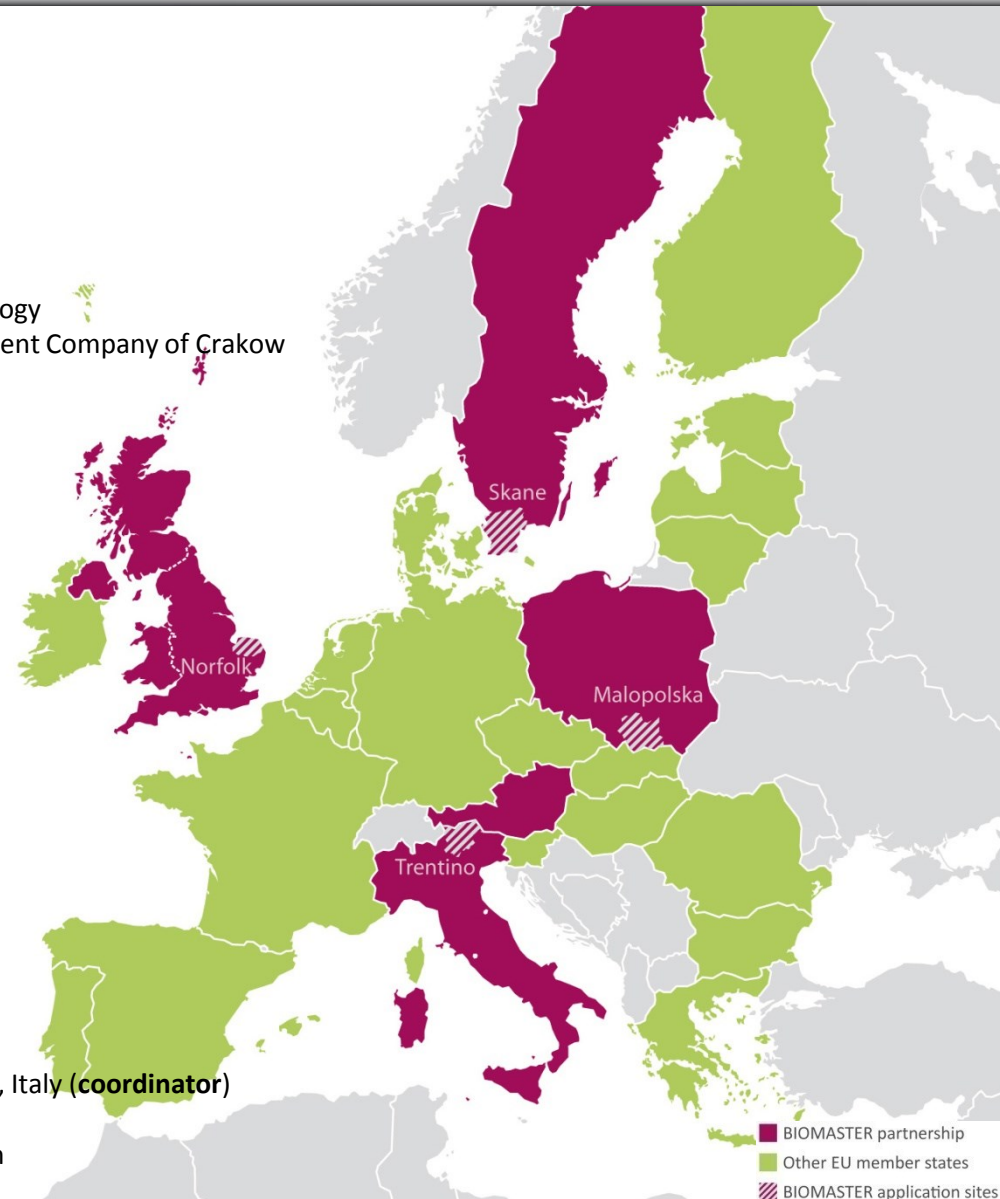


BIOMASTER is a project of the Intelligent Energy Europe Programme

- **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**” partnership, with set-up of local networks
- Studies, analysis, training, seminars, conferences, dissemination, publications, events, meetings

# Who we are ...

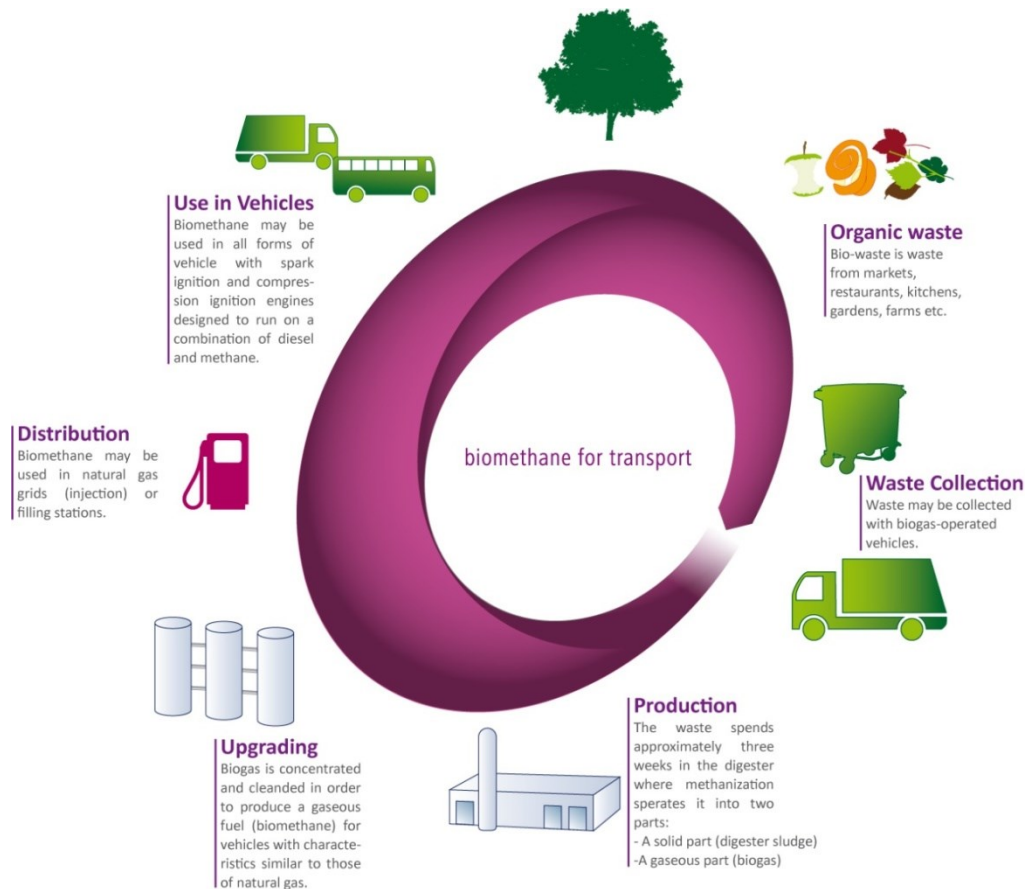
- **Małopolska Region, Poland**
  - AGH-UST – AGH University of Science and Technology
  - MSWM – Municipal Services and Waste Management Company of Crakow
  - PGNiG – PGNiG Energia S.A.
  
- **Norfolk County, United Kingdom**
  - NCC – Norfolk County Council
  - NCS – Norse Commercial Services Ltd
  - NGG – National Grid Gas plc
  
- **Skåne Region, Sweden**
  - LUENERG – Kraftringen produktion
  - Regskane – Region of Skåne
  - AB SEA-SE – Kommunförbundet Skåne
  
- **Trentino Region, Italy**
  - ACSM – ACSM S.p.A.
  - CRF – FIAT Research Centre SCPA
  - CRPA – Research Centre on Animal Production
  - DE – Group Dolomiti Energia
  - FEM – Edmund Mach Foundation
  
- **ISIS** – Institute of Studies for the integration of Systems, Italy (**coordinator**)
- **FGM-AMOR** – Austrian Mobility Research, Austria
- **TTR** – Transport & Travel Research Ltd, United Kingdom



# BIOMASTER

## Challenges

# The biomethane chain we work on ...



Source: Biogasmax Project - [www.biogasmax.eu](http://www.biogasmax.eu)  
Design: FGM-AMOR

# Challenges to work on ...

## EU 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**

# Challenges to work on ...

## National and 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**

# Challenges to work on ...

## 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

## We try to tackle these challenges by ...

- Commitment of a **“well-to-wheel” partnership** along the biomethane chain within the project
- Set-up of **networks** by involving additional local and national stakeholders beyond the official partners (in our sites, in our countries and outside the project)
- Addressing
  - Potential for total **production** and **use**
  - Available **distribution** modalities (with special focus on biomethane grid injection)
  - Legal, organisational and financial **barriers**



# Results so far ...

- **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)
- **5 new** rural biogas plants, **1** new injection point, **5** new public filling stations, **65** filling points for CNG buses, **2768** new CNG personal vehicles and about **800** CNG buses (Skåne)
- **1** agricultural biogas plant in construction (Małopolska)
- Feasibility work and design of **1** biogas plant, **2** filling stations sites identified (Norfolk)
- **1** biogas plant built and a Feasibility study for **1** biogas plant (Trentino)
- **Communication products** (6 newsletters, 6 factsheets, website with more than 60,000 page views, folder and postcard in 4 languages, outreach at more than 90 conferences reaching over 13,000 people).

# Conclusions

- Biomethane as existing and viable **option**
- Biomethane as major contributor to **20-20-20** objectives and to **security of energy supply**
- **Favourable** and **stable** policy, legal, economic and fiscal framework as necessary
- High **investments costs** but significant return in creation of **jobs** because intensive labour economy
- Need of **participatory processes** and of **marketing campaigns** to defuse the resistance of neighbourhoods
- **Technical developments** to reduce costs and improve efficiency
- Intervention of **public authorities** (e.g. with captive fleets and refuelling infrastructures, appropriate incentives) to trigger biomethane “niche” markets and influence market choices

# Whom to contact ...

**Stefano PROIETTI**

BIOMASTER Project Coordinator

**ISIS – Institute of Studies for the integration of Systems**

Via Flaminia, 21

00196 Rome, ITALY

Tel: 0039 06 321 265 5

Email: [sproietti@isis-it.com](mailto:sproietti@isis-it.com)

[www.biomaster-project.eu](http://www.biomaster-project.eu)

**Thank you for your attention!**