D6.2 I Inventory of rules and conditions for the natural gas/biomethane market in 3 regions (IT, AT, FR)

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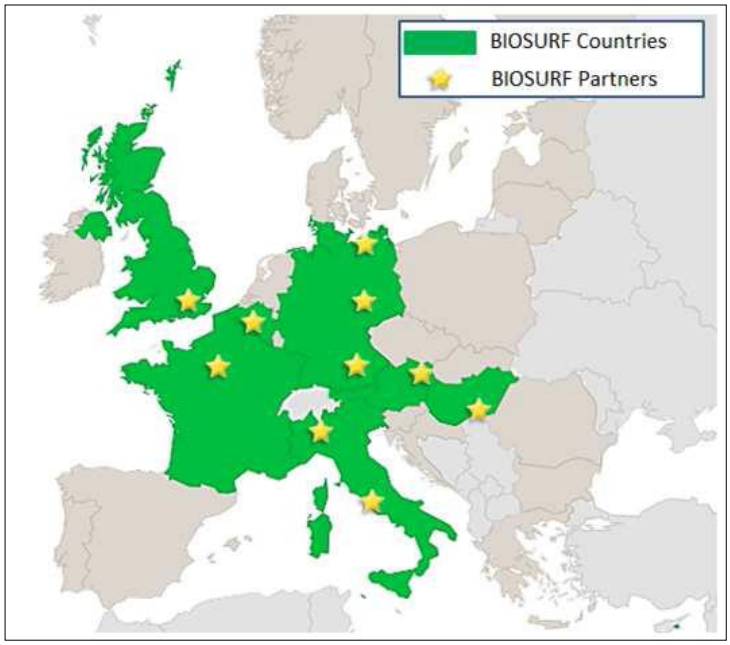
BIOSURF in a Nutshell

BIOSURF is an EU-funded project under the Horizon 2020 programme for research, technological development and demonstration.

The objective of BIOSURF (BIOmethane as SUstainable and Renewable Fuel) is to increase the production and use of biomethane (from animal waste, other waste materials and sustainable biomass), for grid injection and as transport fuel, by removing non-technical barriers and by paving the way towards a European biomethane market.



The BIOSURF consortium consists of 11 partners from 7 countries (Austria, Belgium, France, Germany, Hungary, Italy and United Kingdom), covering a large geographical area, as indicated in the figure on the left.

The intention of the project is:

- To analyse the value chain from production to use, based on territorial, physical and economic features (specified for different areas, i.e., biofuel for transport, electricity generation, heating & cooling);
- To analyse, compare and promote biomethane registering, labelling, certification and trade practices in Europe, in order to favour cooperation among the different countries and cross border markets on the basis of the partner countries involved;
- To address traceability, environmental criteria and quality standards to reduce GHG emissions and indirect land-use change (ILUC), as well as to preserve biodiversity and to assess the energy and CO2 balance;
- To identify the most prominent drivers for CO2-emissions along the value chain as an input for future optimization approaches and to exchange information and best practices all across Europe with regard to biomethane policy, regulations, support schemes and technical standards.

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1. Introduction

WP6 aims to develop an "embryonic" biomethane market connecting regionals areas in three neighboring countries (Austria, France and Italy) in which assessing the concepts elaborated at national level (e.g., registries, GoO, sustainability, GHG emissions, standards).

This will be achieved with:
- A biomethane register for Italy or (at least) a regional one for Northern Italy;
- Bilateral or trilateral agreements among the biomethane registries from Italy, France and Austria, including mutual acceptance of Biomethane Guarantees of Origin issued in the country of production;
- A regional arrangement with the competent natural gas pipeline companies on the procedure of confirming the physical movements (injection, take-out);
- At least one willing customer who is interested to buy imported biomethane and at least one willing biomethane producer in any of the three countries who is interested to produce biomethane for export;
- The readiness of the countries' governments to import biomethane from foreign countries.

In order to allow the biomethane trade between Italy, France and Austria, it is necessary that in the three countries there is a common and recognized regulation. For this goal, starting from the results (at national level) from WP3, the partners will analyze the present rules, conditions and standards, addressing the main natural gas grid companies.

Within this task, the three country partners (CIB, AKB and ATEE Club Biogaz) consolidate rules and conditions regulating the natural gas sector, also including regional and local specificities. This information has been collected in a dedicated inventory (see chapter 2 below).

Continuous contacts and exchanges with the main natural gas companies are organized and maintained in order to present the database and to specify the requirements under which the natural gas companies mutually accept Biomethane Guarantees of Origin issued in the country of production. The final aim will be to achieve bilateral or trilateral agreements among natural gas companies, considering the different rules and procedures in the sector.

During the first months of the project we have identified the areas (regions) in Italy, Austria and France that would be the subject of the analysis. This choice was based on the presence of some specific features that are important for the biogas/biomethane production chain.

The preferential features in order to make the choice were:
- The number of biogas/biomethane plants;
- The extension and the ramification of the natural gas grid;
- The number of methane /filling stations;
- The number of the CNG/CBG vehicles;
- The presence of business car fleet/public transport fleet powered by methane/biomethane;
- The presence in the region of any project, (started or next to start), supporting biomethane.

Based on the features descripted above, the following regions have been selected:

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- Lombardy and Trentino-Alto Adige region for Italy;
- Tyrol region for Austria;
- Rhône-Alpes region for France.

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2. THE INVENTORY

2.1 ITALY

2.1.1 Summary of the possible uses of biomethane and national support schemes

The Decree of 5th December 2015 (Biomethane Decree), establishes the subsidy scheme for biomethane introducing three types of subsidy for biomethane produced and injected into the natural gas grid; these types are:

a) biomethane injected in transport and distribution grid of natural gas;
b) biomethane used in transport after injection into the natural gas grid;
c) biogas plants used in CAR (High efficiency cogeneration – "Cogenerazione ad Alto Rendimento").

According with the decree, the national gas grid includes both the natural gas and biomethane grids, and more in details:

- transport grid and distribution of natural gas whose managers have an obligation to connect third parties;
- transport systems by gas road tanker;
- public and private filling stations, including agricultural use, also not involved in the transport and distribution grid;
- other transport grids.

The subsidies provided by the Decree apply to:

- new plants built in the country and in operation since 18th December 2013 and no later than five years from the date of entry into force of the Decree;
- existing installations for the production and utilization of biogas, located within the national territory, in operation since 18th December, 2013 and no later than five years from the date of entry into force of the decree, converted, partially or totally, to the production of biomethane.

Subsidy for grid connection without a specific destination

The producer can inject biomethane in the transport or distribution of natural gas grid, with or without the aid of gas road tanker. Pending the completion of the framework regulatory, scheduled for the end of 2015 - early 2016, this way of subsidy is not active yet.

Subsidy for high efficiency cogeneration (CAR)

The Decree identifies as a second possible specific use of the power plants approved by the GSE for high efficiency cogeneration (CAR). In this case, the biomethane is not encouraged directly, but through the recognition of feed in tariffs for the production of electricity from biogas, according to

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modalities and conditions set by decree of the Minister of Economic Development 6 July 2012. Pending the completion of the framework regulatory, scheduled for the end of 2015 - early 2016, this way of subsidy is not active yet.

Subsidy for biomethane as biofuel

In Italy biofuels are encouraged with the system of mandatory quota. This is the mechanism chosen to achieve the target set by the European Union for the consumption of renewable energy in the transport sector (10% in 2020). The obligated parties, e.g. operators that release gasoline and diesel fuel for consumption, have an obligation to mix with biofuels the 5% (for 2015, next years the % will increase up to 10%) of the energy value of fossil fuels (diesel and gasoline) released in consumption in the same year. Biofuels released for consumption in transport must be provided with sustainability certificate accompanying the biofuel in the transition from producer to distributor (Certificate of Release for Consumption - CIC "Certificato di Immissione in Consumo"). The biomethane distributor, which releases biomethane for consumption, receives a CIC by the GSE every 10 Gcal.

2.1.2 Brief summary of the national natural gas market

The last six years have been a key period for the development of the biogas sector in Italy. The sector grew considerably reaching a consistency of about 1,500 plants with an installed capacity of about 1,200 MW. Italy is the second European biogas producer after Germany, and third worldwide following China.

Since June 2015, in Italy five plants producing biomethane are in operation. The older plant is in Rome at the Malagrotta landfill, in operation since the mid-90s. It is a system that uses the technology of the wash water, capable of treating about 200 m^3/h of biogas (upgrading from the landfill). The biogas is not injected into the grid and is used as biofuel in vehicles for the collection of waste. The other four plants are demonstrative plants. No one is connected to the gas grid. Three of them are linked to agricultural plants (in the provinces of Lodi, Bologna and Mantua), and one is linked to MSW[1] treatment plant (near Turin).

The Italian gas grid is composed by 280,000 km of pipeline (mostly concentrated in the northern regions), divided between primary transport grid (34,000 km) and distribution grid (250,000 km).

Italy has a long tradition in the field of methane-fuelled vehicles and is still European and worldwide leader in the technology used for this kind of means of transport.

At the end of 2014 the Italian distribution topped 1,000 service stations, out of which 14 on highways and other 20 owned by public transport companies. Further, more than 950 million cubic metres are consumed for traction among service stations and company vehicles.

Complying with the AEEG (Electric and Gas Energy Authority) regulations, biomethane is compatible with natural gas, which is already distributed in-country in the gas pipelines and secondary grid. Thus, it can be used by all the 790,000 vehicles, which are fuelled with natural gas.

[1] Municipal Solid Waste

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It will be also possible to draw upon cylinder or tanker trucks. This kind of transport is common in Italy and useful to provide many different consumers (civil, industrial, traction) with natural gas, which are not served by the pipelines grid, or are experiencing an emergency or grid maintenance works.

The Italian gas industry is structured in three main phases:

a) Supply;
b) Transport (including activities related to storage and dispatching, transmission and distribution);
c) Marketing.

a) Supply of natural gas

Production means the extraction of gas from the underground. It is a free activity. The main operator is Eni SpA (90.04%).
The main importers are: Eni group (64.1%), Enel (14.6%), Edison (9.5%).
The gas comes from abroad into the national grid through pathways such as Russia, The Netherlands and Algeria to an LNG receiving terminal located in Panigaglia (La Spezia).

b) Transport

The storage is a regulated activity and the main operator is Stogit SpA (Eni group), 96.6%. The Authority sets the rate.
"Dispatching "refers to the constant and real-time equilibrium between supply and demand, and is strictly related to the transport carried out with remote control functions that act on the inlet-pressure of the gas from natural deposits or from storage, also acting on the gas flows in certain parts of the network.
Transport includes the activity of conveying gas, via pipeline or ship transport of liquefied natural gas that is kept liquid at low temperature (LNG[2]).
Distribution consists on the transport of gas through pipeline networks to local facilities for customers. It is a regulated activity (local authority). In 2004 there were about 550 distribution companies, nowadays there are 240 (the main ones Italgas SpA -Eni group- and Enel).

c) Marketing

Selling to end users the gas purchased from wholesalers or imported is a free activity in Italy. In 2010, there were about 230 companies, including Eni Gas & Power (Eni group) and Enel Gas (Enel). The price is free, however, the Authority – AEEG -- has defined the economic conditions.

Gas grid infrastructure data

The transport network is made up of: a "primary" (or dorsal) network, transporting gas directly from production or import, and a "secondary" network, covering all pipelines (adductors secondary) that connect the primary network to the centres of consumption. The main Italian pipeline has a length of approximately 34,000 km and spreads over the national territory (excluding Sardinia). The network of Snam represents 93.8% of the national primary network. Other operators have developed local networks, particularly in the Adriatic regions (Marche, Abruzzo and Molise).
According to the resolution nr. 120/01 "Development of criteria for the determination of tariffs for the transportation and regasification of natural gas and the use of LNG terminals and the booking

[2] Liquefied Natural Gas

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of capacity" ("*Definizione di criteri per la determinazione delle tariffe per il trasporto e dispacciamento del gas naturale e per l'utilizzo dei terminali di Gnl e della prenotazione di capacità* ") the distribution network is divided into two parts:

- the National Gas Pipeline Network, for a total of 9,268 km,
- and the regional transportation network for the remaining 24,500 km.

The National network consists of pipelines, connected compressor stations. The regional transportation network consists of the remaining part of the carrier pipelines not included in the National Gas Pipeline Network and the plants connected to it with the main function to move and distribute natural gas in defined territorial areas, typically on a regional scale. The transport service should be understood as an integrated service from the above mentioned pathways of entry into the national network to the delivery locations of the regional network.

The distribution is done by about 5,800 booths; almost 210,000 final reduction groups; almost 250.000 km networks (including 1,350 km non-operating), 41% on average pressure and 58% in low pressure. The networks are located mainly in the North (148,500 km against 56,500 km in Central Italy and 43,700 km in Islands and South Italy). The networks, on average, belong 75% to the same distributors and 5% to the municipalities. The ownership of the networks, which can be the Municipality distributor or other organizations (for this reason the sum of the percentages may not equal 100), however, varies quite significantly between the different regions.

ITALY	
Number of biogas plants	1,300
MW_{el}	1,000
Number of biomethane plants	5
m^3/h	350
Number of methane filling stations	1,000
Number of CNG/CBG vehicles	790,000 (2013)
Length of natural gas grid	280,000 Km

Table 2-1: Figures on Italian gas network

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Figure 2-1: Natural gas grid in Italy – October 2008

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2.1.3 Main stakeholders

Reaching the goal of getting more biomethane injected into natural gas grid and start cross border trade several stakeholders are needed. Below a list of important stakeholders.

NAME	DESCRIPTION	WEBSITE
Assogasliquidi	Association; research institutions	http://assogasliquidi.federchimica.it/
Assogasmetano	Association; research institution	www.assogasmetano.it
Assorinnovabili	Association; research institution	www.assorinnovabili.it
Coldiretti	Association; research institution	www.coldiretti.it
Comitato Italiano Gas - CIG	Association ;research institution	www.cig.it
Confagricoltura	Association; research institution	www.confagricoltura.it
Consorzio Italiano Biogas - CIB	Association; research institution	www.consorzioitalianobiogas.it
Consorzio Italiano Compostatori – CIB	Association; research institution	www.compost.it
CTI Energia e Ambiente	Association; research institution	www.cti2000.it
NGV Italy	Association; research institution	www.ngvitaly.com
Autorità per l'Energia Elettrica e il Gas - AEEG	Public authorities	www.autorita.energia.it
GSE	Public authorities	www.gse.it
Ministero dell'Ambiente	Public authorities	www.minambiente.it/
Ministero delle Politiche Agricole Alimentari e Forestali – MIPAAF	Public authorities	www.politicheagricole.it/
Ministero dello Sviluppo Economico - MiSE	Public authorities	http://www.sviluppoeconomico.gov.it/
ENI SpA	Company	www.eni.it
Fiat Group Automobiles	Company	www.fcagroup.com/
Snam rete Gas	Company	www.snam.it
Edmund Mach Foundation	Association; research institution	http://www.fmach.it/
Greenlane Biogas Europe Ltd	Upgrading	http://greenlanebiogas.co.uk/europe/
CPL Concordia	A.D. + CHP	http://www.cpl.it/
Trilogy Renewable Energy PTY LTO	A.D.	http://www.keynergy.com.au/
Host - bio energy installation	A.D. + Upgrading	http://www.host.nl/en/
ECOSPRAY TECHNOLOGIES SRL	Upgrading	http://www.ecospray.eu/
AGRAFERM ITALIA - ENERGIA FUTURA	A.D. + Upgrading	http://www.agraferm.com/home.html
BIOGENGAS	A.D.	http://www.biogengas.it/index.html

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COM.IT.E.A. s.r.l.	A.D.	http://www.comitea.com/
GRIMALDELLI	A.D.	http://www.glcgrimaldelli.com/
PlanET Biogas Italia	A.D. + Upgrading	http://www.planet-biogas.it/
RWL WATER ITALIA	A.D.	https://www.rwlwater.com/?lang=it
Schnell Motoren	A.D. + Upgrading+CHP	http://www.schnellmotoren.de/it/
Air Liquide Italia Service	Liquefaction	http://www.airliquide.it/
GEA - Gestione Energetica Ambientale S.r.l.	A.D.	http://www.geatech.eu/
GES (Global Enviromental Solutions) DMT	A.D. + Upgrading	http://ges.co.il/en/homepage/
Aqana B.V.	A.D.	http://www.aqana.com/index.php
Biogest Energie & Wassertechnik GmBH	A.D.	http://www.biogest.at/
Biometano Estense	Upgrading	http://www.biometanoestense.it/
Bioman SPA	A.D.	http://bioman-spa.eu/

Table 2-2: List of major associations, research organizations and public authorities operating in Italy in the biogas and biomethane sector

NAME	TECHNOLOGY	WEBSITE
2G Italia	CHP	www.2-g.de
AB ENERGY	CHP	www.gruppoab.it
AUSTEP	A.D. + upgrading	www.austep.com
BILFINGER EMS	Upgrading	www.bilfinger.com
BIOGAS ENGINEERING	A.D.	www.biogasengineering.it
BTS ITALIA	A.D. + upgrading	www.bts-biogas.com
CORRADI E GHISOLFI	A.D.	www.corradighisolfi.it
Eisenmann Italia	A.D.+ upgrading	www.eisenmann.com
Eliopig SRL	A.D.	www.eliopig.it
ENVITEC BIOGAS ITALIA	A.D. + upgrading	www.envitec-biogas.it
GM Green METHANE	Upgrading	www.marchienergia.it
Hysytech Srl	Upgrading	www.hysytech.com
IES BIOGAS	A.D.+ upgrading	www.iesbiogas.it
Malmberg Water	Upgrading	www.malmberg.se
Methapower biogas	Upgrading	www.methapower.eu
MicroLNG	Micro-liquefaction	www.microlng.com
Pentair Haffmans BV	Upgrading	www.pentair.com
ROTA GUIDO	A.D.	www.rotaguido.it
Sapio Energia SRL	Micro-liquefaction	www.sapio.it
SCHMACK BIOGAS	A.D.+ upgrading	www.schmack-biogas.it
SEBIGAS	A.D.	www.sebigas.it
Siad Macchine Impianti SPA	Upgrading and Micro-liquefaction	www.siad.eu
THONI ITALIA	A.D.	www.THOENI.COM
UTS BIOGAS	A.D.	www.uts-biogas.com
Wolf system	A.D.	mail@wolfsystem.it

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Table 2-3: List of key companies supplying generators, biogas plants, upgrading and micro-liquefaction operating in Italy (A.D. means Anaerobic Digestion; CHP means combined heat and power)

2.1.4 National rules regulating biomethane

Legislative references

REFERENCE	TITLE	SECTOR	NAME	TECHNOLOGY	WEBSITE
Legge 1083/71	Standards for the security for the utilization of natural gas	Security	2G Italia	CHP	www.2-g.de
Decreto Legislativo n. 164/2000	Implementation of Directive n. 98/30 / EC concerning common rules for the internal market in natural gas, in accordance with Article 41 of Law 17 May 1999 n. 144	General	AB ENERGY	CHP	www.gruppoab.it
Decreto Ministeriale 19 febbraio 2007	Approval of the technical rule on physio-chemical characteristics and the presence of other components in the natural gas to be injected in the grid	Quality of the natural gas	AUSTEP	A.D. + upgrading	www.austep.com
Decreto Ministeriale 16 aprile 2008	technical regulation for the design, construction, testing, operation and supervision of works and distribution systems and direct lines for natural gas with a density higher than 0.8.	The natural gas distribution system	BILFINGER EMS	Upgrading	www.bilfinger.com
Decreto Ministeriale 17 aprile 2008	technical regulation for the design, construction, testing, operation and supervision of works and distribution systems and direct lines for natural gas with a density higher than 0.8.	The natural gas transport system	BIOGAS ENGINEERING	A.D.	www.biogasengineering.it
Decreto Legislativo n. 28/2011	Implementation of Directive 2009/28 / EC on the promotion of energy from renewable sources and amending and subsequently repealing Directives 2001/77 / EC and 2003/30 / EC	Renewables	BTS ITALIA	A.D. + upgrading	www.bts-biogas.com

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REFERENCE	TITLE	SECTOR	NAME	TECHNOLOGY	WEBSITE
Decreto legislativo n. 93/2011	Implementation of the 2009/72 / EC, 2009/73 / EC and 2008/92 / EC concerning common rules for the internal market in electricity, natural gas and to a Community procedure on the transparency of prices charged to industrial end-users gas and electricity, as well as' repealing Directives 2003/54 / EC and 2003/55 / EC.	General	CORRADI E GHISOLFI	A.D.	www.corradighisolfi.it
Decreto Ministeriale 5 dicembre 2013	subsidy mode of biomethane injected into the natural gas grid.	Biomethane	Eisenmann Italia	A.D.+ upgrading	www.eisenmann.com
Il Regolamento (CE) n. 1272/2008 del Parlamento Europeo e del Consiglio	Classification and labeling of substances and mixtures CLP	General	Eliopig SRL	A.D.	www.eliopig.it
Direttiva 2014/94/EU del Parlamento Europeo e del Consiglio del 22 ottobre 2014	Construction of infrastructure for alternative fuels	Alternative fuels (including bio-methane)	ENVITEC BIOGAS ITALIA	A.D. + upgrading	www.envitec-biogas.it
Decreto 24 maggio 2002	Fire prevention standards for the design, construction and operation of natural gas distribution systems for traction	Natural gas fuel distribution systems for automotive	GM Green METHANE	Upgrading	www.marchienergia.it
Decreto 28 giugno 2002	Correcting the Annex to the Order of 24 May 2002 on fire prevention standards for the design, construction and operation of natural gas distribution systems for traction.	Natural gas fuel distribution systems for automotive	Hysytech Srl	Upgrading	www.hysytech.com
Decreto 11 settembre 2008	Changes and additions to the Decree of the Minister of 24 May 2002 laying down rules for the prevention of fires and the design, construction and operation of natural gas	Natural gas fuel distribution systems for automotive	IES BIOGAS	A.D.+ upgrading	www.iesbiogas.it

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REFERENCE	TITLE	SECTOR	NAME	TECHNOLOGY	WEBSITE
	distribution systems for traction.				
Circolare 18-05-2015 del Ministero dell'Interno	technical guideline and address records for the preparation of fire prevention projects to Type L-LNG distribution systems, L-CNG and L-CNG / LNG for traction.	Natural gas fuel distribution systems for automotive	Malmberg Water	Upgrading	www.malmberg.se
ECE R110 - Part I	Uniform provisions concerning the approval of specific components of motor vehicles using compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system	Vehicles powered by natural gas	Methapower biogas	Upgrading	www.methapower.eu
ECE R110 - Part II	Uniform provisions concerning the approval of vehicles with regard to the installation of specific components of an approved type for the use of compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system	Vehicles powered by natural gas (compressed and / or liquefied)	MicroLNG	Micro-liquefaction	www.microlng.com
Decreto legislativo n. 22/2007	Implementation of Directive 2004/22 / EC on measuring instruments (OJ No. 64 of 17-3-2007- Suppl. Ordinario n.73)	Measure	Pentair Haffmans BV	Upgrading	www.pentair.com
Decreto legislativo n. 135/2009 (art. 7) convertito in legge n. 166 del 20 novembre 2009	Urgent measures for the implementation of EU obligations and the execution of judgments of the European Court of Justice.	Measure	ROTA GUIDO	A.D.	www.rotaguido.it
Decreto Ministeriale 18 giugno 2010	Provisions on the construction and operation of measurement systems for transport and storage of natural gas grid.	Measure	Sapio Energia SRL	Micro-liquefaction	www.sapio.it
Decreto Ministeriale 26 aprile 2010	Disciplinary for prospecting and exploration licenses and for liquid and gaseous	Measure	SCHMACK BIOGAS	A.D.+ upgrading	www.schmack-biogas.it

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REFERENCE	TITLE	SECTOR	NAME	TECHNOLOGY	WEBSITE
	hydrocarbons exploitation concessions in the mainland, the territorial sea and the continental shelf				
Decreto Ministeriale 24/11/1984	Fire safety regulations for the transport, distribution, storage and use of natural gas with a density greater than 0.8	Methane tank trucks	SEBIGAS	A.D.	www.sebigas.it
Decreto Ministeriale 21/12/1991	Integration to the Ministerial Decree 24 November 1984 entitled: "Safety regulations for firefighting transportation, distribution, storage and utilization of natural gas with a density greater than 0.8", to regulate the loading and unloading of gas	Methane tank trucks	Siad Macchine Impianti SPA	Upgrading and Micro-liquefaction	www.siad.eu
Decreto legislativo n. 35/2010	Implementation of Directive 2008/68 / EC on the inland transport of dangerous goods	Methane tank trucks	THONI ITALIA	A.D.	www.THOENI.COM

Table 2-4: legislative references - Italy

Decreto 5 dicembre 2013 (Biomethane Decree)

The Biomethane Decree defines the subsidy mechanism for the biomethane injected into the natural gas grid as well as the duration and value of the subsidy previously explained. The article 8, paragraph 9 of biomethane decree provides that, pending the entry into force of the European regulations for the specific quality of biomethane for transport and of technical specifications for the injection of biomethane in the grid, to be issued by CEN TC 408 in the implementation of the mandate M/475 EC, in order to protect the health of populations and ensure the optimal functioning of motor vehicles, are permitted only the injection into the natural gas grid of biomethane produced from biogas resulting from the anaerobic digestion of organic products, by-products and the organic fraction of municipal solid waste for recycling (MSW). Therefore, is not allowed to inject into the natural gas grid the biomethane derived from biogas produced by thermochemical (gas pyro gasification processes), landfill gas, residual gases from purification processes and fermentation of sludge and other waste from MSW. With reference to the quality of biomethane injected into the transportation and distribution of natural gas grid, the decision of the Authority 46/2015 / R / gas, imposes to the grid operator to define and publish the specifications quality of biomethane to allow the injection in the grid specifying that, in any way, for the entire duration of the European mandate M / 475, the grid operator must refer to the current provisions of the Ministerial decree of 19 February 2007 and under the conditions identified by biomethane decree, concerning the exclusion of bio-methane derived from biogas / gas produced by thermochemical, landfill gas, residual gases from purification processes, sludge and other waste from MSW. Biomethane must be technically free from all the components identified in the report UNI / TR 11537, for which they are not already identified the maximum limits by law.

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Regulators references

REFERENCE	TITLE	AREA
Delibera 46/2015/R/gas	Guidelines for the connections of biomethane plants in natural gas grid and provisions for determination of the amount of biomethane eligible for subsidy	Biomethane
Deliberazione 208/2015/R/GAS	Rules governing tariff coverage of biomethane subsidy injected in distribution and transport grid of natural gas	Biomethane
Deliberazione 210/2015/R/GAS	Directives on market processes relating to the placing of biomethane in transport grid and distribution of natural gas. first implementation	Biomethane
Delibera 631/2013/R/gas	Changes and additions to the listing requirements of the smart meter gas service	measure
Deliberazione 651/2014/R/GAS	Provisions on the obligation to ensure a smart meter gas service	measure

Deliberazione 46/2015/R/gas

With the resolution 46/2015/R/gas the Authority defined the guidelines for connection of biomethane plants to the natural gas grid and the provisions relating to the determination of the amount eligible for subsidy.

Deliberazione 210/2015/R/gas

With the Resolution 210/2015/R/gas, the Authority approves the first directives on market processes relating to the injection of biomethane in transport and distribution grid of natural gas, and establishes the implementation instructions to the allocation of biomethane in cases of withdrawal by the GSE, as an alternative to the direct sale on the market for plants with a production capacity up to 500 Sm3/h. The Resolution establish that the charge of balancing market will publish a proposal for updating the Grid Code within 90 days of publication of this resolution, or identify temporary specific mode to perform the activities referred to the measure, to be submitted by 30 days of its publication.

Normative requirements: measuring the quality of natural gas and biomethane

REFERENCE	NOTES
UNI/TR 11537 Biomethane input in transport and natural gas distribution grid	The document under review: the new version will contain specific guidance on the methods applicable for measuring the quality and relative frequencies
UNI EN ISO 6974-1. Gas naturale - Determination of the composition with an uncertainty defined by gas chromatography	Applicable for natural gas
UNI EN ISO 6976 Gas naturale - Calculation of calorific value, density, relative density, and Wobbe index, starting from the composition	Applicable for natural gas
UNI EN ISO 13443 Gas naturale - Terms of reference normalized	Applicable for natural gas

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UNI EN ISO 18453 Gas naturale - Correlation between the water content and the water dew point	Applicable for natural gas
UNI EN ISO 19739 Gas naturale - Determination of sulfur compounds for gas chromatography	Applicable for natural gas
UNI EN ISO 13686 Gas naturale - Quality Designation	Applicable for natural gas
UNI EN ISO 12213-1 Gas naturale - Calculation of compression factor - Part 1: Introduction and guidelines	Applicable for natural gas
UNI EN ISO 12213-2 Gas naturale - Calculation of compression factor - Part 2: Calculation with the use of analysis of molar composition	Applicable for natural gas
UNI EN ISO 12213-3 Gas naturale - Calculation of compression factor - Part 3: Calculation using physical properties	Applicable for natural gas
Project FprEN16726:2015 Gas infrastructure – Quality of gas – Group H	European draft standard developed by CEN / TC 234 / WG11, which is part of the Mandate M / 400.
Project prEN 16723-1:2014 Natural gas and biomethane for use in transport and biomethane for injection in the natural gas grid – Part 1 Specifications for biomethane for injection in the natural gas grid.	European draft standard developed by CEN / TC 408 under the mandate M / 475 which specifies additional features compared to prEN16726

UNI/TR 11537:2014

In order to obtain subsidy, the production facilities of biomethane must respect all the technical requirements and comply with the standards of the sector, as defined by the Authority and by the responsible standardization bodies, relating to the standards of quality and odour, especially the technical indications for injection of biomethane in transport and distribution grid established in the technical report UNI/TR 11537:2014 "Entering biomethane in transport and natural gas distribution grid", drawn up by the CIG (Italian Committee for Gas). In accordance with the aforementioned measure adopted by the authority, grid managers must activate the procedures to modify their grid codes, updating them with a number of elements aimed at promoting the introduction of biomethane.

Therefore, the subsidy mechanism of biomethane, when injected in transport and distribution grid of natural gas, requires the update of the grid codes, as well as the definition and publication of biomethane specific quality. Similarly, the application of the subsidy scheme providing for the withdrawal and the sale of biomethane, by GSE, for plants with production capacity up to 500 Sm^3/h, requires the full implementation of the legal and regulatory framework.

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Other references:

UNI/TS 11567

The article 4, paragraph 5 of biomethane decree provides that for the purpose of verifying the sustainability of biomethane used as biofuel as well as for the recognition of the bonus for the 100% use of by-products, the decree of the Ministry of the environment, land and sea protection of January 23th 2012 will be applied, in accordance with specific guidelines for biomethane, defined by the Italian Thermo-technical Committee (CTI). The Technical Specification defines the qualification scheme for all organizations, called "economic operators", who work in the production chain of biomethane and its intermediates in a sustainable manner as defined by the European and national legislative framework that guarantee traceability and transparency. The economic operator who applies the qualification scheme described in the technical regulation ensures that:

- The sustainability criteria relating to land are still respected and ensured traceability of the product along the chain of custody;
- The allocation of the savings value of CO2eq or emission value of CO2eq of individual batches of sustainability is issued in accordance with the criteria indicated in RED and EU Directives;
- Every single lot is traceable.

It also defines the requirements for the implementation of a traceability system that allow to meet the requested requirements and describes the requirements of the accounting management of the mass balance.
The technical specification also provides specific values of sustainability and calculation methods to be used in the absence of other indications of the legislator and requires that the values and methods, however defined, are to be managed by the organization (economic operator) in order to ensure compliance with the principles defined by the European and national legislative framework, ensuring traceability and transparency.

2.2 AUSTRIA

2.2.1 Summary of the possible uses of biomethane and national support schemes

Austria can be seen as forerunner using agricultural by-products (slurry, catch crops, straw, etc.) and organic waste producing biogas. Including 4 % of agricultural land for biogas production, Austria has a potential of about 26.2 PJ or 7,284 GWh from biogas production. Although the huge development in engines and equipment for light and heavy transportation, it is expected that only about 30% of biogas potential will be directly used as transport fuel and about 70% will be used for CHP. Due to the efforts reaching high efficiency, CHP applications often cannot be installed directly at the plants but will be upgraded and injected into the natural gas grid before their application in CHP where the heat also can be used. Injected biomethane, which is used in high efficient CHP for renewable electricity production, can get feed in tariffs for their produced electricity. Biomethane which is directly used as transport fuel without being blended with natural gas is exempted from paying natural gas taxes. At the moment biomethane is blended with natural

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gas, thus tax exemptions are not applied and natural gas taxes must be paid also for biomethane. The use of biomethane for heat application is not subsidized so far.

Application of future potential for Biogas in Austria			CHP and heat		Transport fuel	
	%	GWh	%	GWh	%	GWh
Gas grid injection	70%	5099	45%	3278	25%	1821
Direct application	30%	2185	25%	1821	5%	364
TOTAL		**7284**	**70%**	**5099**	**30%**	**2185**

2.2.2 Brief summary of the national natural gas market

In 2015 in Austria there are about 289 biogas plants producing electricity and heat from crops, manure and biowaste. In total they have an installed capacity of 82 MWel and a production of 542 GWh_{el} and about 300 GWh_{th} sold energy in 2014. Their produced energy was 1,426 GWh or 142 Million m³ biomethane equivalents.

In 2005 the first biogas upgrading and gas grid injection began operating. Since then, 12 biogas plants have installed an upgrading system and are now connected to the gas grid, while 3 of them also have a filling station at the plant or nearby. Those plants produced, in 2015, 106 GWh or 10.6 Million m³ biomethane.

In 2014, Austria had a natural gas consumption of 83,543 GWh whereof the 106 GWh injected biomethane reached a share of 0.1%. If all produced biogas was upgraded to biomethane and injected into natural gas grid, the share would have reached 1.8 %.

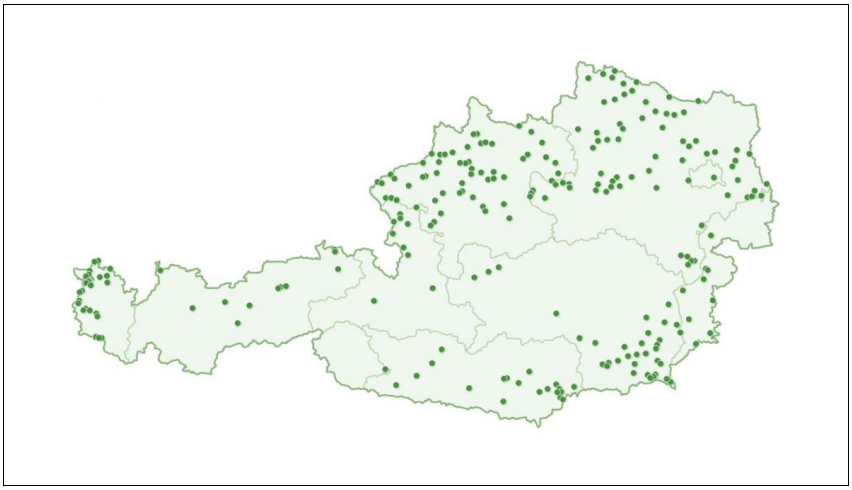

Figure 2-2: Biogas plants in Austria (source: AKB)

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In Austria the gas grid amounts to 46,000 km.

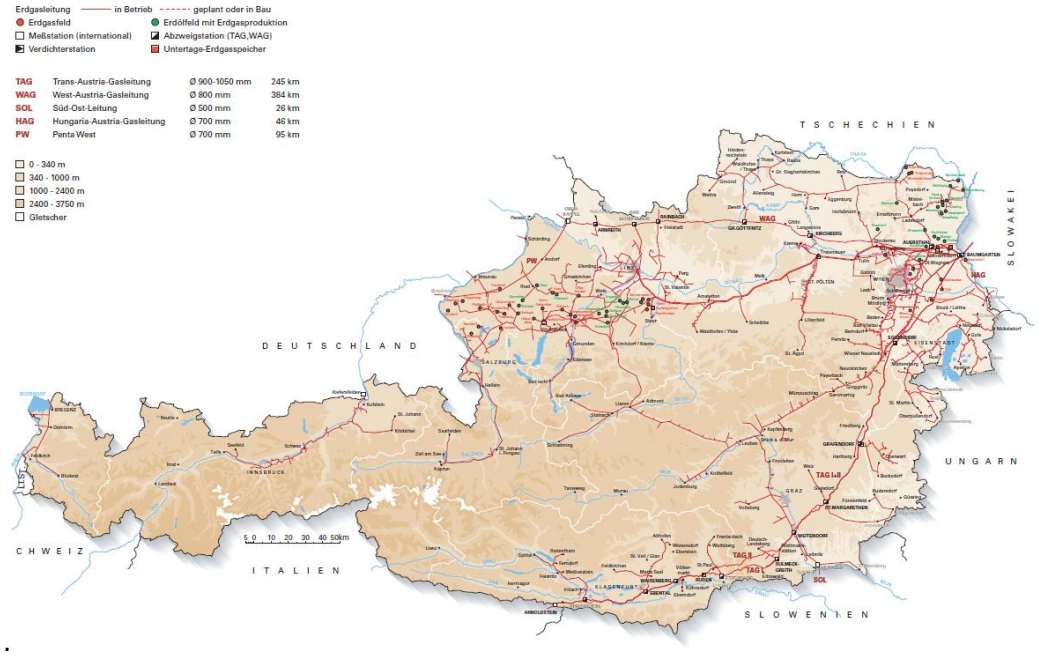

Figure 2-3: Gas transport and distribution grid in Austria (source: FGW)

There is good cooperation between biogas and natural gas stakeholders, with 180 methane filling stations and around 10,000 methane vehicles already running.

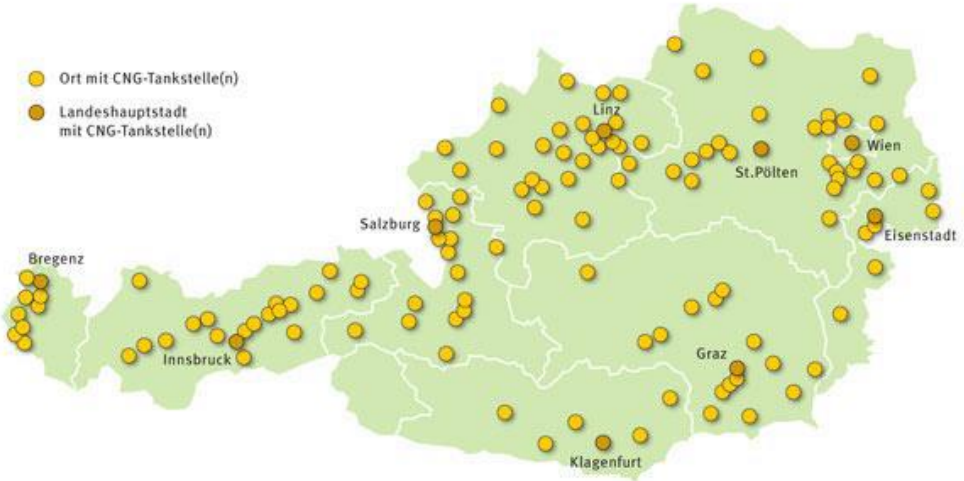

Figure 2-4: Methane filling stations in Austria

Due to unbundling efforts from European Commission, the gas sector got divided in: companies running the grid and companies trading the gas.

Figures mentioned above are summarized in the table below.

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AUSTRIA	
Number of biogas plants	289
$MW_{el.}$	82
Number of biomethane plants	12
m^3/h biomethane	2,400
Number of methane filling stations	180
Number of CNG/CBG vehicles	10,000
Length of natural gas grid	46,000 km

Table 2-5: Figures on Austrian gas network

2.2.3 Main stakeholders

Reaching the goal of getting more biomethane injected into natural gas grid and start cross border trade several stakeholders are needed. Below a list of important stakeholders.

NAME	DESCRIPTION	WEBSITE
Federal ministry of commerce (BMWFW)	Public authorities	www.bmwfw.gv.at
Federal ministry of environment (BMLFUW)	Public authorities	www.bmlfuw.gv.at
Federal ministry of finance (BMF)	Public authorities	www.bmf.gv.at
Association of Gas and district heating suppliers (FGW)	Association	www.gaswaerme.at
Biomethane registry Austria	Company with public authority tasks	www.biomethanregister.at
Gas connect Austria	Company with public authority tasks	www.gasconnect.at
OMV	Company	www.omv.at
333Tyrolian Gas Company (TIGAS)	Company	www.tigas.at
Government of Tyrol	Public authorities	www.tirol.at

Table 2-6: List of major associations, research organizations and public authorities operating in Austria in the biogas and biomethane sector

NAME	TECHNOLOGY	WEBSITE
AAT	General contractor	www.aat-biogas.at
Thöni	General contractor	www.thoeni.com
Gerneral electric - Jenbacher	CHP	www.gejenbacher.com
Energie AG	General contractor	www.energieag.at
IET	CHP	www.iet-energietechnik.at
MWM	CHP	www.mwm.net
Lindner Recyclingtechnik	Pretreatment	www.l-rt.com
Hörmann Interstall	Biogas equipment	www.hoermann-info.com
Biogest	General contractor	www.biogaest.at
AXIOM	Upgrading	www.axiom.at
EVONIK fibres	Upgrading	www.p84.com

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BDI	General contractor	www.bdi-bioenergy.com
Wolf Systems	Equimpment	www.wolfsystem.de

Table 2-7: List of key companies supplying generators, biogas plants, upgrading and micro-liquefaction operating in Austria

2.2.4 National rules regulating biomethane

The "quality" of biomethane injection into national gas grid are written down in the technical guidelines from the Association of the Austrian Gas and Water Suppliers. Two guidelines are regulating the requirements:

- ÖVGW GB 220
- ÖVGW G 31

The first one gives additional requirement for biomethane grid injection while G 31 describes in general the natural gas quality and requirements for it. The list below shows also many other guidelines which are important for the biomethane sector:

REFERENCES	TITLE	SECTOR
ÖVGW GB 230	Odor natural gas	Natural gas
ÖVGW GE 523	Pressure and temperature measurement	Measurement
ÖVGW G 31	Natural Gas in Austria	Natural gas
ÖVGW GB 220	Renewable Gases - biogas	Biomethane
ÖVGW G 97	CNG stations	CNG
ÖVGW GE 521	Flow rate measuring	Measuring
ÖVGW GE 500	Natural gas installations: requirements for planning, construction and inspection	Construction
ÖVGW GE 110	Natural gas pipes from PE	Construction
ÖVGW GE 120_	Natural gas pipes from steel	Construction
ÖVGW GB 300	Running and maintenance of natural gas pipes	Construction
ÖVGW G 101	Pressure test	Measuring
ÖVGW: G 10	Guidance for running and maintenance of cng stations	CNG
ÖVGW G 98	CNG vehicles: requirement at disorder	CNG
ÖVGW G 76	Norm volume units	Measurement
ÖVGW G 96	Small CNG station, construction and running	CNG
ÖVGW GE 100	Natural gas pipes, general requirements	Construction

Table 2-8: Guidelines for Austrian biomethane sector

Austrian transport fuel regulation

StF: BGBl. II Nr. 398/2012 [CELEX-Nr.: 32009L0028, 32009L0030, 32011L0063]
The quality requirements for the use of methane as transport fuel is set in the Austrian transport fuel regulation with no difference regarding quality between natural gas or gases from renewable sources.
In this regulation also the general targets for biofuels are written down (5.75 % based on energy content) from 2009 on. There are no direct subsidies etc. laid down in this regulation. The

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stimulation blending biofuels to fossil fuels is done through setting lower taxes for fuels which has a blend of required 5.75% biofuels.
For counting biofuels under RED they have to be produced in a sustainable process. Criteria and consideration for the latter are also written down in this regulation and if agricultural feedstock is used also in the regulation agricultural feedstock for biofuels (Landwirtschaftliche Ausgangsstoffe für Biokraftstoffe: 250/2010 CELEX-Nr.: 32009L0028).

The biofuel production site itself has to be registered via environment agency Austria (Umweltbundesamt www.umweltbundesamt.at).

2.3 FRANCE

2.3.1 Summary of the possible uses of biomethane and national support schemes

According to the objectives of the Law on Energy Transition for Green Growth (LTECV), green gas should represent 10% of the total gas consumption by 2030.

Biogas production in France benefits from different support mechanisms depending on the type of recovery:

- Electricity production
- Biomethane production
    - Injected into the grid
        - Used as biofuel
        - Used as town gas
    - Non injected into the grid (used as a biofuel mostly)

Following the reform of renewable electricity production in EU (market sale + complementary remuneration for units over 500 kW), new tariffs and a new framework have been drafted by the French Ministry for the environment for electricity production. The draft governmental decrees (which are soon to be published) provide that when injection into the grid is possible and not too expensive (under a certain ceiling) for projects over 300 kW, injection is the only possible recovery (electricity production is excluded). This could be considered as an indirect incentive for biomethane production.

Injection of biomethane in the grid for use as natural gas or biofuel

National objectives
According to the draft Multiannual programming on Energy (*Programmation pluriannuelle de l'Energie – PPE*), Injected Biomethane should represent 1,7 TWh by December 2018, and 6 TWh by December 2023. As for bioNGV, it should represent 20% of the consumption of NGV by 2023.
These objectives are to be confirmed, the decree setting the PPE has not been published yet.

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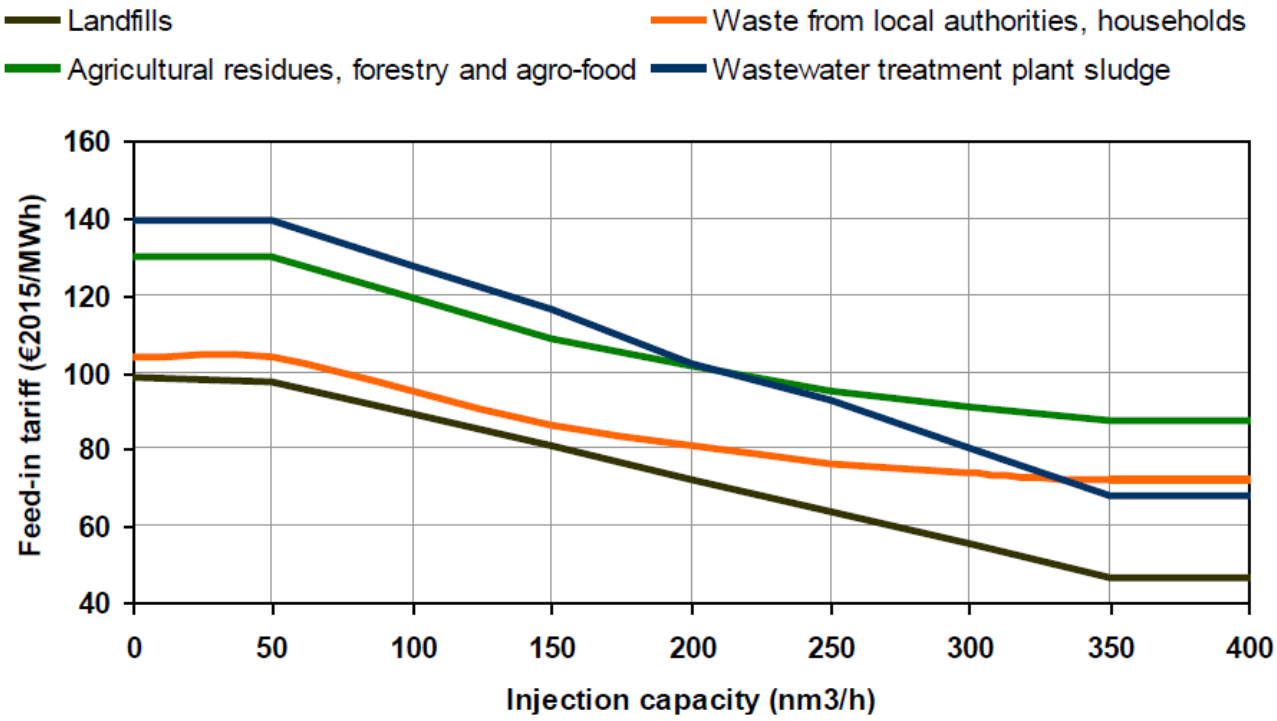
National support scheme
There are various support mechanisms and incentives for injected biomethane.

a) Feed-in tariff
The feed-in tariff is set by an order of 23 November 2011. It applies to injected biomethane, regardless of the type of recovery: household gas or biofuel.
A bonus payment is granted for the use of certain types of feedstock: agricultural matter and residues (including energy crops[3] and manure), waste from local authorities and households, sludge from wastewater treatment plants.

Tariffs go from 6.5 to 12.5 euro cents / kilowatt hour. It increases with the use of agricultural input and agro-food waste, with the use of household waste, catering waste and public waste, and it decreases with the power.



b) Subsidies
Biomethane projects benefit from national subsidies and/or local subsidies, which may come from:

[3] The government is preparing a decree in order to regulate the use of energy crops. Altough the use of energy crops is not yet regulated, the State agency for the Environment often sets a ceiling to the use of these crops, as a condition for subsidy allocation.

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- The State agency for environment and energy (called ADEME) or its regional antenna ;
- The region ;
- The FEADER or FEDER ;
- The department (less often) ;
- Water agencies (less often) ;
- Public or semi-public funds, such as the Public Bank of Investment at national level, or regional funds (less often).

Subsidies from ADEME mustn't exceed 30% of the investment. Total subsidy amount mustn't exceed, according to EU rules, 45% of the investment for big companies, 55% of the investment for medium sized companies, and 65% of the investment for small companies.

c) Tax incentives

Biomethane is submitted to the Domestic tax on natural gas consumption (TICGN), whereas BioNGV is submitted to the Domestic tax on energetic products (TICPE).

There are no specific tax incentives for the injection into the grid, but there are several tax incentives for the use of biomethane as a biofuel: an exemption on the cost of registration certificates for vehicles, an amortization of the purchase of a bioNGV vehicle (up to 18,300€ / year), and an extra depreciation on the purchase of bioNGV truck for a period of two years, from January 1st 2016 to December 31st 2017.

There are also tax incentives for on-farm installations. These installations benefit since January 1st 2016 from a total exemption from Property tax on buildings (Taxe Foncière sur les Propriétés Bâties – TFPB), and Company real-estate contribution ("Cotisation Foncière des Entreprises" - CFE).

Direct use of biomethane for transport without injection

The direct use of biomethane is barely developed, as there are no feed-in tariffs yet, nor guarantees of origin.

Biomethane used as a biofuel benefits nevertheless from subsidies (for anaerobic digestion and biomethane production) and tax incentives. There are tax incentives for the use of biomethane as a biofuel, that is to say an exoneration on the cost of registration certificates for vehicles, amortization of the purchase of a bioNGV vehicle (up to 18,300€ / year) and an extra depreciation on the purchase of bioNGV truck for a period of two years, from January 1st 2016 to December 31st 2017). There are also tax incentives for on-farm installations. Since January 1st 2016, on-farm installations benefit from a total exemption from Property tax on buildings (Taxe Foncière sur les Propriétés Bâties – TFPB), and Company real-estate contribution ("Cotisation Foncière des Entreprises" - CFE).

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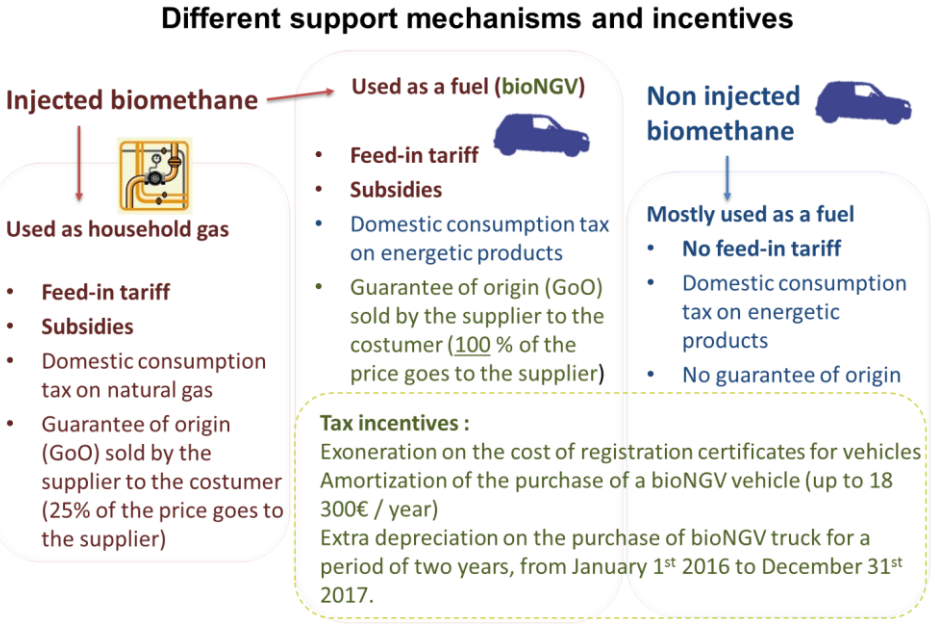

Figure 2-5: Support mechanisms and incentives in France

2.3.2 Brief summary of the national natural gas market

Fourteen existing plants (December 2015) are now injecting into the local natural gas grid, and three are injecting into the transmission grid. Overall, the injection of biomethane into the grid represents 260 GWh/year.

There are currently 49 filling stations in France. Six of them will open soon. Among these stations, 48 sell GNC, 3 sell GNL, and 12 sell bioGNC[4].

The length of the natural gas distribution network is 181,500 km, and the length of thr natural gas transport network is 36,000 km. In total, the length of the natural gas network is 217,500 km[5].

Table 2-9: Figures on French gas network

FRANCE	
Number of biogas plants	422
MW_{el}	About 370
Number of biomethane plants	14
m^3/h	2343
Number of methane filling stations	49
Number of CNG/CBG vehicles	13600
Length of natural gas grid	217500

[4] http://www.jcd-c.com/afgnv/map/
[5] http://www.developpement-durable.gouv.fr/La-structure-et-le-fonctionnement,10665.html

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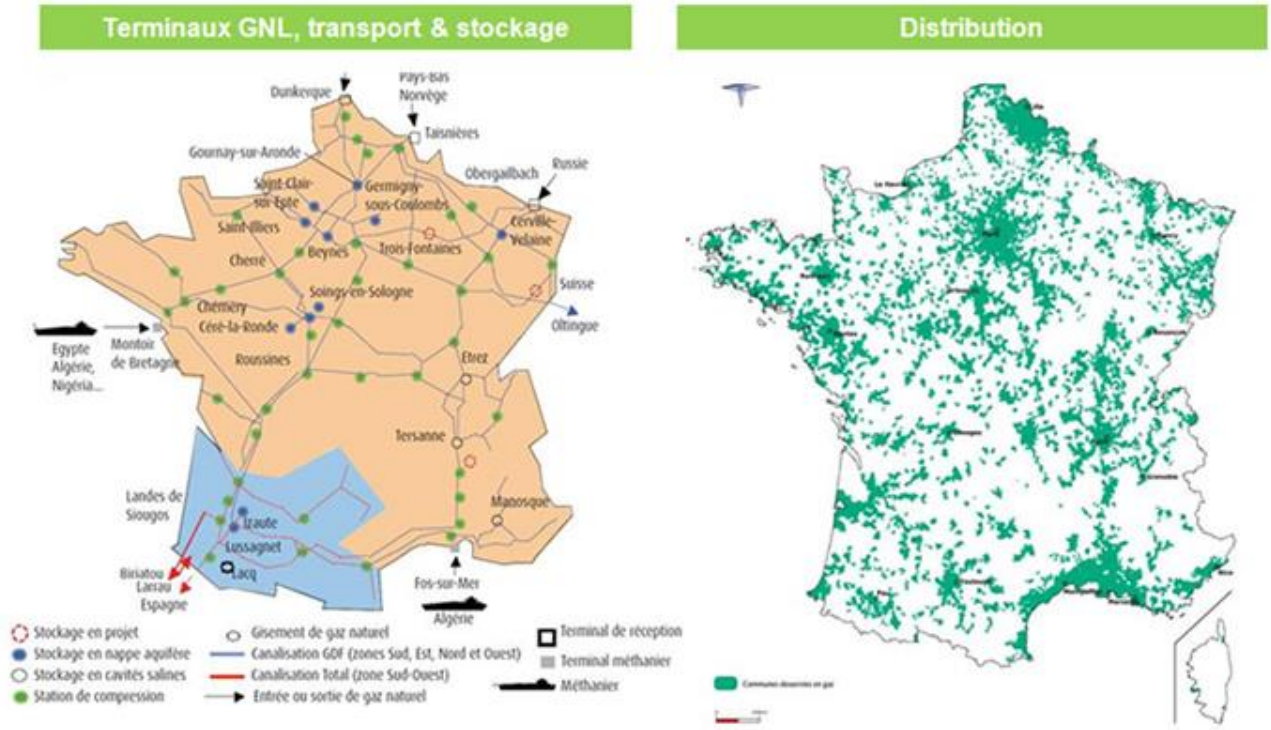

2.3.3 Main stakeholders

Reaching the goal of getting more biomethane injected into natural gas grid and start cross border trade several stakeholders are needed. Below a list of important stakeholders.

NAME	DESCRIPTION	WEBSITE
IFPEN, IFP Energies Nouvelles	Research institute	http://www.ifpenergiesnouvelles.fr/
Laboratoire de Biotechnologie de l'Environnement (INRA)	Research institute	http://www6.montpellier.inra.fr/narbonne
INRA Transfert Environnement	Research institute	http://www.inra-transfert.fr/fr/
INSA Valor	Research institute	http://www.insavalor.fr/insavalor/index.html
Institut Polytechnique Lasalle Beauvais	Research institute	http://www.lasalle-beauvais.fr/
Recherche IRSTEA (ex Cemagref)	Research institute	http://www.irstea.fr/linstitut
OIEAU Office International de l'Eau	Research institute	http://www.oieau.fr/
Suez Environnement Cirsee	Research	http://www.suez-environnement.fr

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	institute	
Toulouse Tech Transfer	Research institute	http://www.toulouse-tech-transfer.com/
AILE	Local association	http://www.aile.asso.fr/
RAEE	Local association	http://www.raee.org/fr/raee-agence-regionale-de-lenergie-et-de-lenvironnement-en-rhone-alpes.html
GESIP	Association	http://www.gesip.com/presentation.php
GRDF	Grid operator	http://www.grdf.fr/
GRTgaz	Grid operator	http://www.grtgaz.com/
TIGF	Grid operator	https://www.tigf.fr/accueil.html
Régaz	Grid operator	https://www.regaz.fr/index.php
Réseau GDS	Grid operator	http://www.reseau-gds.fr/
ADEME	State Agency for Energy and Environnemnt	http://www.ademe.fr/
Ministère de l'Environnement, de l'Energie et de la Mer	Ministry for the Environment and Energy	http://www.developpement-durable.gouv.fr/
DRIEE	Regional authority for Environment and Energy (in the region of Paris)	http://www.driee.ile-de-france.developpement-durable.gouv.fr/
ANSES	State Agency for sanitary Risk	https://www.anses.fr/fr
GreenLane Biogas	Upgrading	http://greenlanebiogas.co.uk/americas/
Prodeval	Upgrading	http://www.prodeval.eu/index.php/fr/
VerdeMobil	Upgrading	http://www.verdemobil.eu/
Cryopur	Upgrading	http://www.cryopur.com/
Air Liquide	Upgrading	http://www.industriel-marchand.alfi.airliquide.fr/
Chaumeca	Upgrading	http://www.chaumeca.com/

Table 2-10: List of major associations, research organizations and public authorities operating in Austria in the biogas and biomethane sector

The national gas grid operators are GRDF (distribution), GRT Gaz and TIGF (transport). There are also 22 local distributors such as Régaz (Bordeaux) and Réseau GDS (Strasbourg).

2.3.4 National rules and regulations on biomethane

REFERENCES	TITLE	SECTOR
Decree n° 2011-1595	Compensation of public service charges relating to the purchase of biomethane	Sale

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REFERENCES	TITLE	SECTOR
Decree n° 2011-1596	Guarantees of origin for biomethane injected into natural gas grid	Guarantees of origin
Decree n° 2011-1597	Contracting conditions between biomethane producers and suppliers	Sale
Order of November 23rd 2011	Nature of inputs accepted for biomethane production for injection	Nature of inputs
Order of November 23rd 2011	Feed-in tariffs	Tariffs
Orders of July 13th 2000	Security of gas distribution by pipelines	Security
Order of March 5th 2014	Security rules on transportation by pipelines of gas, hydrocarbons and chemical products	Security
Decree n°2012-615	Security, authorisation and public utility declaration concerning pipelines transporting gas, hydrocarbons and chemical products	Security
Prescription n° 2010-418	Security, authorisation and public utility declaration concerning pipelines transporting gas, hydrocarbons and chemical products	Security
NF EN 1594; NF EN 12583	Professional standards	Security
Guidelines	16 « regulatory » guidelines (14 guidelines from GESIP, guide INERIS guideline, AFPS guideline)	Security
Order of July 13th 2000 on the security	Security of distribution by pipelines	Security
Decree of March 19th 2004	Public Service obligations in the Natural Gas Sector	Public service
Order of September 16th 1977	calorific value of natural gas distributed in public pipelines	Calorific Value
Order of March 28th 1980	Fluctuation limits of the calorific value of natural gas distributed in public pipelines	Calorific Value
Order of January 28th 1981	The limits of Sulfur compounds in natural gas, in the transport grid	Sulfur compounds

Order of November 23rd 2011

This order lists the feedstock that must be used to produce biomethane. Biomethane must be produced with the feedstock listed in the order of November 23rd 2011, namely household waste, household waste from landfill, biowaste, agricultural by-products (organic waste and manure), catering waste, agri-food industry waste and agro-industrial waste. The allowed inputs have been qualified as harmless by the National Agency for sanitary security (ANSES).

Order of September 16th 1977, order of March 28th 1980, order of January 28th 1981

The grid operator sets conditions for the injection of biomethane, in particular a minimum proportion of undesirable components to limit corrosion, physico-chemical characteristics which have to be similar to those of natural gas (at least 97% of methane) guarantee of stability of the production, both in quality and in quantity (in particular regarding the calorific value of biomethane, a safety certification regarding health hazards (bacterial proliferation for example), and odorisation of biomethane.

Prescription n° 2010 - 418, Decree n° 2012 - 615, Order of March 5th 2014

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The creation and exploitation of pipelines is subject to an authorization procedure when it creates significant danger or inconveniences for the environment (articles L.555-1, L.555.2 of the Environment Code). The regulations on pipelines set minimum rules, which are completed by 2 standards (NF EN 1594 and NF EN 12583) and 16 “regulatory” guidelines. With the authorization procedure, they are subject to an impact study and a hazard study, as well as a public inquiry. The authorization is compulsory when they are over 2 km (length) or 500 m² (length*outer diameter). If there is no answer after 45 days, they are considered authorized.

The competent authority for authorizations is the Ministry in charge of the Security of the Industry in case of a cross-border pipeline, in case of a surface over 10,000 m2, if the pipeline is linked to national defense purposes, and if it is the first pipeline of a new grid operator vested with public service missions. In all other cases, the regional authority is the competent authority.

Pipelines are also submitted to public utility declarations, security and intervention plans, surveillance and maintenance programs and yearly reports.

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3. REGISTERS AND GUARANTEES OF ORIGIN (GoO)

3.1 ITALY

As previously anticipated, in Italy is not yet possible to inject the biomethane into the natural gas grid and is not expected any registry dedicated to biomethane. Within a few months administrative / legislative barriers that prevents the injection of biomethane should be resolved. CIB aim to start building a registry of biomethane in order to allow, as soon as possible, injection of biomethane into the national gas grid.

3.1.1 Plan for the creation of the Italian Biomethane registry

While the lack of a register is an obstacle, on the other hand it allows us to build one from scratch without any constraint.
The goal is to create a registry that can be tested during the project itself and that allows us to reach the next goal of the WP: the bi-tri-lateral exchange of biomethane between Italy, Austria and France.

The register could be managed directly from CIB. This will give the possibility of being able to make quick decisions respecting the objectives of the BIOSURF project. CIB staff has all the requested expertise and the requested authority representing the 50% of the Italian biogas sector. Furthermore CIB already have a strong partnership with the managers of the natural gas grid, the national Authorities and all the other interested stakeholders.

At the moment the best type of registry is, for several reason, a voluntary registry. Among others:

- Quick implementation and decision making
- No need to have the supervision of a neutral or supervisory authority
- No direct subordination (to government agencies)
- Little political emphasis required
- Substantial flexibility
- The mandatory registry is legitimized through national laws and regulations so requires too much time to be established and is not compatible with available time in the BIOSURF project.

The possible contra of a voluntary registry, are:

- Costs covered by market participants
- Trust must be gained (because of potential of self-interest)
- Extensive transparency is necessary
- Liquidation of registry is possible at any time (for economic reasons)
- Minimal external control (no inspections by supervisory agencies)
- There may be several registries competing with each other and this does not help trust.

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The problem relates to the costs could arise especially in the early stages of the process because there will be only few members, costs would be divided between a smaller number of subjects. This will be solved starting with a management system that will not be too complex, so that costs will be lower. Once the registry will be launched and will reach an adequate number of members, it will be possible to switch to a more complex and computerized management system.

For what regards the problem of obtaining the trust of the stakeholders, if the register was managed by CIB, it should not represent a problem: indeed representing today 50% of the Italian biogas sector is already the testimony of the trust in CIB by the stakeholders.

The creation of the registry will follow different steps according to features below:

- the registry will be a PILOT/ DRAFT version
- the registry will be used/tested only by a limited number of subjects (currently there are no biomethane plants that inject biomethane in the grid so there will be a limited number of potential participants to register)
- the aim will be to demonstrate the feasibility of the project; the finishing, the implementation, the register extension to all national stakeholders will occur at a later stage which will take place after the BIOSURF project.

The registries system and release of GoO in Italy will follow the guidelines outlined by BIOSURF project in deliverables 3.1 and 3.2. The Austrian system follow in most parameters the guidelines provided in the project for the creation of a European register of biomethane; for this reason and to facilitate the achievement of the objective of this WP which consists of trilateral exchange of GoO between Italy, Austria and France, the Austrian registry will then be taken as a reference for the establishment of the register in Italy.

3.1.2 The point of view of authorities / research institutes about the possibility to export/import biomethane to/from foreign countries

The first meeting with national authorities focused on the possibility to import or export biomethane in/from Italy was not encouraging. National authorities underlined that will not be possible to import biomethane from foreign countries until the Italian biomethane market will be not structured.

The only approach to favour the creation of an international biomethane market is proceeding in a way that ensures the possibility to develop the national biomethane sector. Based on the above described reasons:

- The Biomethane imported in Italy does not be supported by the Italian support scheme
- The Biomethane imported in Italy will not interfere in any way with the fulfilment of the obligations under European and national legislation, for what regards the introduction of biofuels for producers of fossil fuels
- To create a market of biomethane in Europe in which only t countries that have already an important biomethane sector will enter immediately. Then there will be a period of 3-4 years for

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countries that do not have yet a solid biomethane industry to start the biomethane chain nationally, before entering into the European market of biomethane.

An alternative proposed by several stakeholders, even if is not totally in conformity with the BIOSURF project, is the possibility to adopt the method of reciprocity for the cross-border biomethane trade: in this case Italy could import only the quantity, measured for example in MWh, of biomethane that it exports to foreign countries.

3.2 AUSTRIA

The biomethane register in Austria was developed with important stakeholders from the gas distribution and trading industry and Association of the biogas plant operators in 2012. The main purpose to develop the registry was because the Austrian renewable electricity act forced the Austrian agency for clearing and settlement of gas in Austria to provide a GoO (Guarantees of Origin) system for the acknowledgement of used biomethane for the generation of electricity. AGCS, as the clearing agency, created such GoO and enabled the transfer and further actions in a secured GoO system. The GoO are a verified proof of injected biomethane volume for a certain time period. Such GoO can be transferred to all register parties, either they are biomethane producers, traders, distribution companies or electricity producers.

The costs are covered by the Austrian renewable electricity act and therefore to be paid by the Austrian green energy subsidiary clearing company (OeMAG) for which AGCS provides services in relation to the biomethane register. The usage and any transactions related to the register are free of charge unless for trading companies and gas distribution companies. They have to pay a single yearly fee in the amount of € 2,000 which covers all kind of costs.

Nevertheless the biomethane register is not a trading platform which offers trades or closed order books. It is a register in which GoO are created and can be transferred furthermore without any price indication. Any trade, financial clearing or settlement of the GoO is out of scope of the biomethane register Austria.

3.2.1 Main characteristics of the registry and GoO in Austria

The operator of the biomethane registry gets one time at the end of the month the report of amounts of injected biomethane from the local gas grid operator to which the biomethane plant is connected. For this, each biomethane injection plant has an own metering point. Within a few days after that, the plant operator has to book the used energetic additives (like propane) from last month to the registry. The operator of the biomethane registry then books the net produced biomethane onto the account of the plant operator. Independent and authorized Auditors has to inspect the plants and mark the GoO as inspected. To fulfil in future also the needs for sustainability of feedstock or the possibility of double counting if the feedstock comes from organic waste, it is scheduled to give also the possibility to include these requirements onto the GoO. At the time of use of the biomethane the GoO will be booked out. There is no direct possibility to trade GoO´s within the biomethane registry. For this additional contracts are needed.

The main points of a biomethane registry are:

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- Each plant has to be registered and becomes an identity code (country code, regional code and specific plant code, etc.)
- The grid injection point has to have an own metering point with an identity code given by the grid operator
- The monthly produced amount of biomethane should be recorded and reported to the biomethane registry automatically always on the same first days of each month
- Used energetic additives has to be recorded and reported by the plant operator within the first days of each month
- Each generated GoO has to include the plant code as above, metering point of grid injection, production period and additional information's like auditors report, feedstock, sustainability, GHG reduction etc.
- It´s important that additional benefits like biomethane from organic waste which can be double counted within efforts for transport, are always directly linked to the GoO and cannot be divided traded
- There should be two possibilities to transfer GoO´s
    - Transfer to the buyers account within the national registry
    - Tansfer to another biomethane registry via an European biomethane registry
- To keep consumer confidence it is important that per country only one biomethane registry is in force
- After use of GoO, it has to be cancelled. For consumer confidence, the GoO should then be marked and booked in a special account for cancelled GoO´s where later on external auditors can proof the system.

The GoO contains the following information:

- Production period (from/to on monthly basis)
- Original amount in kWh
- Any remaining amounts (some parts possibly already transferred)
- Name of plant without details
- Evaluation conducted (Yes/No)
- If yes, evaluation available with files (possible to download yes/no)
- Status of GoO
- Owner of GoO
- Date generated
- Date of report marks
- Date of cancellation.

3.2.2 Point of view of authorities / research institutes about the possibility to export/import biomethane to/from foreign countries

With the interest already expressed by TIGAS for trading biomethane over borders, and the already existing biomethane registry for Austria, two important elements are in place. Additionally, efforts have to be done getting legal possibilities transferring biomethane guarantees of origins over borders. On the other hand there are still huge efforts to be done on legislative level because requirements for biomethane are written down in several different laws:

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- Landwirtschaftliche Ausgangsstoffe für Biokraftstoffe, 250/2010

The production of feedstock for biofuels has to be registered via AMA (Agrarmarkt Austria www.ama.at). The registration is regulated through the regulation agricultural feedstock for biofuels (Landwirtschaftliche Ausgangsstoffe für Biokraftstoffe, 250/2010). The registration can be done under http://www.ama.at/Portal.Node/ama/public?gentics.am=PCP&p.contentid=10007.131695

- Kraftstoffverordnung, 398/2012

The produced biofuel has to be registered via environment agency Austria (Umweltbundesamt www.umweltbundesamt.at). The registration is regulated through the fuel regulation (Kraftstoffverordnung, 398/2012) and can be done under http://www.umweltbundesamt.at/umweltsituation/verkehr/elna/elna_registrierung/

- Ökostromgesetz, 75/2012

For the traceability of the electricity production from biomethane the Austrian biomethane registry was introduced. The general efforts of this registry are written down in the eco electricity act (Ökostromgesetz 75/2102).

Each authority included the needed requirements on traceability and sustainability, for which they are responsible, into legislations. Among those authorities there is, so far, no direct link. So a biomethane producer who injects biomethane into natural gas grid for different purposes has to register:

- Electricity:
  - biomethane register: for the traceability of produced biomethane
- Transport fuel:
  - Umweltbundesamt: To be counted under RED as renewable transport fuel
  - AMA: For the sustainability of production of feedstock

To overcome the problem of different reporting requirement and to become one responsible point where all needed information for sustainability, traceability and GoO comes together, we started to get in contact with the different authorities. This “one virtual point” where all information comes together is very important for avoiding double generation of GoO etc. The first meeting on this topic didn´t bring so far a satisfying solution and therefore the responsible authorities will have to be contacted again.

3.3 FRANCE

The national registry for biomethane is managed by GRDF (distribution de gaz naturel en France). It is a five-year public service delegation.

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The GoO register is available to:

- Account holders (gas suppliers);
- The administrative authorities;
- The registry manager (GRDF).

3.3.1 Main characteristics of the registry and GoO in France

A GoO is a certificate which ensures that the energy is renewable. The gas suppliers buy green energy to the producers and then ask the register manager to certify the production. The GoOs are then sold to the costumers as part of “green” offers. All the GoO operations (creation, transfer, use towards end customer, deletion of GoOs by GoO manager) are marked in the register.

GoOs have been created in 2011, by an ordinance n° 2011-1105 of September 14th 2011, implementing the RED.

GRDF is the register manager for biomethane production, while Powernext is the register manager for renewable electricity production. They have been appointed for five years.

A market of GoOs has developed in conjunction with the biomethane market.

Unlike certification for electricity production, certification for biomethane production is compatible with feed-in tariffs. Therefore, there is currently no GoO market for electricity produced from biogas (and exchange of GoOs will be forbidden within the future direct sale mechanism).

Gas suppliers can choose to certify the biomethane bought from the producer. The biomethane certification is requested online by the gas supplier from the GoO register manager. The petitioner (= the gas supplier) declares the energy produced and injected for a certain period of time. In return, the register manager creates a number of GoOs and delivers them to the gas supplier. The number of GoOs delivered depends on the reported production (1 GoO Unit = 1 MWh of biomethane produced and injected in the network).

The gas supplier must provide the following information in the GoO request:

- Name and address of the petitioner
- Address of the biomethane production unit
- Production capacity of the unit
- The commissioning date of the unit
- A copy of the receipt delivered by the gas supplier at the reception of the contract request from the producer for the sale of biomethane
- A copy of the injection contract
- A copy of the sale contract
- The dates of beginning and end of the injection period
- The amount of produced biomethane in MWh (for which a GoO is requested)
- The production technique and the feedstock used for the production of biomethane.

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There are delays to ask for GoOs: the delay between the beginning of the production period and the GoO enquiry mustn't exceed 2 years (there is currently a proposal to reduce this delay to 1 year), and the delay between the end of the production period and the GoO enquiry mustn't exceed 90 days.

- Each GoO has a unique identification number and is linked with the production site and its characteristics (nature of feedstock, etc.). It is then linked to the sales contract.
- It can only be used once: after the sale to an end costumer, the GoO is deleted. The sale to an end costumer is declared online, as well as the final use of the biomethane attached to the GoO (town gas, biofuel, etc.).
- The end costumer cannot buy more GoOs than his real consumption.
- The GoO is transferrable between account holders through a sell/buy system.
- Each GoO has a 2-year lifespan (after 2 years it becomes obsolete and is deleted from the register).
- The supplier keeps 25% of the benefits from the GoO sale (75% goes to the state), or 100% in the case of recovery as a biofuel (bioNGV).

For each GoO, the following information is available to the public:

- The identification number of the GoO
- The date of delivery
- The name of the petitioner
- The address of the biomethane production unit
- The feedstock used for the production of biomethane
- The dates of beginning and end of biomethane production for which the GoO was delivered
- Information about debit, credit of GoO and, if so, cancellation and transfer of GoOs among account holders

The registry manager can verify the information received in the GoO request, only if the GoO has been delivered less than three years before. The monitoring is conducted by authorized officers. The officers have access between 8 am and 8 pm to the production unit. A report is then sent to the gas supplier within 15 days. If the control reveals that the information provided in the request which has led to the delivery of certificates was false, the certificates are cancelled. New certificates can be delivered after a new control, which will be conducted upon request of the gas supplier and at his expense.

3.3.2 Point of view of authorities / research institutes about the possibility to exchange biomethane with foreign countries

The national authorities are rather not in favour of the possibility to exchange biomethane with foreign countries, at least until the sector is structured and has reached a sufficient development. Moreover cross-border biomethane trade could be questioned in the view of the circular economy principles, where proximity of production and consumption should be prioritised.

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4. CONCLUSIONS AND NEXT STEPS

Analyzing the system of registries in Austria and France, it is evident that there are several differences. These differences, however, do not represent an obstacle to cross-border exchange of biomethane GoO. To make the exchange of GoO between two different countries, it is necessary to build a series of specific procedures in the registries dedicated exclusively to international exchange. These procedures must be absolutely the same and shared between the two / three countries allowing the exchange of GoO. Howewer, it is not required to homogenize the registries that currently exist for the national biomethane markets.

In the next steps the BIOSURF partners will have to decide how to manage the exchange of GoO between Italy, France and Austria. At the moment the most plausible hypothesis is to use a semi-automatic process of transferring the GoO. This type of transfer consists of a series of communications between relevant stakeholders in the cross-border exchange of GoO and the respective managers of the registers (communication of intention to move a specified number of GoO abroad, communication between the registers managers etc.), the cancellation of GoO from a register and the inclusion in the other registry will be done manually by the respective registry or automatically through the portal. This type of management requires, in addition to a reduced amount of time, also an additional cost that is not excessive for the implementation of the section dedicated to cross-border trade of GoO in the pre-existing registers.

The transition to a possible fully automated management system could only be made following the validation of the semi-automatic system. If not be possible to create the above procedures for all the project countries, we will try to do it in the regions that were selected in the Deliverable 6.1, i.e.:

- Lombardy and Trentino-Alto Adige region for Italy;
- Tyrol region for Austria;
- Rhône-Alpes region for France.

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