

# SUPPORT SCHEMES FOR BIOGAS AND BIOMETHANE IN ITALY



**EBA**  
European Biogas Association

## INTRODUCTION

During the last 10 years the biogas sector in Italy has gone through radical changes. To better understand them, it is possible to split the decade into three-periods: the first one that goes from 2008 to the end of 2012, the second from 2013 to the end of 2017, the last one from January 2017 until today.

The years 2008-2012 have been characterized by a rapid growth of biogas plants built. The sector grew considerably, exceeding one thousand plants with an installed capacity around 900 MW<sub>el</sub>, thanks to a feed in tariff ("Tariffa onnicomprensiva") that guaranteed really interesting subsidies (0,28 €/KWh) for the production of renewable electric energy.

From January 2013 to December 2017, the Italian biogas support scheme substantially changed and was considered less profitable by the investors. Compared to the past the subsidies have decreased and have been extended from 15 to 20 years and related to the size of the plant (the smaller the biogas plant is, the higher is the subsidy) and to the feedstock (the more by-products or organic waste you use, the higher is the subsidy). They also introduced a ranking system for the new biogas plants ("Registri") and a special bonus for the enhancement of the thermal energy and for the reduction of the nitrogen content in the digestate. At the end of 2019 in Italy there were 1,710 operating plants, with a total installed capacity of 1,200 MW<sub>el</sub>. According to these numbers, Italy is the second biogas market in Europe after Germany and the fourth in the world after Germany, China and USA.

At the beginning of 2018 the Italian government published a decree (Decree 02 march 2018) that encourages the production of biomethane and that should give a strong boost to this sector. As for March 2021, in Italy there are 22 biomethane plants with a total production of 170 million cubic meters per year. The number of plants is expected to grow rapidly by the end of 2022, when production of approximately 1 billion cubic meters of biomethane is expected.



## SUPPORT SCHEMES FOR BIOGAS

The actual Italian system supports the production of electricity produced from biogas via Combined Heat and Power (CHP), with the scheme of Feed-in tariff for newly installed biogas plants. This scheme will be valid until the approval of a new support scheme by the Government (FER2) and it relies on three different policies:

- Decree of Italian Minister for Economic Development of June 23th 2016;
- Italian Law n. 145, December 30th 2018;
- Italian Law n. 21, February 26th 2021.

The beneficiaries of the support are small scale biogas plants for electricity (up to 300 kWe of installed power). More in detail, plants up to 100 kWe have direct access to the supports, while plants between 100 and 300 kWe must apply and be included in the "Register for the Assignment of Available Power Shipment" held by the national organisation for renewable energy payments ("Gestore dei Servizi Energetici - GSE"). The applicant does not need to wait for a call or tender if the biogas plant is up to 100 kWe. On the other hand, in the case of plants between 100 and 300 kWe, a call from GSE for the insertion in the above-mentioned Register is needed; if the insertion is successful and a satisfactory position is reached, it is possible to require the support scheme after the realization of the plant. The plants must begin their operativity within 31 months from the date in which successful

outcome of the Register procedure is communicated. The economic amount of the support is 233 €/MWh of net electricity sold to the grid and, considering a CHP efficiency of 38%, the value of biogas is 88.54 €/MWh. The duration of the support is 20 years.

The feedstocks allowed for anaerobic digestion must belong to one of the following categories:

- By-products listed in Table 1.A of Ministerial Decree of 23th June 2016 (e.g., crops residues, animal by-products, manure, etc.);
- Products listed in Table 1.B of Ministerial Decree of 23th June 2016 (e.g., some energy crops like sorghum, triticale, etc);
- Second crops (e.g., corn silage).

Concerning the feedstocks, it must be pointed out that the plants must be fed at least 80% by feedstocks 1) and 2), where the first one must be at least 70% in weight of total feedstock. The feedstocks 3) must be used only up to the 20% of the total. Moreover, the plants must belong to the production cycle of agricultural and/or animal rearing farms, built by single or associated farmers.

As regards thermal energy produced by CHP, it must be used on site to support farm processes; the heat used for the thermal regulation of digestors is not considered.



## SUPPORT SCHEMES FOR BIOMETHANE

The new Italian biomethane decree, that will be in operation until 31 December 2022, has a production limit of 1.1 billion cubic meters of biomethane per year and it gives subsidies only in the case of use of biomethane in the transport sector.

The biomethane promotion scheme is based on the allocation of certificates of release for consumption ("Certificati di Immissione in Consumo di biocarburanti", better known as "CIC") to be provided to those subjects who release non-renewable fuels for consumption. The number of CIC that these subjects are obliged to hold must be sufficient to cover the share of energy corresponding to the obligation to release non-renewable fuels for consumption of biofuels, which is determined every year.

As a basic rule, one CIC is assigned every 10 GCal of biomethane produced and every 5 GCal if the biomethane is considered "advanced biomethane" and thus is derived from particular biomasses (Annex 3 to the Ministerial Decree of 10 October 2014). Once an installation has entered into service and has successfully passed the qualification process at the designated public company (GSE), the CIC allocation period is not subject to time limits and is available as long as the compulsory quota mechanism for biofuels is operational.

### **Advanced biomethane**

Among the main innovations of the decree, there is the introduction of specific measures dedicated to advanced biomethane. The biomethane is considered advanced if it is derived from particular biomasses, such as the organic fraction of municipal solid waste, manure, and other agricultural by-products. Some cover crops such as sorghum and triticale can as well be used for

advance biomethane production, but only if the main crop is food or feed. The development of advanced biomethane should be ensured by the presence, within the definition of biofuels mandatory quotas, of a percentage dedicated to advanced biofuels. Therefore, advanced biomethane becomes obligatory in the transportation system.

A special favourable tariff is foreseen for the advanced biomethane: for the first ten years of operation, at the request of the producers of "advanced biomethane", the GSE will withdraw the advanced biomethane which is produced for a maximum share equal to 75 % of the obligation, minus any shares of "obliged subjects". The withdrawal of the biomethane by the GSE will take place at a price equal to that of the MPGAS (Spot Market for Gas) reduced by 5% and the GSE will recognize the value of the corresponding CIC, assigning each certificate a value of € 375. The producers of "advanced biomethane" will also have the possibility to request from the GSE to be excluded from the physical delivery of the biomethane produced, only if they sell their production independently for the consumption in the transport sector; in such a case, the incentive will coincide with the value of the corresponding CIC, valued by the GSE at € 375. Following this ten-year period, the producer should have access to the ordinary method of valuing the CIC for the remaining period of the law, namely through the private sale to the obliged parties. To help the CIC trade market, the Italian Power Exchange (IPEX) must set up an organized exchange platform that should eliminate the criticisms that characterize the current CIC exchange system.

### Upgrading existing plants

In the decree there are interesting links with the existing world of biogas to promote a progressive shift towards the biomethane sector. The first element among all is represented by the possibility of converting the existing production to biomethane. In fact, besides the construction of new biomethane production plants, the same assignment of CIC is also contemplated (including the option of allowing the GSE to switch to advanced biomethane) for the production of biomethane deriving from an existing biogas plant (also obtained through the increasing of biogas production compared to previous production). To convert the system from biogas towards biomethane, it is necessary to reduce the production of electricity by at least 30%. For example, if you have a 1 MW<sub>el</sub> plant, it is needed to reduce the electrical capacity to at least 0.7 MW<sub>el</sub> until the end of the incentive period. A minimum of 0.3 MW<sub>el</sub> shall be converted to biomethane plus a possible expansion of the biogas plant shall be dedicated to the production of biomethane.

In addition to this, a relevant novelty of the new decree is represented by the incentive system for "co-digestion": the double counting and the advanced biomethane qualification will also be recognized for the production of biomethane deriving from processes that will use the materials for obtaining the double counting and advanced

biomethane in co-digestion with other products of biological origin, the latter not higher than 30% by weight; in such cases, the double counting and the advanced biomethane qualification will be recognized only at 70% of production. The principle of co-digestion also applies in the case of conversions and / or increase in power of existing plants.

### Guarantees of origin

The Decree provides for the introduction of a guarantees of origin (GoO) system which, according to the purpose of the legislator, serves to prove to the consumer the origin of renewable gas used. A relapse of this mechanism occurs also in the EU ETS (European Union Emissions Trading Scheme): the parties in charge of buying biomethane with GoO under ETS shall fulfil all or part of their obligation to buy quotas for carbon dioxide emissions. Although the system of guarantees of origin concerns only a limited portion of the production of biomethane (the GoO are in fact assigned only to the production of non-incentivized biomethane and deriving only from particular categories of raw materials), its introduction represents an element of considerable importance towards an effective development of the direct use of biomethane in all sectors and not just in the transportation one.



## OTHER TYPES OF SUPPORT

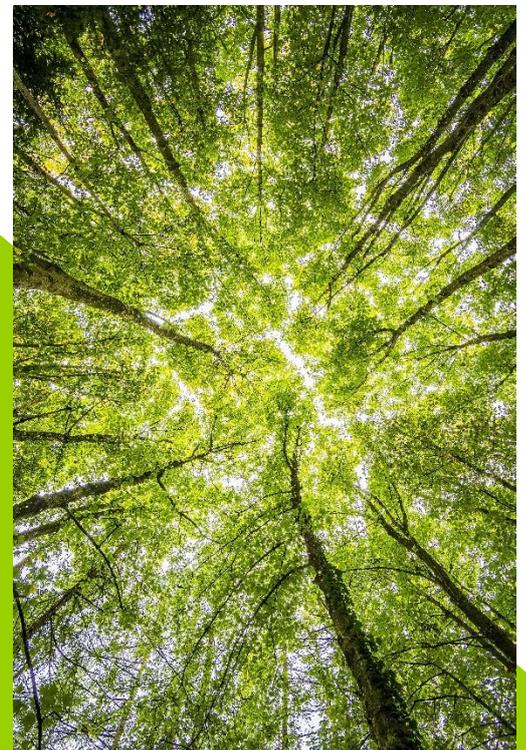
To support the development of the biomethane system, the decree introduces an additional amount of CIC for the construction of new filling station for bio-CNG or bio-LNG. More specifically, if the producer sustains a certain share of the infrastructural cost of a new filling station (at least 51% individually or together with other producers), this will result in an increase in the allocated CIC up to 70% of the cost of entire structure built or at most € 600,000 per the CNG filling station or €

1,200,000 per the LNG filling station (if the investment is made by a joint venture the additional contribution will be allocated on the basis of financial participation shares). The statistics show that the availability of refuelling points stimulates the purchase of natural gas vehicles, also in agricultural sector. Therefore, this mechanism suggests an interesting multiplier effect in favour of the developing use of methane in the automotive sector.

## SUSTAINABILITY CONDITIONS

The certification of sustainability is a fundamental aspect that must be considered for the subsidizing of biomethane. The principle of sustainability is implemented by the Decree 23 January 2012, with the establishment of the national certification system for biofuels (SNC-Sistema di Certificazione Nazionale) and the reference to specific technical regulations. These include the technical standard UNI / TS 11567.

The sustainability of a biofuel is therefore based on the main criteria of at least 65% GHG reduction (along the entire production chain) compared to fossil fuel. These requirements must be certified through a national certification system (SNC).



## MORE INFORMATION

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### References

Beneficiaries ([link](#))

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## About EBA

EBA is the voice of renewable gas in Europe. Founded in February 2009, the association is committed to the active promotion of the deployment of sustainable biogas and biomethane production and use throughout the continent. EBA counts today on a well-established network of 40 national organisations and over 100 scientific institutes and companies from Europe and beyond.