

# Biogas and biomethane in Italy

India Bioenergy Workshop

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GSE GUARANTEES THE SUSTAINABLE DEVELOPMENT OF OUR  
COUNTRY PROMOTES RENEWABLE SOURCES AND ENERGY  
EFFICIENCY

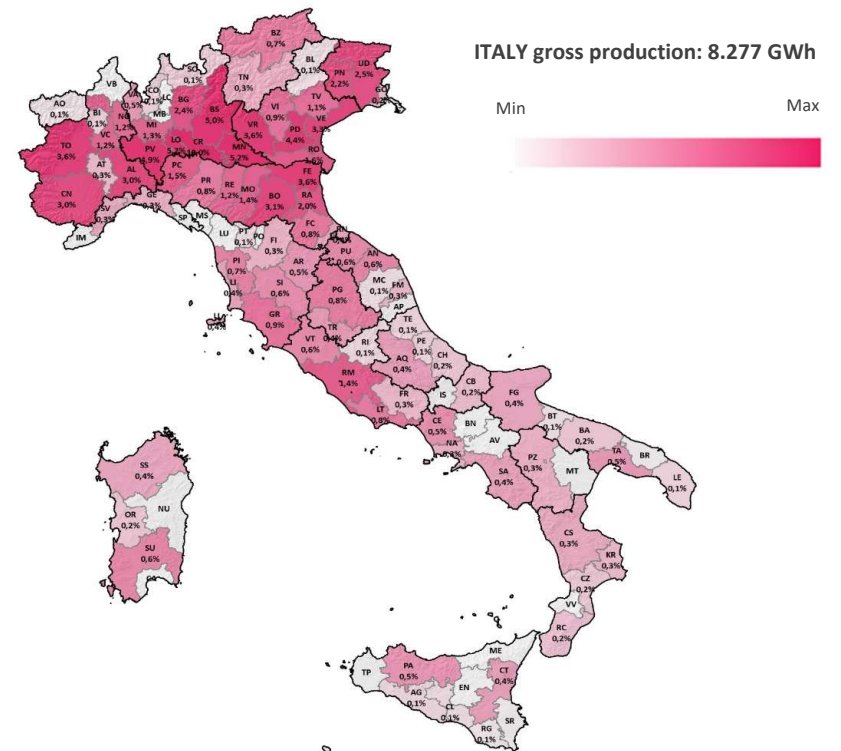
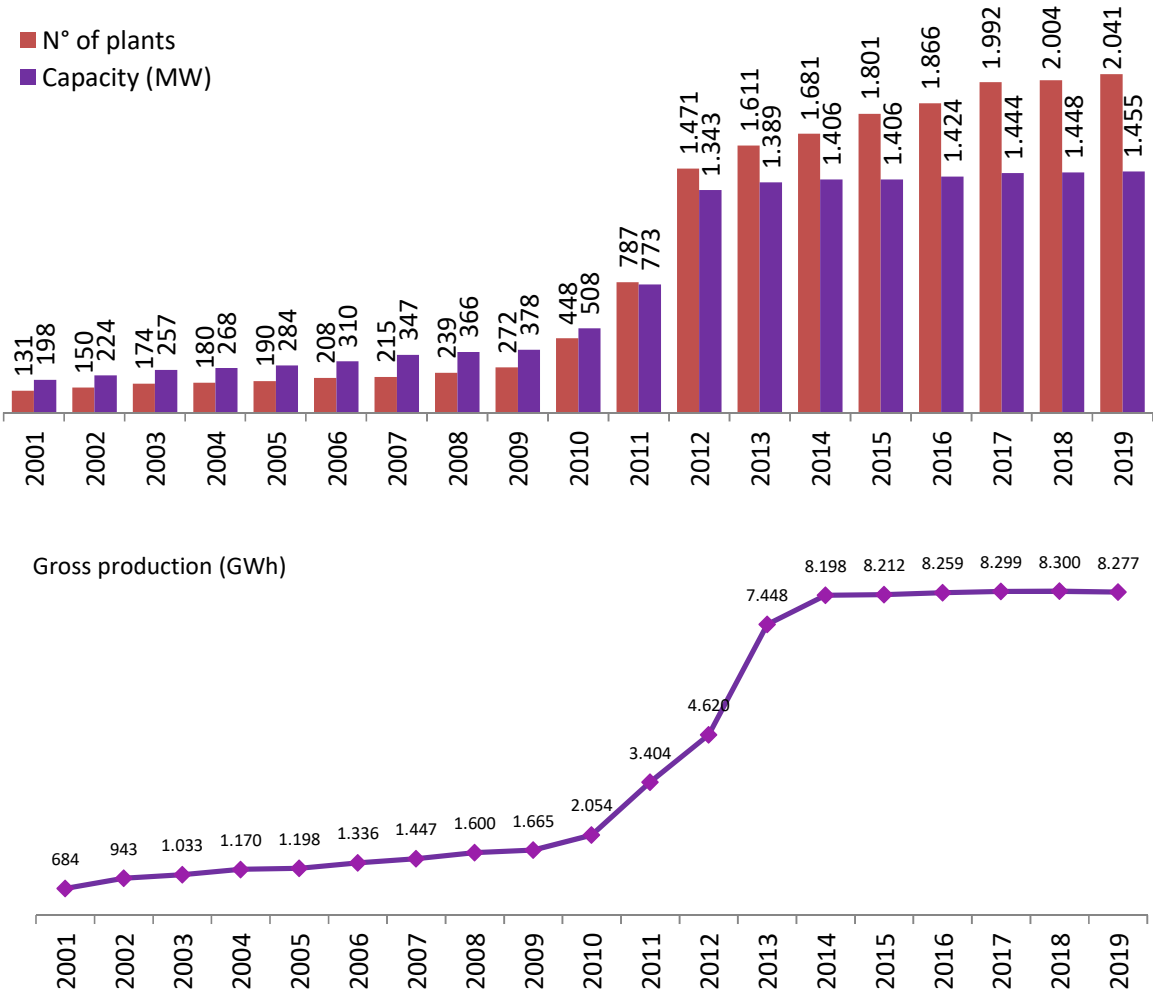
Deploying biogas and MSW-to-energy



- **BIOGAS IN ITALY FOR ELECTRICITY PRODUCTION: CURRENT SITUATION AND 2030 TARGETS**
- **BIOMETHANE: THE WAY TO DEVELOP RENEWABLE GAS IN ITALY**
- **BIOMETHANE IN THE NRRP: AN OPPORTUNITY FOR THE ECONOMIC RECOVERY**



# BIOGAS FOR ELECTRICITY PRODUCTION



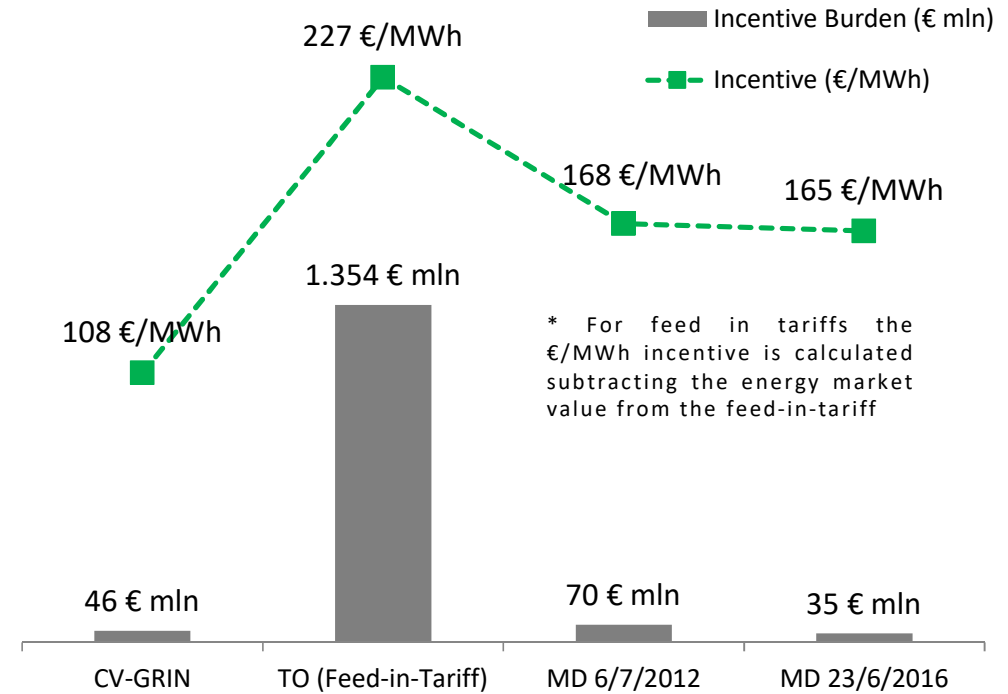
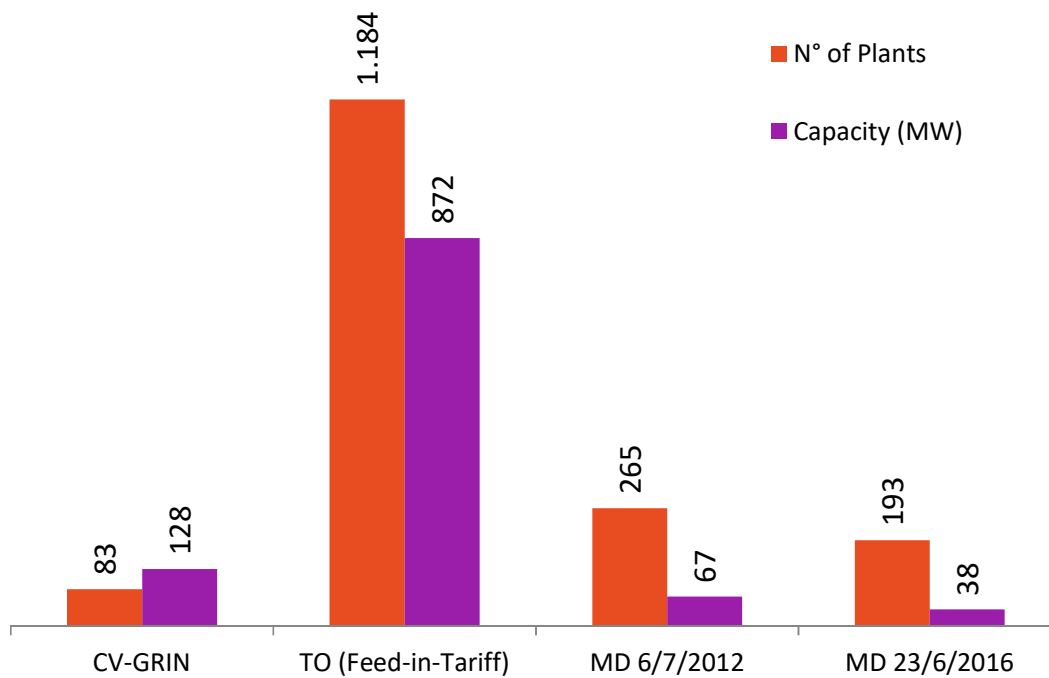
Northern Italy gives the major contribution (83.4% of the national total) where cattle farming and swine breeding are very widespread. In 2019 the first region is Lombardy, with 34.6%.

# INCENTIVE SCHEMES SUPPORTING BIOGAS PLANTS in 2020

- Over the past 15 years biogas plants were supported by a number a supporting schemes, both with feed-in-premium and feed-in-tariffs
- Must plants were realized under the **TO Fit scheme**, thanks to favorable tariffs

Plants by support scheme: 1.725 plants, 1,1 GW

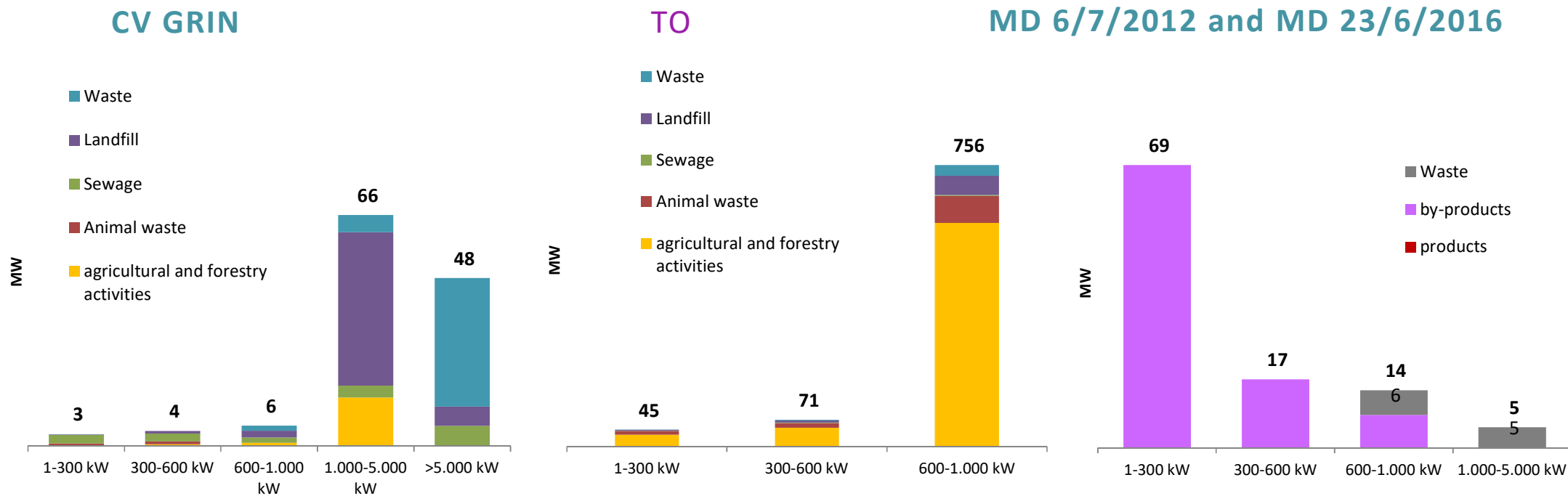
Incentive intensity and total burden (1,3 € bn)



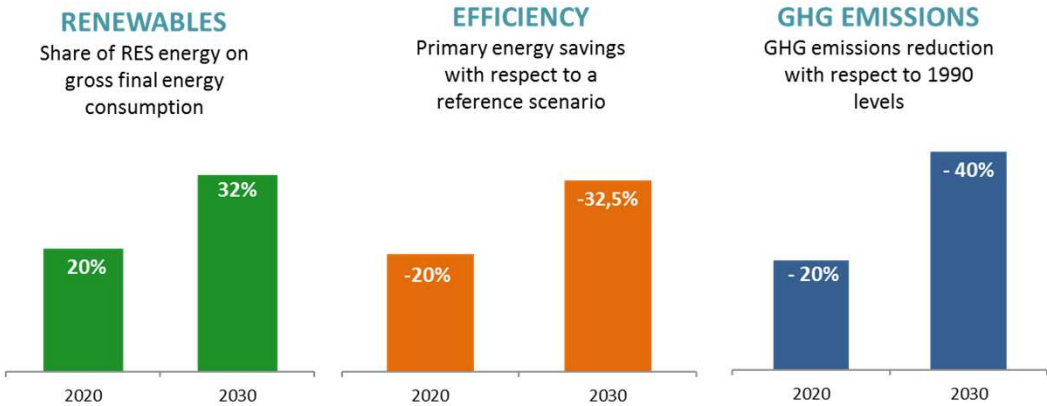
# FEATURES OF SUPPORTED PLANTS

- Older plants, mainly supported by CV-GRIN (FiP) are generally of large size and mainly fed **by landfill and waste** biogas
- TO plants are mostly around 1 MW**, mainly fed by **agriculture products**
- Newer plants (MD 2012 and MD 2016) are typically **of smaller size** (1-300 kW) and fed by **by-products**

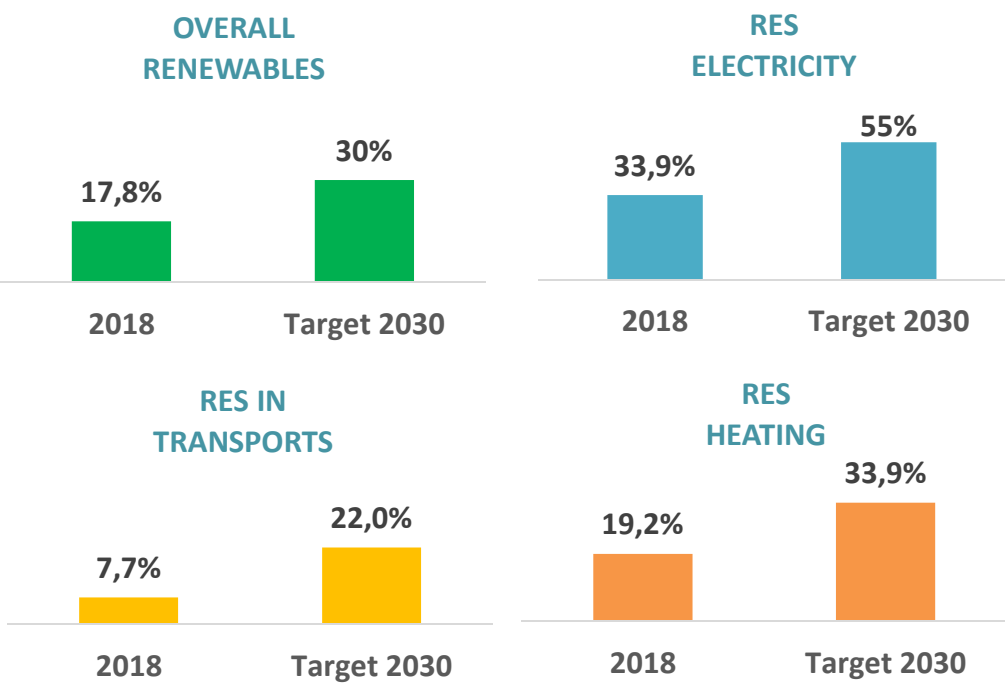
## Plants by size and organic matrix



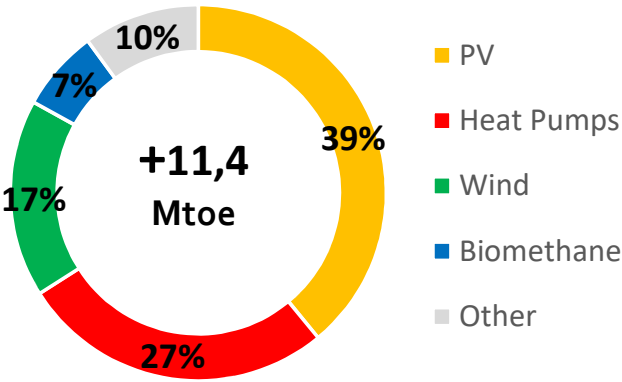
# EU MAIN TARGETS AND IT NECP 2030



At the end of 2019 EU Member States submitted to the European Commission their National Integrated Energy and Climate Plan defining their contribution to reach EU energy and climate targets in 2030, the measures and policies suitable for this purpose.



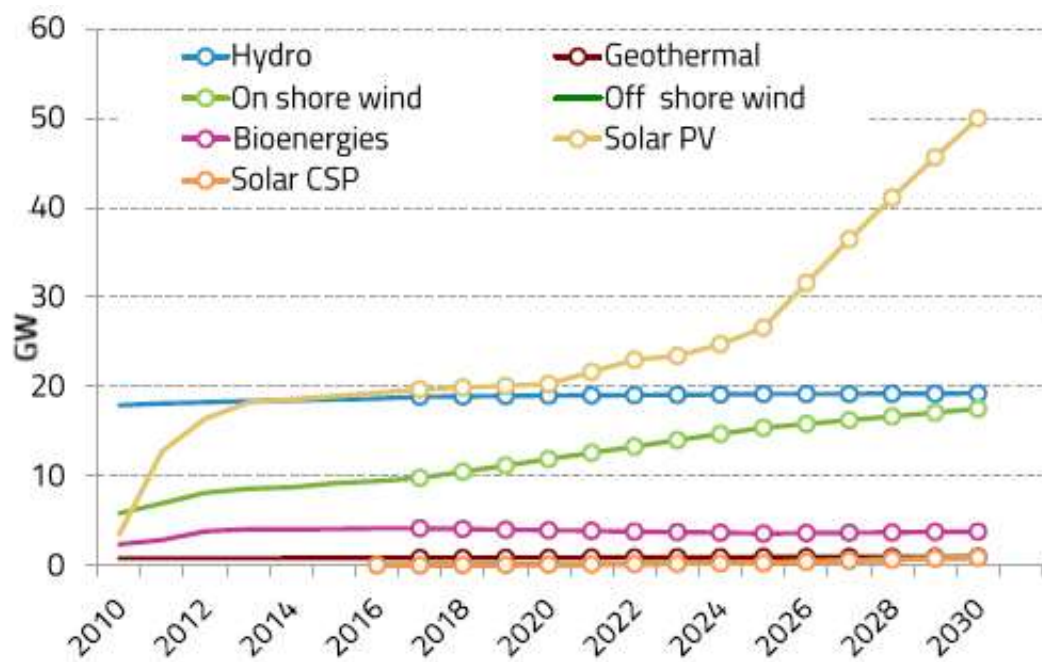
Expected increase in RES consumption in 2030



# IT: NECP TARGETs 2030 in the electricity sector

- The **higher contributions are expected from PV (+30 GW) and wind (+9 GW)**. RES energy is expected to grow up to about 187 TWh, starting from 115 TWh in 2018: the highest increase will come from solar energy (+50 TWh), followed by wind energy (+23 TWh)
- The **NECP foresees a slight decrease in bioenergy power installations**, mainly due to the **gradual phase out of bioliquids** ending the incentive period. **CHP plants from wastes and residues from the agri-industrial sector** are of interest, in particular plants integrated in the production cycle of companies.

Capacity targets towards 2030 (MW)



- **NECP supports the construction of new plants or the revamping of the existing ones (PV and Wind), while safeguarding as far as possible the current production (bioenergy, geo and hydro).**
- **Bioenergy (solid biomass and biogas) still involves high production costs**, primarily due to the mobilizing of feedstock. **A new support scheme (RES2) is being drafted** in order to support biogas plants able to **reduce production costs together with the improvement of environmental performance (small plants using wastes and residues** with a focus on the agri-industrial sector).
- The IT NECP also intends to **promote the conversion to biomethane** production of **existing biogas plants** at the end of their incentives period.



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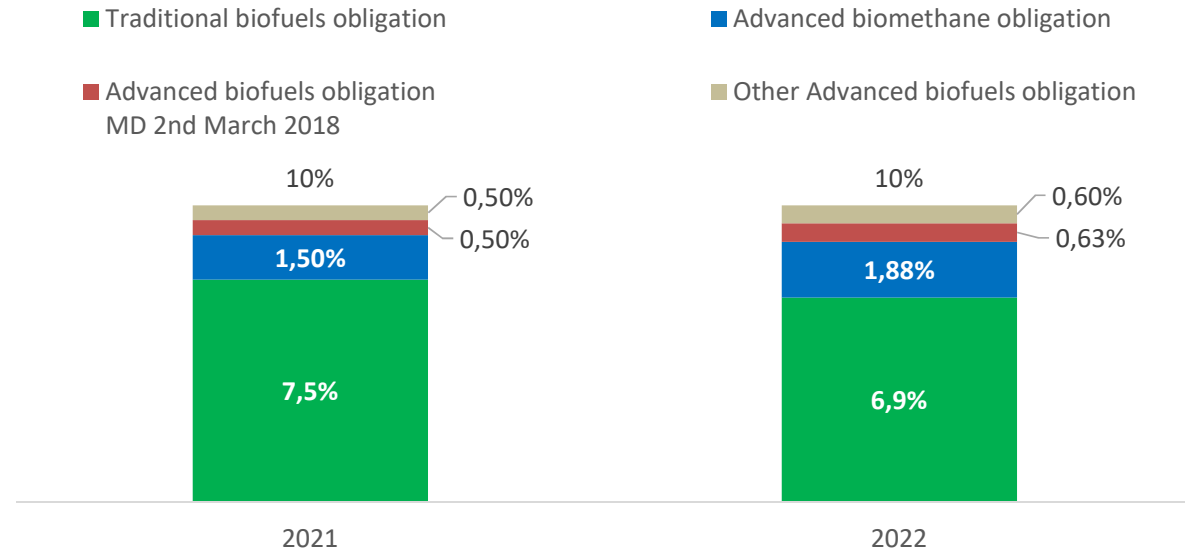
# BIOMETHANE IN THE TRANSPORT SECTOR

In Italy, transport fuel retailers are required to **blend and supply annually an established amount of biofuels** to the fossil fuels sold into the market (diesel and gasoline). Such obligation can be met by either:

- **selling biofuels and receiving a corresponding amount of Consumption Release Certificates (CICs)** – one every 10 GCal of biofuel released (Double counting mechanism is into force),
- **or purchasing the needed CICs from biofuels producers** or from other obliged entities that have a CICs surplus.

A **share of the supply obligation must be satisfied by releasing advanced biofuels**, (biofuel produced from well individuated feedstock like wastes, residues etc...). **75% of advanced biofuels obligation must be fulfilled by advanced biomethane**

Percentage of biofuels to be sold according to the blending obligation



Advanced biomethane support scheme (MD 2<sup>nd</sup> March 2018)

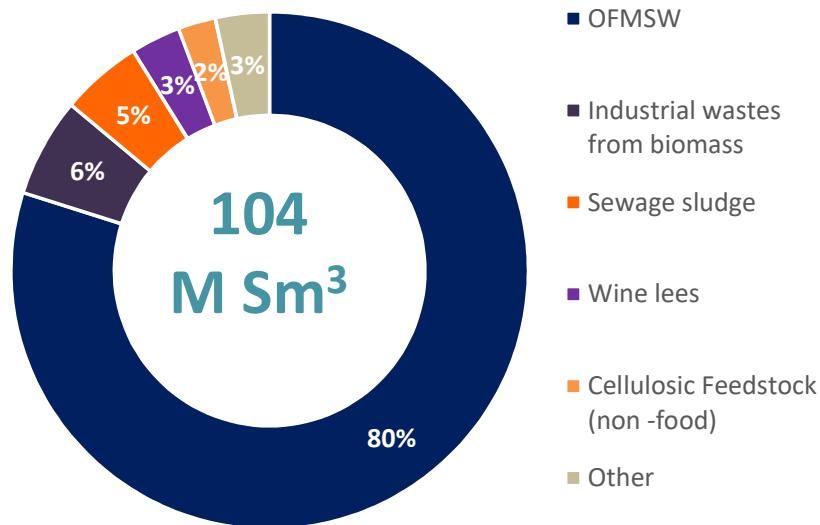
## Advanced Biomethane

- CIC value: **€ 375 every 5 GCal** of advanced biomethane produced
- GSE can partially or totally **purchase biomethane** from producers
- GSE verifies the fulfilment of the obligation
- **Premiums are provided** (distribution and/or liquefaction)
- **Conversion of existing biogas** plants to biomethane is supported

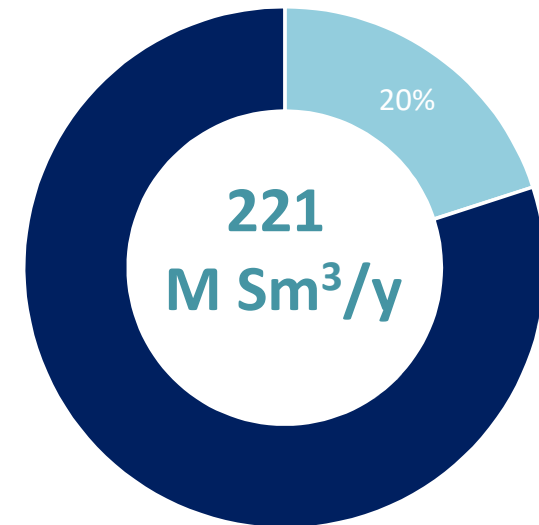
# BIOMETHANE IN THE TRANSPORT SECTOR

- From 2018 **GSE selects biomethane production plants (new or converted)** eligible to access to MD 2nd March 2018 support scheme
- In 2020 GSE supported **21 advanced biomethane production plants (27,980 Sm<sup>3</sup>/h production capacity) generating about 104 M Sm<sup>3</sup> (80% from OFMSW)** corresponding to **161,455 CICs with a value of about 61 M€ (375 €/CIC)**. In addition, about 30 plants are currently eligible to access to incentives.
- GSE monitors the progresses towards the achievement of maximum production capacity eligible to be supported that is equal to **1.1 bn Sm<sup>3</sup>/y. Currently we cover about the 20% of the limit**

Advanced biomethane supported by feedstock

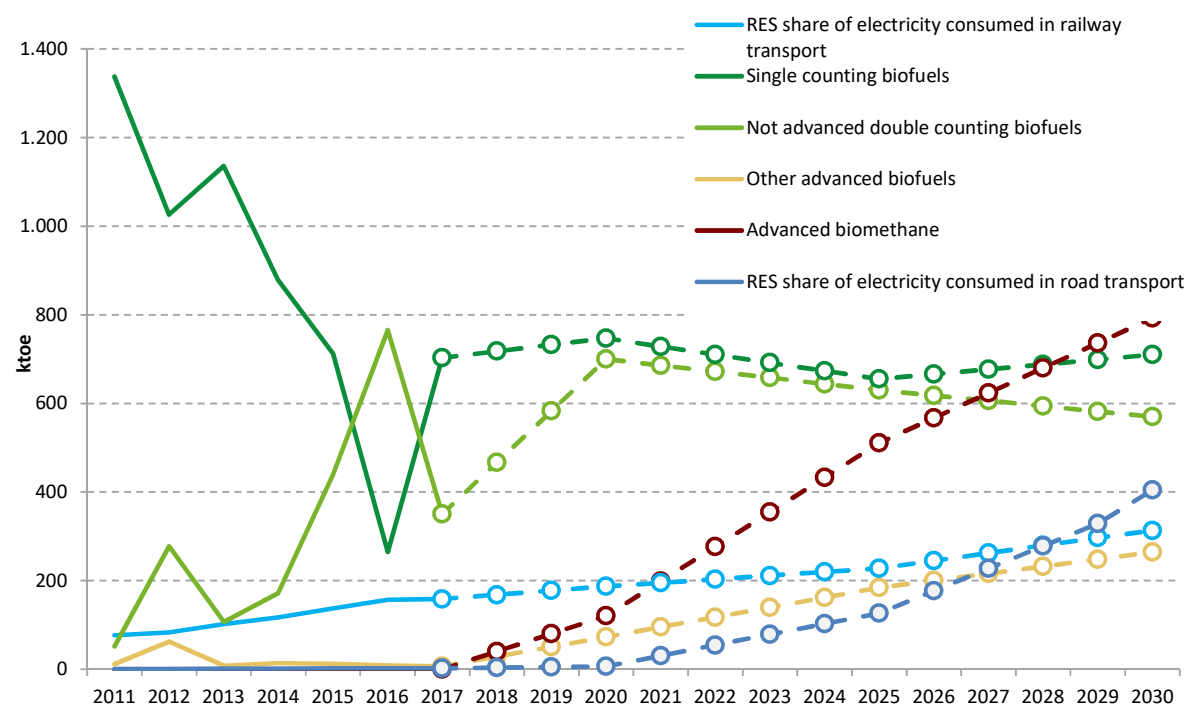


Maximum production capacity monitoring



# IT: NECP TARGETS AND MEASURES IN 2030 IN THE TRANSPORT SECTOR

Growth trajectories for energy from renewable sources by 2030 in the transport sector [Source: GSE and RSE]



- Reduction of the use of first generation biofuels up to a maximum share of around 3%.
- Consumption of **advanced biofuels**, with a target of around **8%** (more ambitious than the 3.5% envisaged by REDII), mainly thanks to the **contribution of biomethane** with an expected share of 75% of the total advanced biofuels (1.1 billion of m3).
- Exploit the potential of UCOs and animal fats collected in Italy.
- Concerning **aviation and maritime biofuels** a **contribution is expected also from renewable gas**, which, however, currently appears difficult to quantify.



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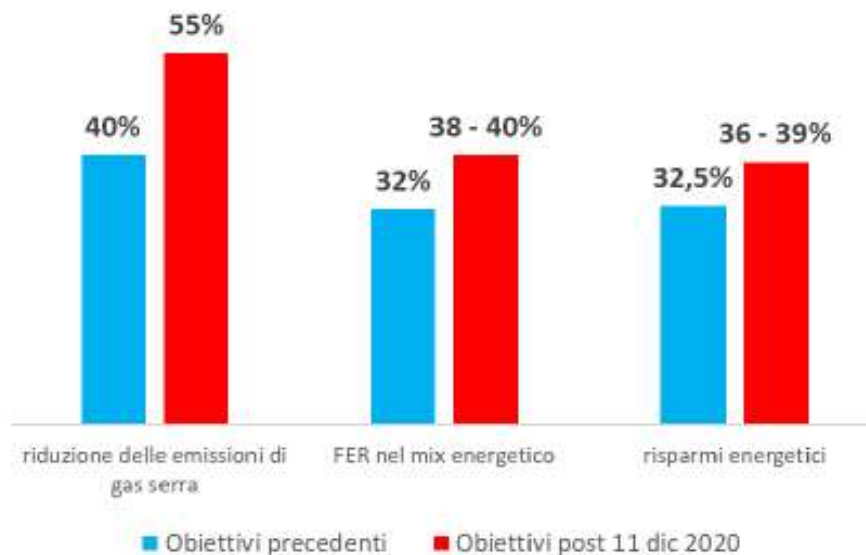


# THE NEW EU TARGETS

On **December 11<sup>th</sup> 2020**, EU leaders reached an agreement to increase the 2030 emissions reduction target **from 40% to 55%**. This will have implications on the targets relating to renewable sources and energy efficiency and on the reference directives that will be revised in the course of 2021.

The **NECP** and its **objectives** will also need to be reconsidered in the light of the new EU guidelines.

Comparison between the climate and energy targets for 2030



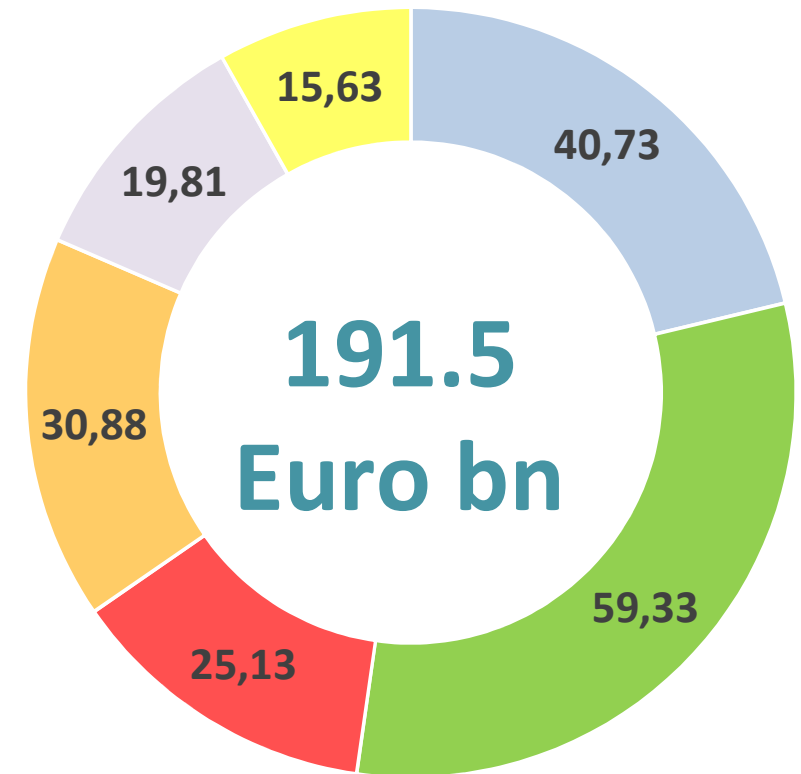
European Green Deal: main aspects



**37%** of the **funding deriving from Next Generation EU**, the new instrument for recovery with an endowment of **750 billion euros**, will have to be invested in the objectives of the European Green Deal

# THE IT NATIONAL RECOVERY AND RESILIENCE PLAN (NRRP)

## 6 MISSIONS



The IT NRRP **aims at repairing the economic and social damage caused by the pandemic crisis**, contributing to addressing the structural weaknesses of the Italian economy, and leading the country along a path of ecological and environmental transition.

# THE IT NATIONAL RECOVERY AND RESILIENCE PLAN (NRRP)

The Italian **NRRP promotes investments (about 2 € bn) in biomethane production from organic wastes and residues** with the aim of:

- **reconverting and improving the efficiency of existing biogas plants in the agricultural sector** towards the production of biomethane to be used both in the industrial and residential heating and cooling sector and in the tertiary and transport sectors;
- **supporting the construction of new biomethane production plants** (contributing to the 40% of the investment);
- **promoting sustainable practices in the biomethane production** (low GHG emissions, low soil use) also creating consortia for the treatment of digestate and effluents to produce fertilizers of organic origin;
- **promoting the replacement of obsolete and low-efficiency vehicles** in the agricultural sector (old tractors) with biomethane-fueled vehicles;
- **improving the efficiency in terms of heat recovery and reduction of emissions of existing small-scale agricultural plants** for which it is not possible to access to the conversion measures.

The NRRP intends to promote the use of **biomethane in in the civil and in the industrial sector**. So a **dedicated support mechanism** will be provided by the end of 2021.





**THANK YOU**

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