



WORLD FUTURE FUEL
SUMMIT & EXPO
International Conference & Exhibition on Future Fuel
16-17 February 2022 | Virtual

Prospects for biomethane usage in Italy

Lorenzo Maggioni, R&D CIB

17 February 2022



772 AGRICULTURAL BIOGAS PLANTS

CIB WAS FOUNDED IN 2006 AS A VOLUNTARY ASSOCIATION

TODAY WE COUNT MORE THAN 920 MEMBERS



8 RESEARCH CENTRES AND INSTITUTIONS



CIB –Consorzio Italiano Biogas

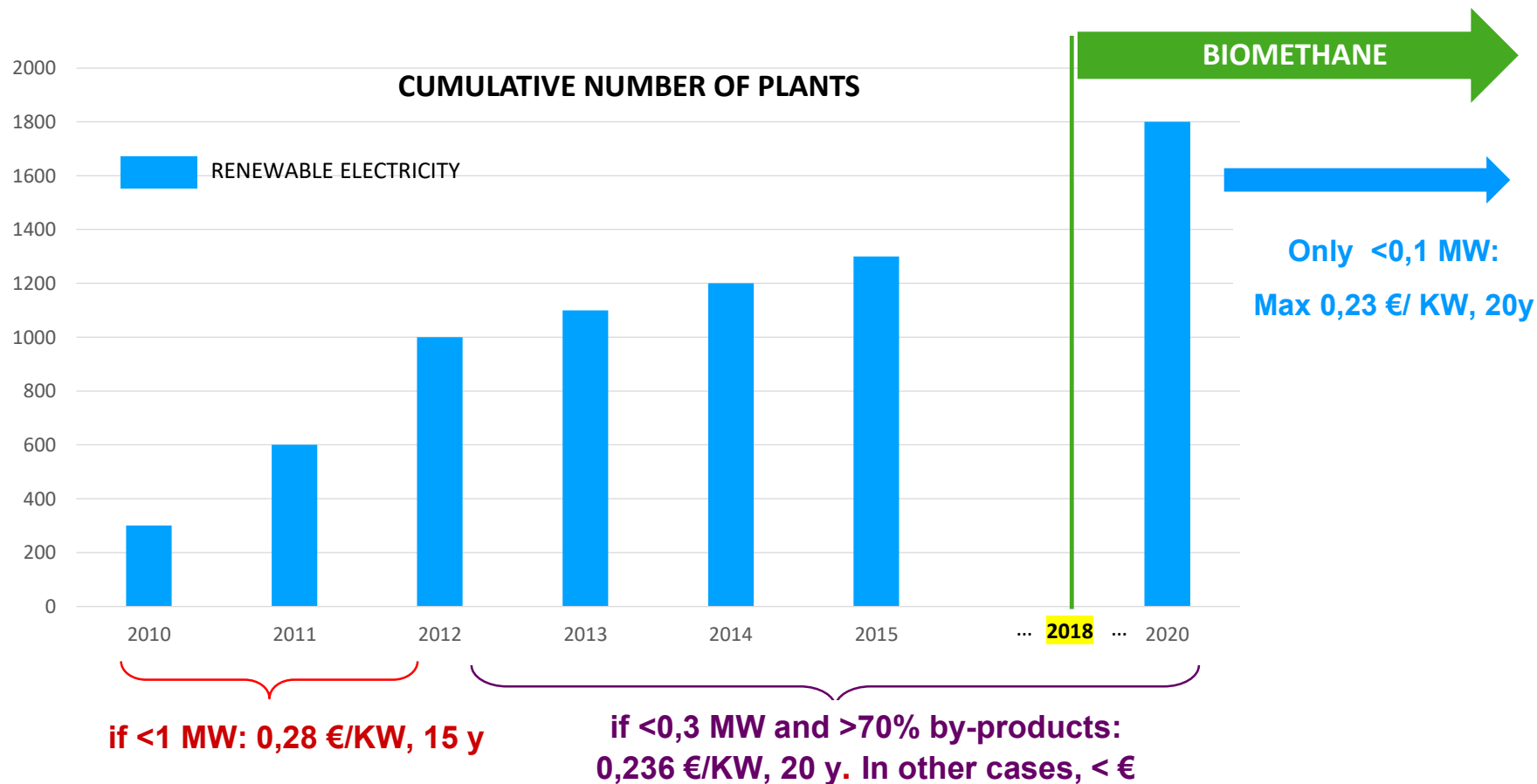
73 BIOGAS PLANT MAKER



131 INDUSTRIAL AND SERVICE COMPANIES



EVOLUTION OF THE ITALIAN BIOGAS SECTOR



CURRENT SITUATION

Biogas in Italy

- **2nd European market after Germany**
- **> 1.900 biogas plants built (*agriculture + sewage + waste + industrial*) dedicated to renewable electricity production**
- **> 1.1300 MW_{installed electrical power}**
- **30 biomethane plants with a production of ~ 350 Mm³/y (*rapidly growing*)**
- **4 bioLNG plants (*rapidly growing*)**



CURRENT SITUATION

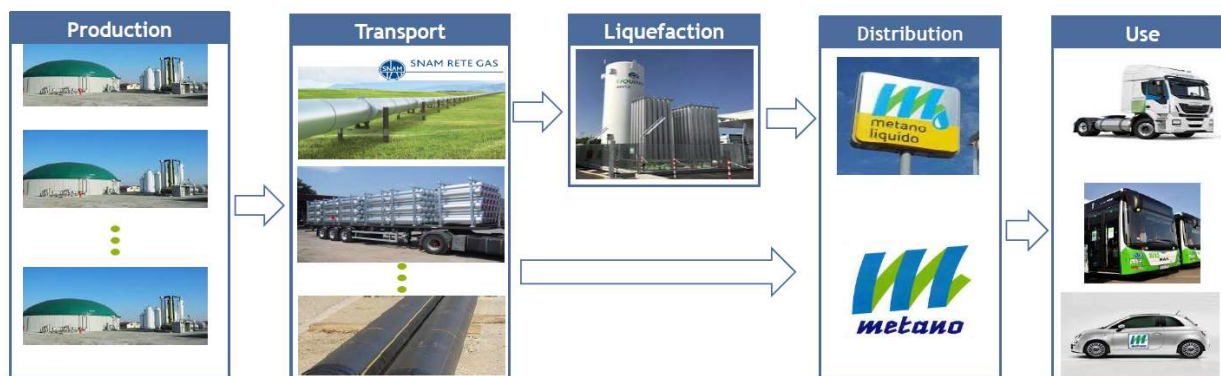
Biomethane incentive scheme

02 March 2018



Maximum biomethane
production with subsidies:
1,1 billion m³/year

100% in the transport sector



Virtual World Future Fuel Summit 2022

17-02-2022

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CURRENT SITUATION IN ITALY

Why 100% in transport sector?

- **> 1 Bm³ natural gas / year used in the transport sector**
- **~ 1.500 CNG filling station**
- **~ 100 LNG filling station (> in the North of Italy)**
- **~ 100.000 ton LNG / y in the transport sector (2020)**
- **~ 3.500 LNG trucks**
- **~ 1.050.000 NGV**



CURRENT SITUATION IN ITALY

Why 100% in transport sector?

EBA has launched a new paper providing a comprehensive analysis on the potential of biomethane for the fast decarbonisation of the transport Sector.

The paper has considered 11 comparative studies analysing transport emissions per type of fuel, which show that biomethane can reach even carbon negative levels of CO₂ reductions in transport.

All studies on alternative fuels since 2010, including EU JRC reports, show that **biomethane can reach even carbon negative levels of CO₂ reductions in the transport sector.** This renewable fuel is readily available, scalable and contributes to maintain a strong car industry within the EU.



Acknowledging the full potential of biomethane as transport fuel



CURRENT SITUATION IN ITALY

Why 100% in transport sector?

Studio delle emissioni di gas serra e di biossido di azoto in atmosfera dal comparto dei trasporti con alimentazione a gasolio, a metano e a biometano liquefatto	
	Pagina 1 di 24

Studio delle emissioni di gas serra e di biossido di azoto in atmosfera dal comparto dei trasporti con alimentazione a gasolio, a metano e a biometano liquefatto

November 2021



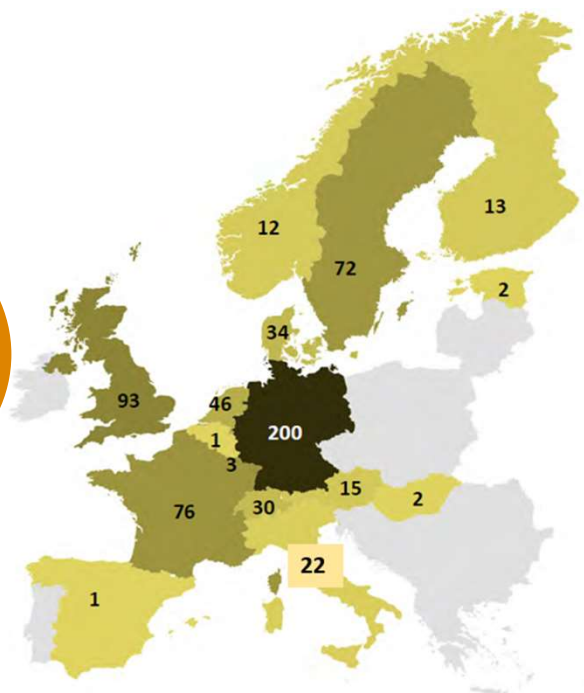
Figura 3: Dettaglio della comparazione delle emissioni climalteranti per gli scenari 9, 10 e 11, normalizzata sui MJ espressi dal carburante

In the best scenario (100% manure; CO₂ capture) -120% CO₂ compared to diesel

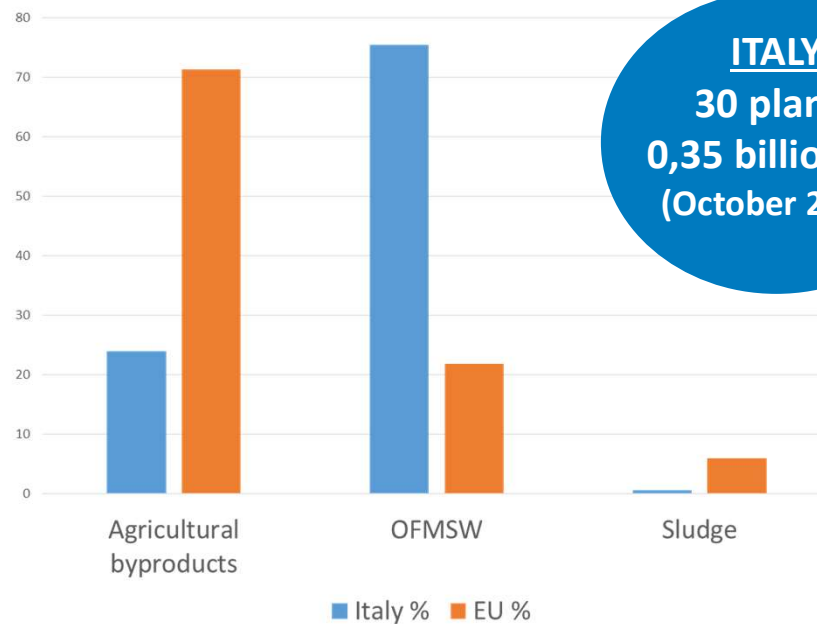
CURRENT SITUATION

Biomethane in Italy

2,43 billion m³
(in 2018)



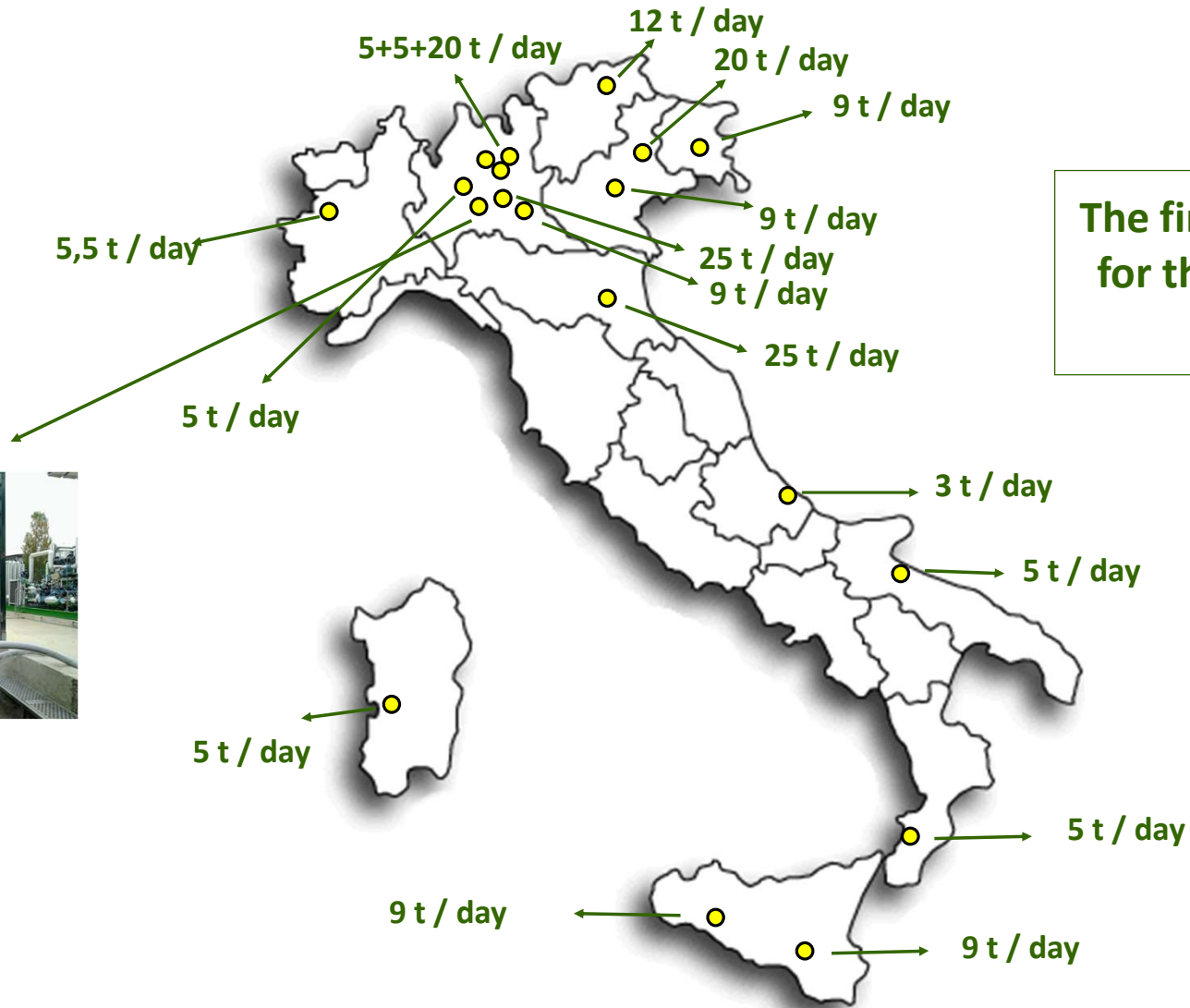
Number of biomethane plants



ITALY
30 plants
0,35 billion m³
(October 2021)

Contribution of the various feedstocks for the production of biomethane in Italy and the EU

**The first Italian projects
for the liquefaction of
biomethane**



**First Italian
bioLNG
plant
4 t / day**



- **First Italian bioLNG plant**
- Lombardy Region
- 1.400 t/y
- Membrane + LIN
- > OFMSW (Organic Fraction of Municipal Solid Waste)
- Entry into operation: November 2020
- Directly connected to biogas plant

bioLNG content:
100% CH₄!!

- **Second Italian bioLNG plant**
- Piemonte Region
- 2.000 t/y
- Brayton cycle
- 100% agricultural by-products
- CO₂ capture
- Entry into operation: January 2021
- Directly connected to biogas plant





bioLNG content:
100% CH₄!!

- **Third Italian bioLNG plant**
- Lombardy Region
- 2.000 t/y
- Membrane + LINDE
- 100% agricultural by-products
- Entry into operation: June 2021
- Directly connected to biogas plant



- **Fourth Italian bioLNG plants**
- Lombardy Region
- 2.000 t/y
- Membrane + LINDE
- 100% agricultural by-products
- Entry into operation: November 2021
- Directly connected to biogas plant



NEXT PROJECTS

BioLNG in Italy

Region	Entry into operation	ton/y
Piemonte	mar-22	3000
Veneto	apr-22	3000
Lombardia	apr-22	2000
Trentino Alto Adige	mag-22	4000
Lombardia	lug-22	9000
Lombardia	lug-22	1300
Veneto	ago-22	3000
Lombardia	dic-22	2000
Piemonte	dic-22	3000
Lombardia	dic-22	2000

CASE STUDY

(bio)methane in the maritime and in the rail transport



The first boat in Italy powered by a natural gas engine, operating in the service of the city of Venezia. Project by Italgas and Ecomotive Solutions



FS ITALIANE, SNAM AND HITACHI RAIL PARTNER FOR SUSTAINABLE MOBILITY: MOU ON METHANE-POWERED TRAINS

Methane converted trains will virtually eliminate particulate matter and reduce carbon dioxide emissions by about 20%. A possible replacement of 100 trains would also lead to savings of approximately 2.5 million euros per year on fuel costs.

Conversion of railcars from diesel to natural gas

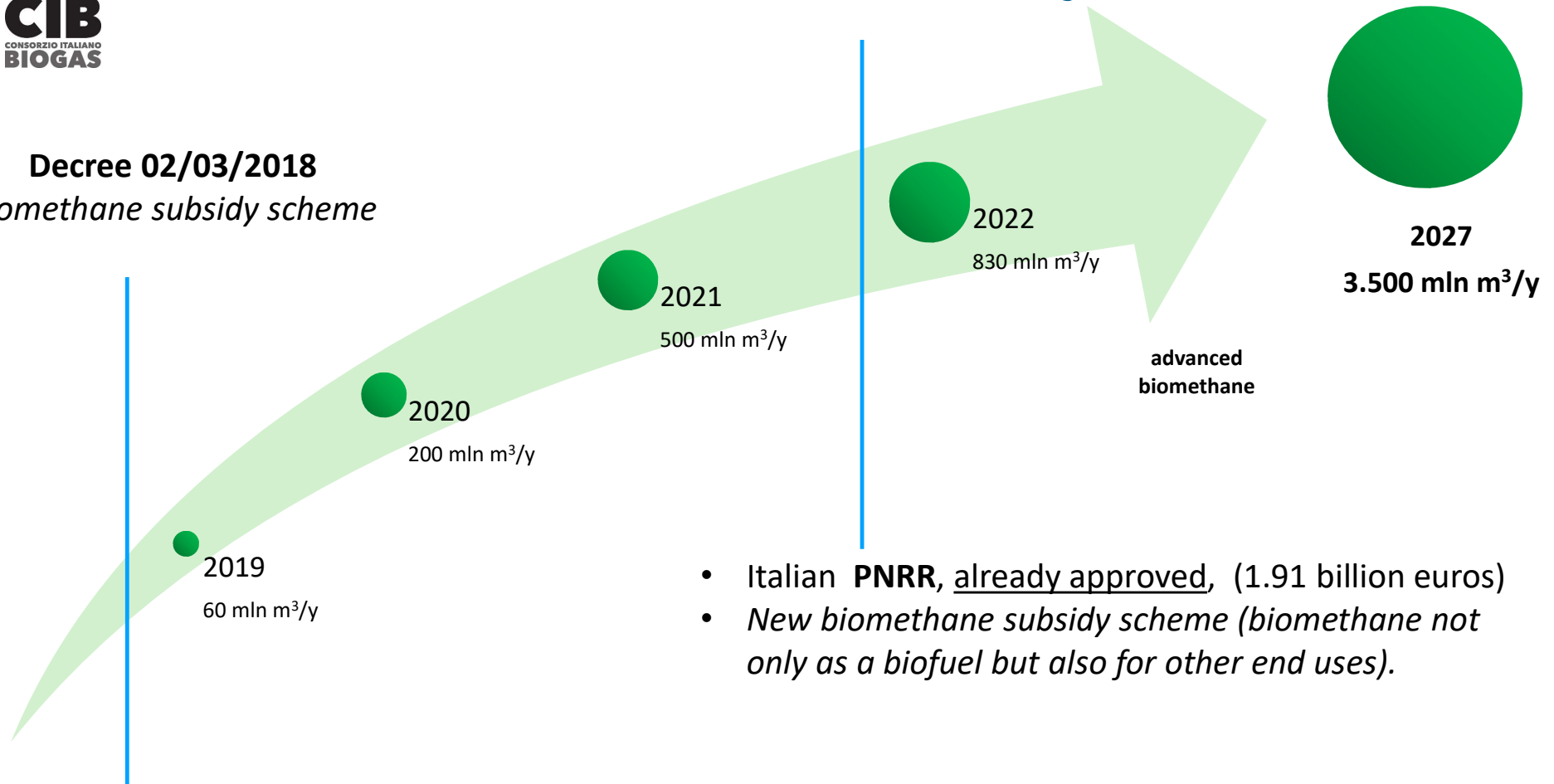


www.snam.it/en/Media/Press-releases/2019/FS-Italiane-Snam-Hitachi-Rail.html

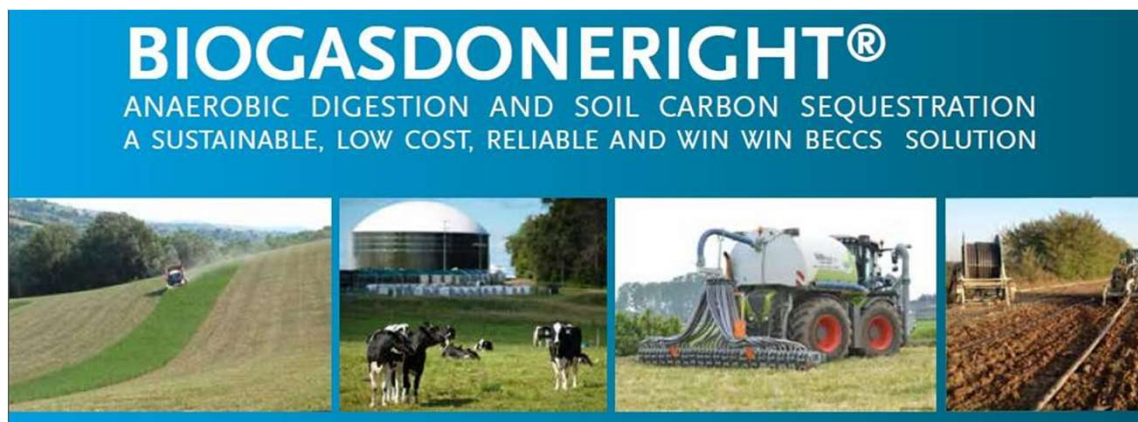
PERSPECTIVE

Advanced biomethane in Italy

Decree 02/03/2018
biomethane subsidy scheme



- Italian **PNRR**, already approved, (1.91 billion euros)
- *New biomethane subsidy scheme (biomethane not only as a biofuel but also for other end uses).*



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Thanks for your
attention!