







# Budoucnost Bioplynu v Evropě

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President  
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## 26 zemí, 36 asociací, 58 firem



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 691755.



## Bioplyn v Evropě dnes

# Bioplynové stanice

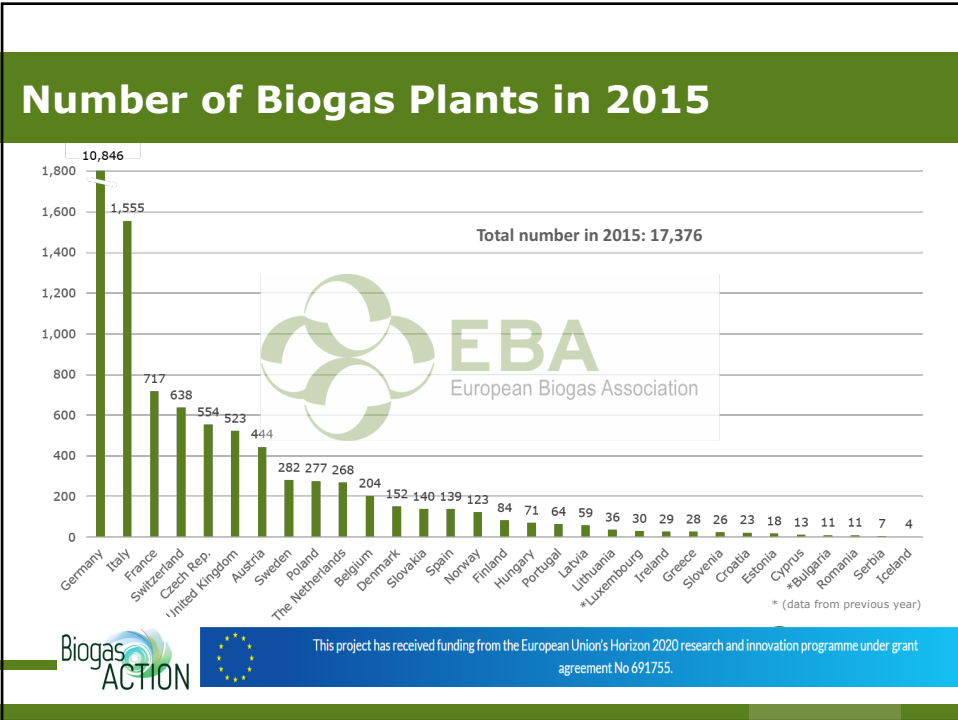
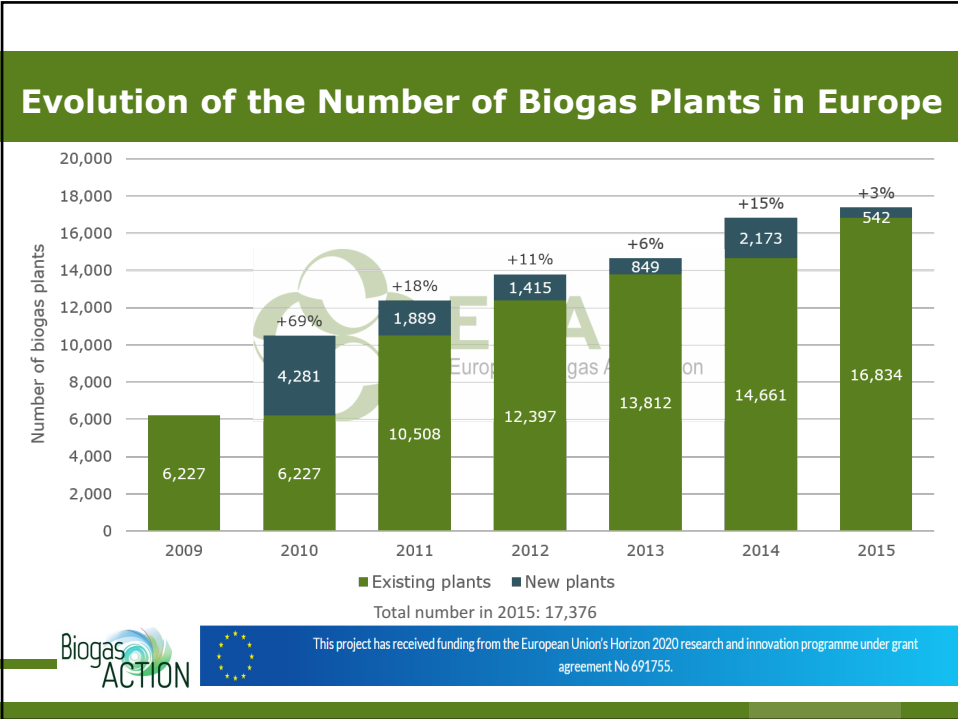


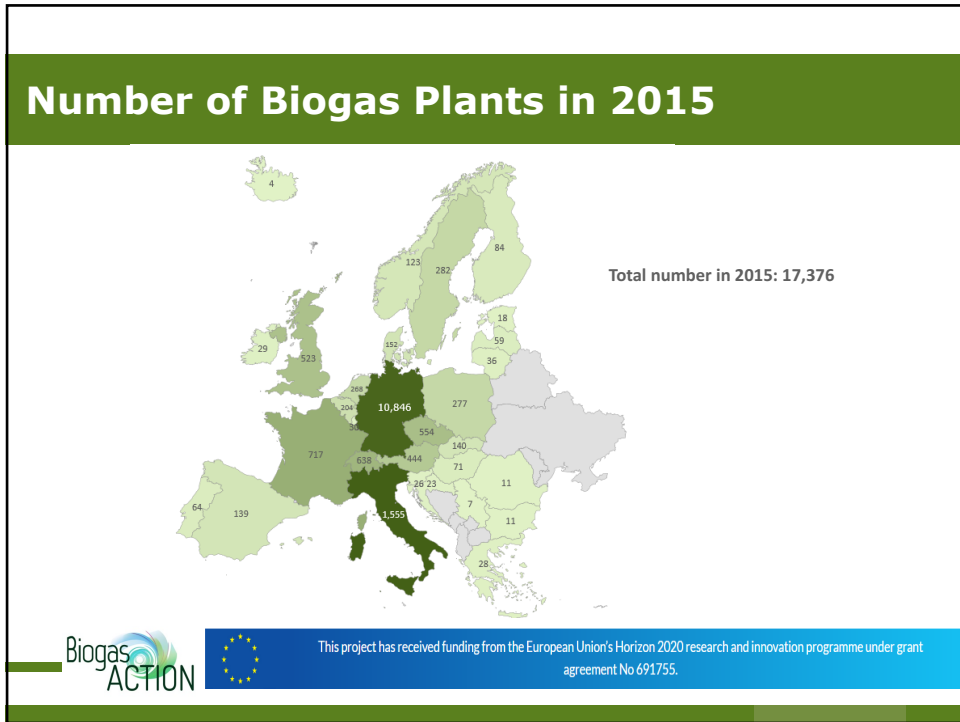


**EBA**  
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**STATISTICAL REPORT 2016**

Annual Statistical Report of the European Biogas Association





## Bioplyn v Evropě dnes

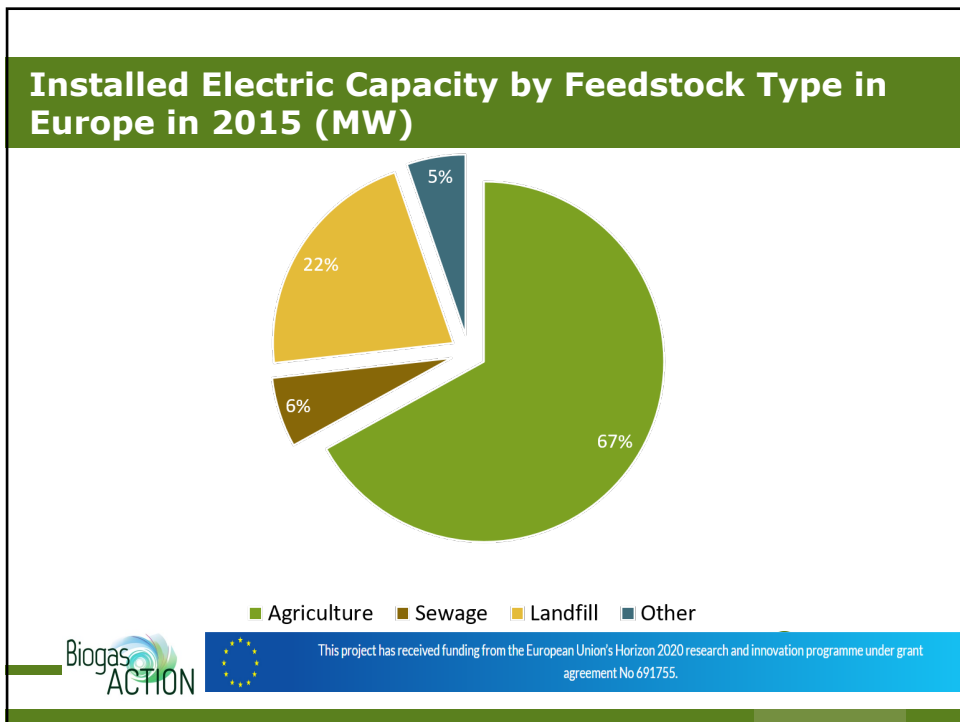
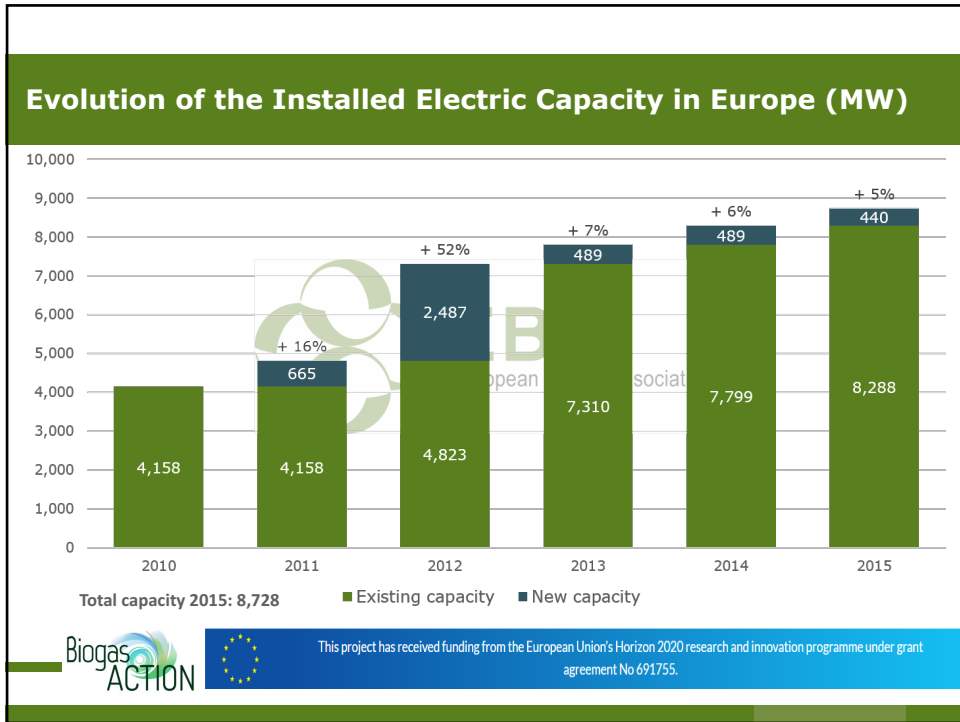
# Výroba bioplynu

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### STATISTICAL REPORT 2016

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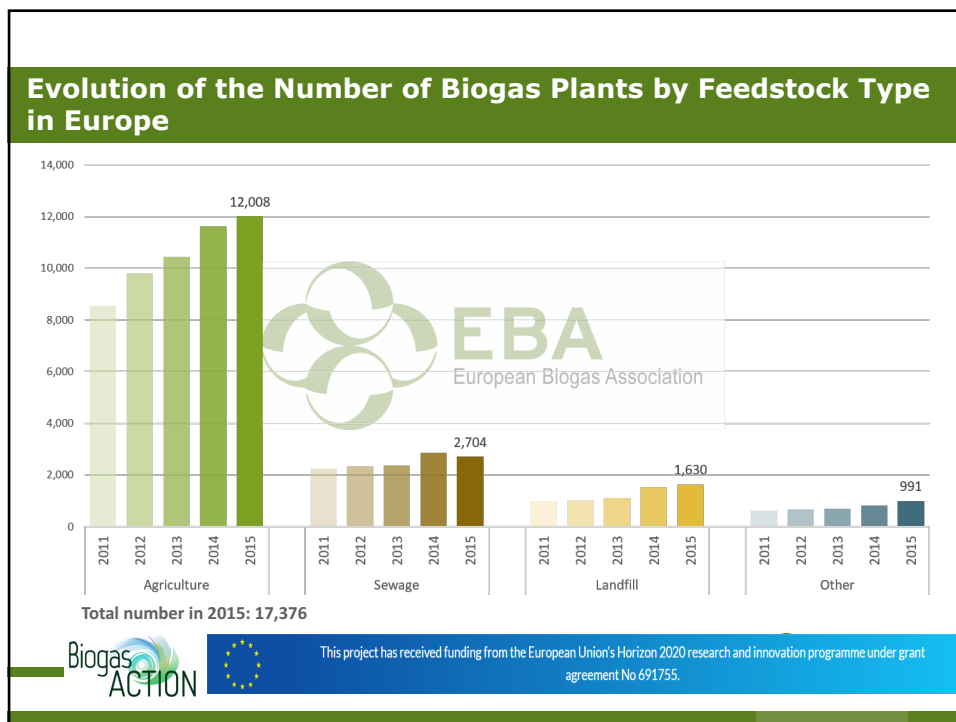


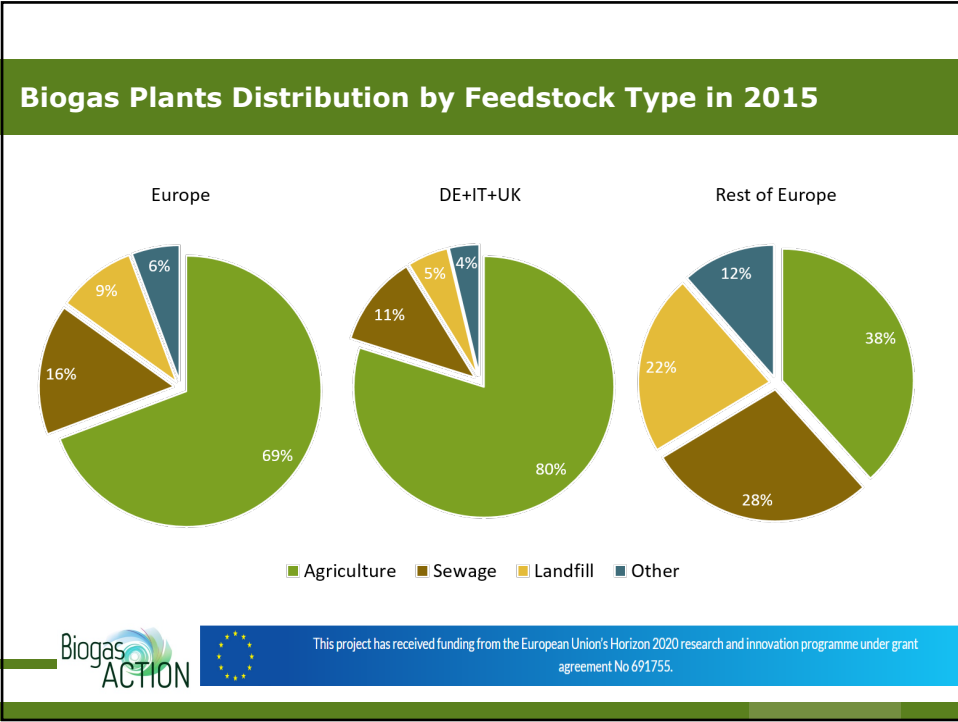
## Bioplyn v Evropě dnes

# Suroviny pro bioplyn







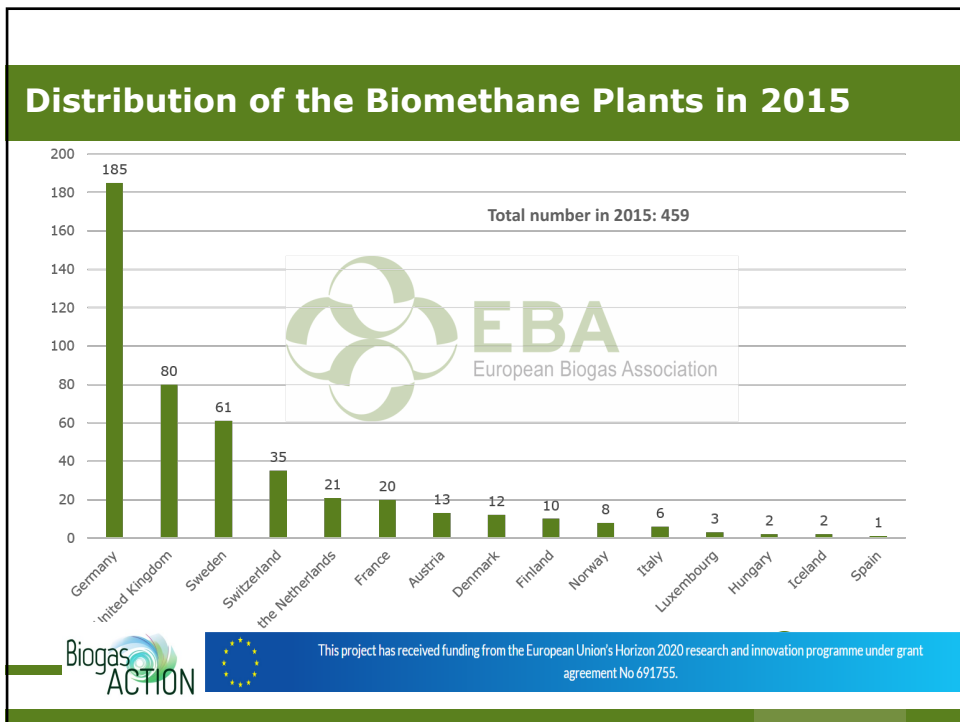
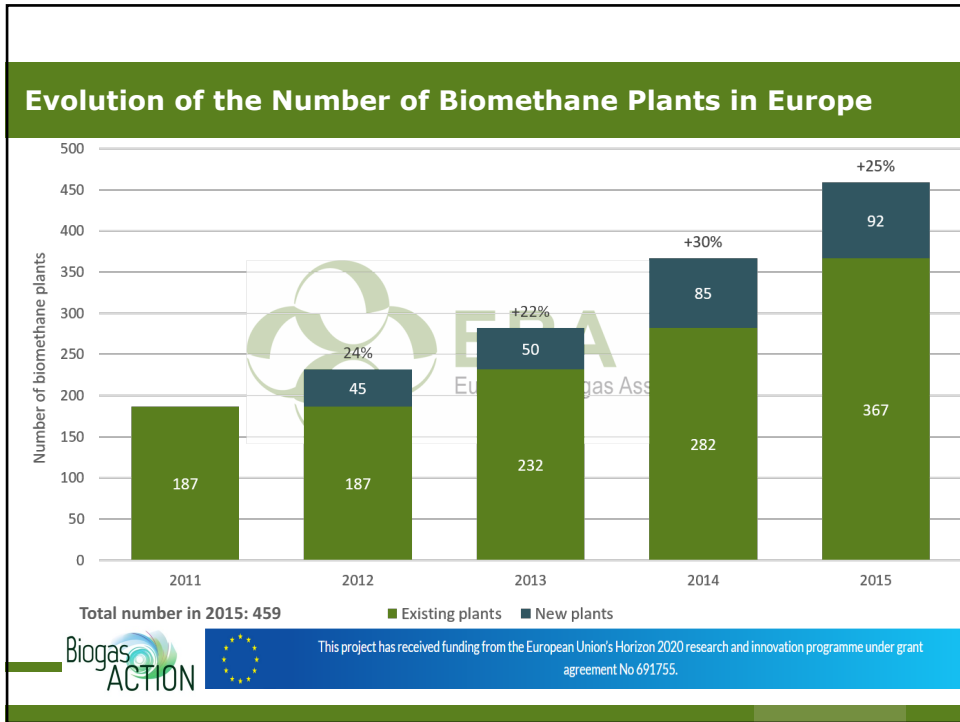


### Bioplyn v Evropě dnes

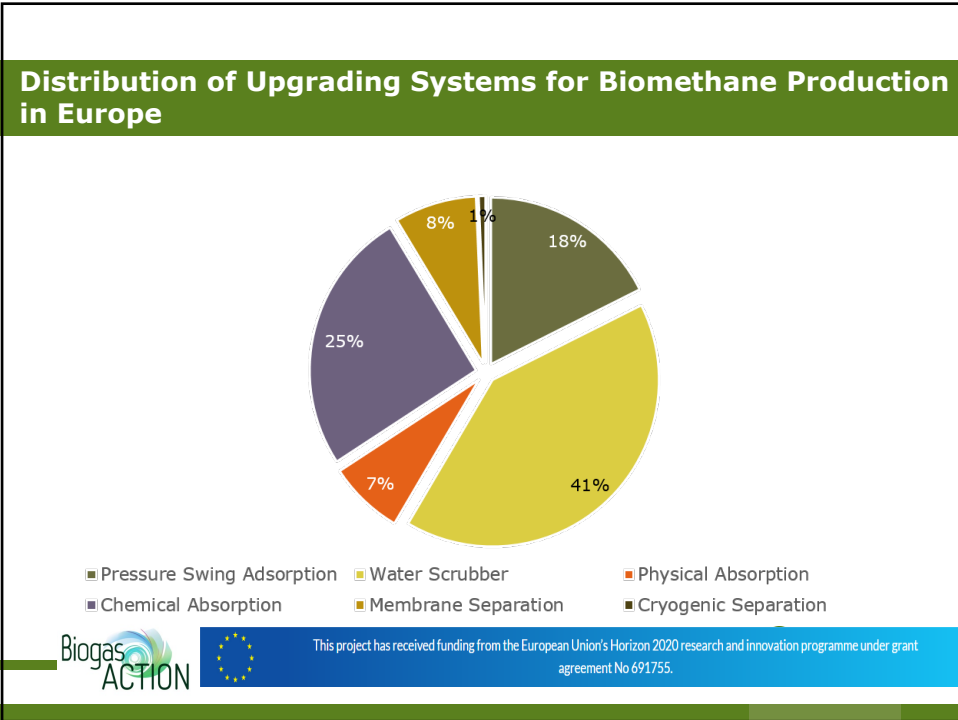
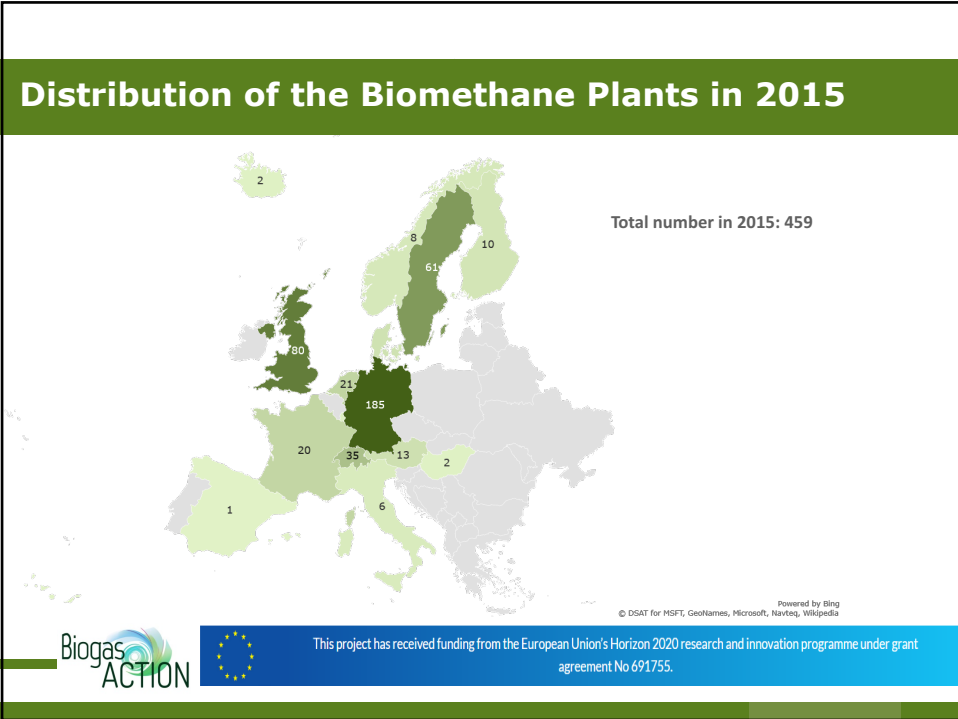
## Biomethan

Biogas ACTION logo



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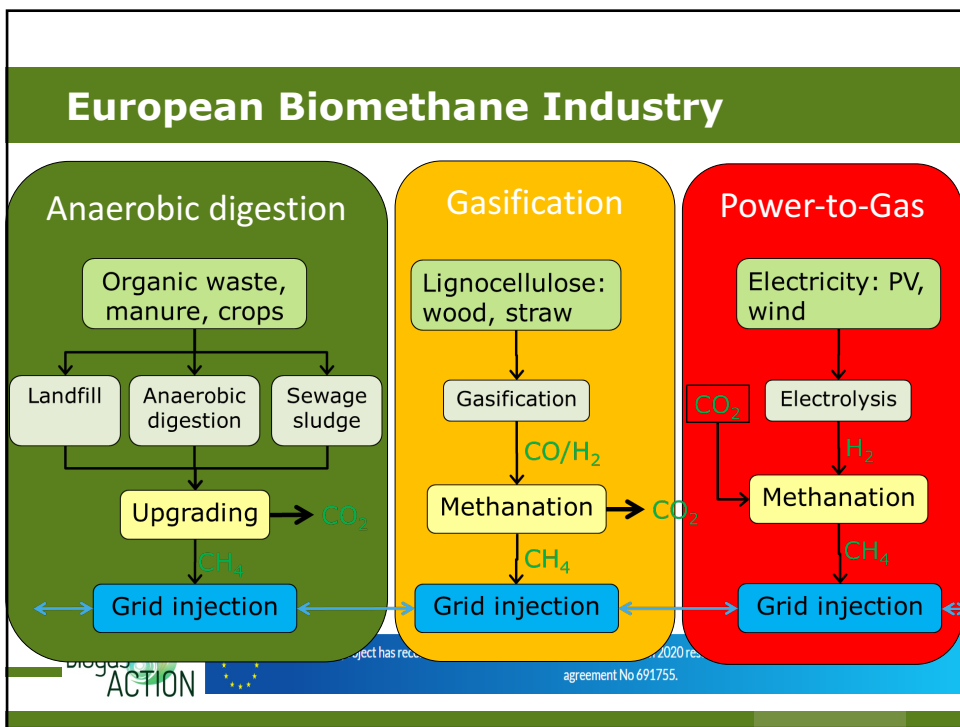






# Budoucnost bioplynu



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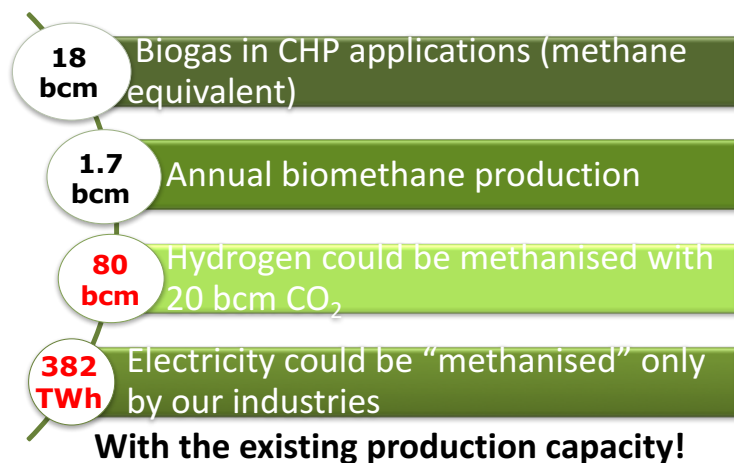
## Why Biomethane (and not H<sub>2</sub>)?

- **Existing infrastructure**, feed-in without any restrictions at any time: Pipelines, network, facilities, storage in caverns/aquifers, gas turbines, appliances compatibility, ...
- 3,5 times **higher storage capacity**: Hydrogen needs much more space (or pressure...) for the same amount of energy
- **Existing and affordable consumer applications** – CH<sub>4</sub> is already an universal energy carrier - **CNG** cars and busses, **CNG/LNG** trucks, ships, industry
- Methane is also a **raw material!**
- **Flexibility**: depending on the market situation and the infrastructure, energy can be transferred between different energy carriers.

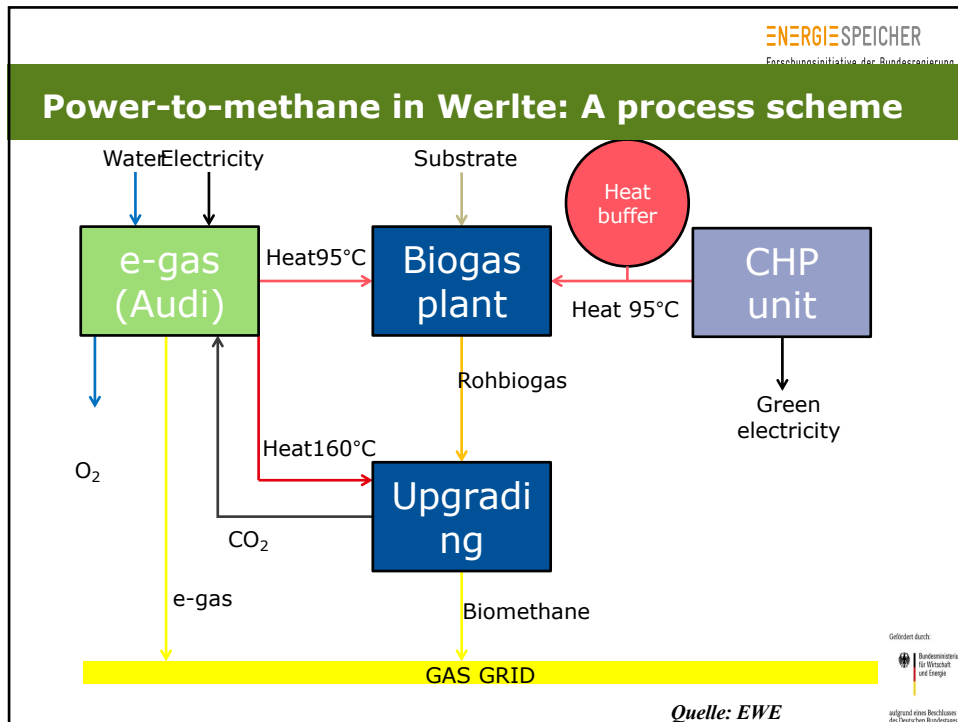


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## Biomethane Statistics & P2M Capacity



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### Technical Data Audi e-gas plant (Werlte)

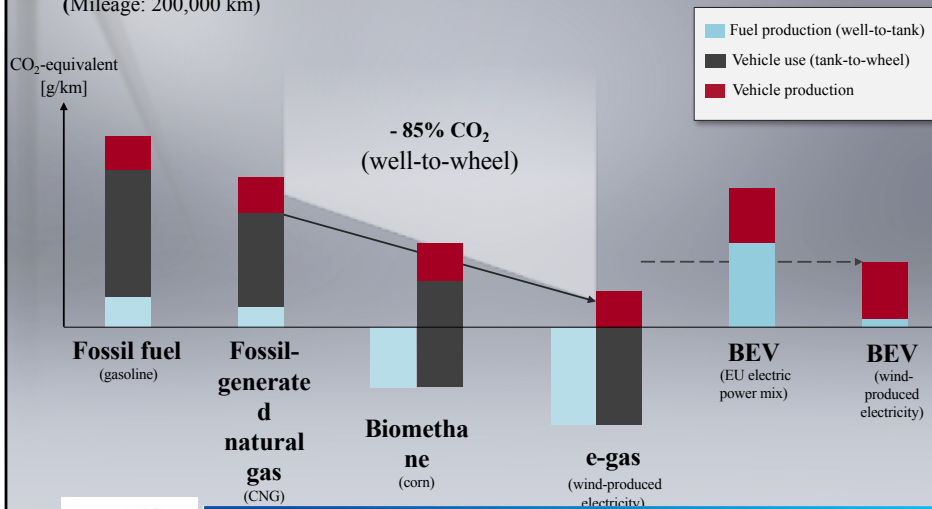
Energy content e-gas (average)	13,85 kWh/kg
Electricity input (prognosis)	26 – 29 GWh/a
Power input electrolyzers	3 x 2 MW
Efficiency „power to gas“ (with using heat)	54 % → 70 %
Max. H <sub>2</sub> output	1300 Nm <sup>3</sup> /h
Max. H <sub>2</sub> storage time	60 min
Max. e-gas output	325 Nm <sup>3</sup> /h
Operation time (prognosis)	4.000 h/a
e-gas output (prognosis)	1000 t/a



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### Greenhouse gas footprint: PtG as good as BEV running on green power





(Mileage: 200,000 km)



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### Power to Gas with biological methanation

From laboratory to turnkey solution

Laboratory	Technical scale	Demonstrator	Product
			
	2,5 Nm <sup>3</sup> H <sub>2</sub> /h 12,5 kW Elektrolysis	60 Nm <sup>3</sup> H <sub>2</sub> /h 300 kW Elektrolysis	>400 Nm <sup>3</sup> H <sub>2</sub> /h >2000 kW Elektrolysis
Fundamental research	Testing phase	Upscaling and demonstration	Project development turnkey solution
2012	2013	2015	2017

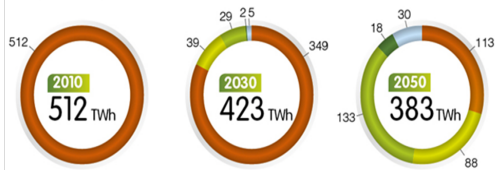
**VISSMANN**

MicroEnergy Power-to-Methane turnkey solution  
Slide 7 06.09.2017 © Viessmann Werke

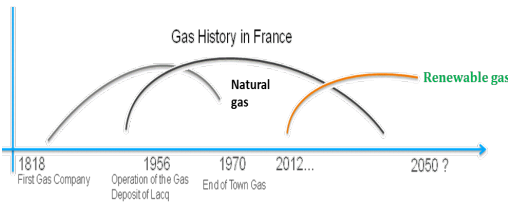
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### Gas Future: 2<sup>nd</sup> Transition in Progress



France - scenario from ADEME of gas energy in the grid  
Source: GRDF 2016



Gas History in France

1818 First Gas Company

1956 Operation of the Gas Deposit of Lacq

1970 End of Town Gas

2012... 2050 ?

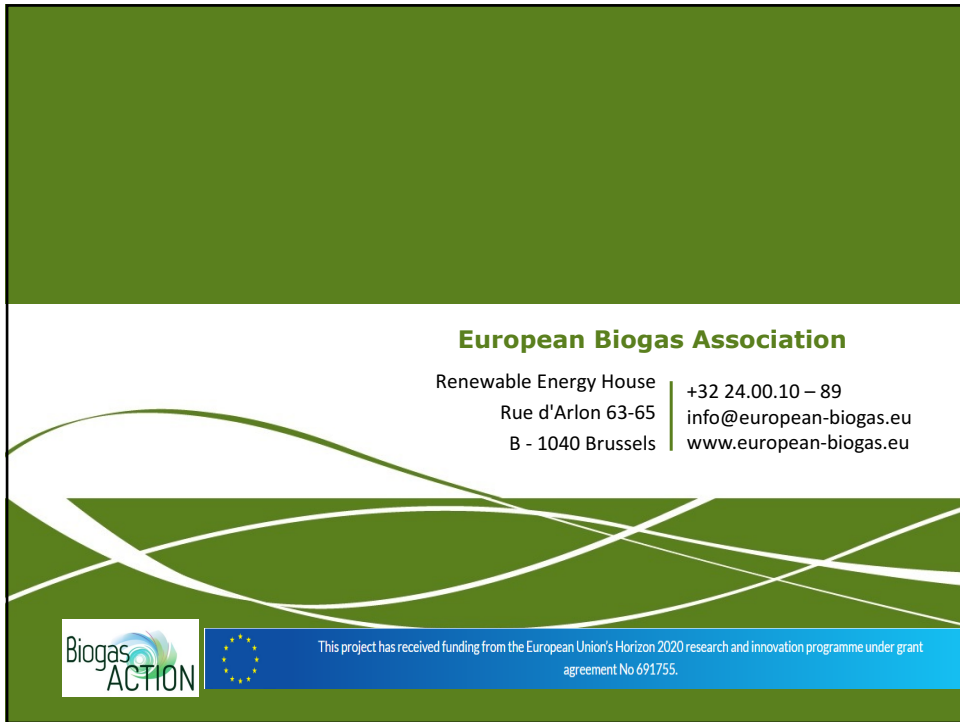
Natural gas

Renewable gas

Source: ENGIE 2017



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