Biogas & Biomethane

Workshop on the Supply Potentials and Renewable Gases for TYNDP 2018

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7th of December 2017

EBA
European Biogas Association

What is EBA?

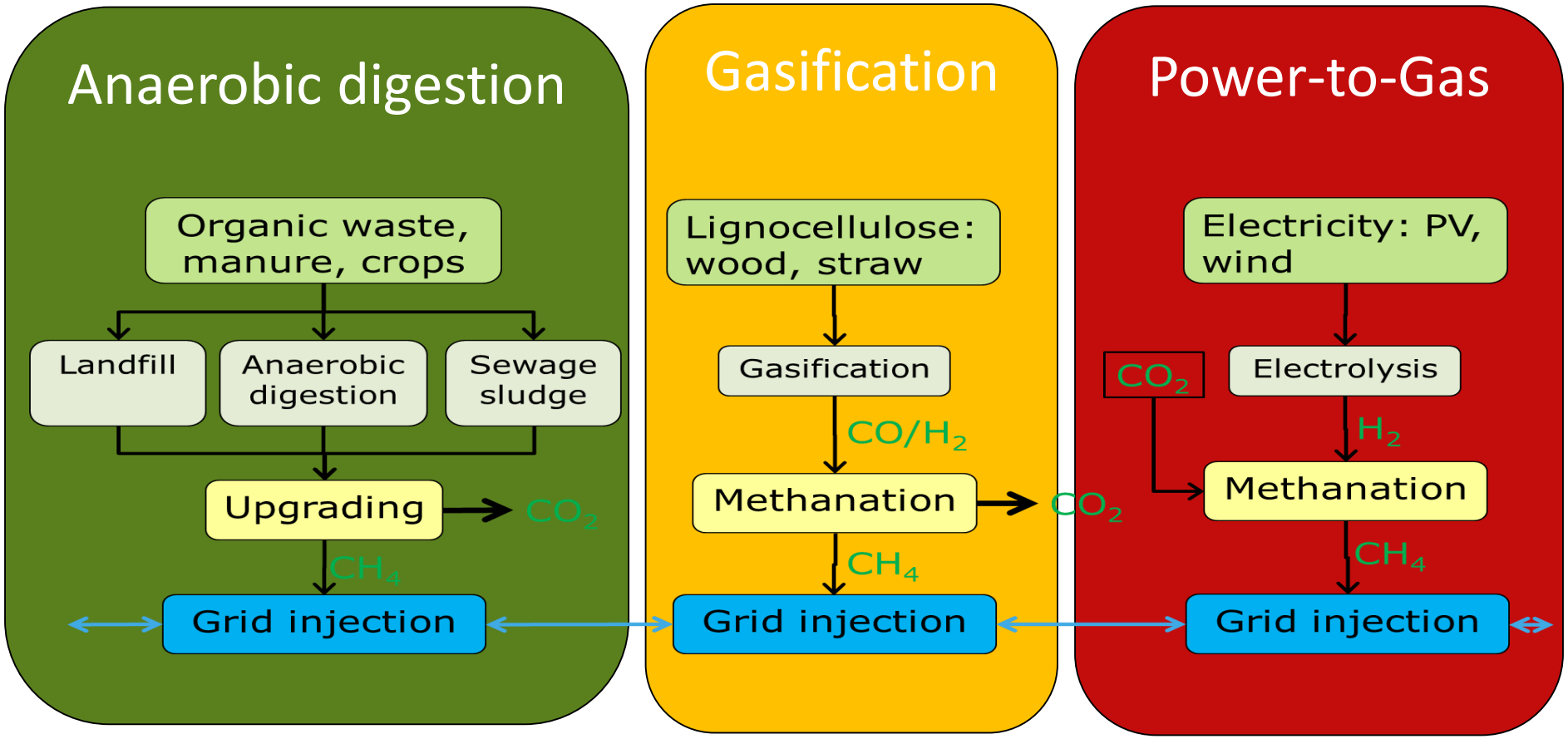
- **Non-profit organisation** founded in 2009
- Covers biogas and biomethane from **anaerobic digestion** and biomass **gasification**
- Well-established **network and communication platform** for exchanging information and expertise in biogas and biomethane
- **Member of** EREF and EUFORES, co-operation with gas, waste and renewable associations
- Based in Brussels, **Renewable Energy House** (REH)

26 countries – 36 National Organisations
58 Companies – representing >7,000 stakeholders

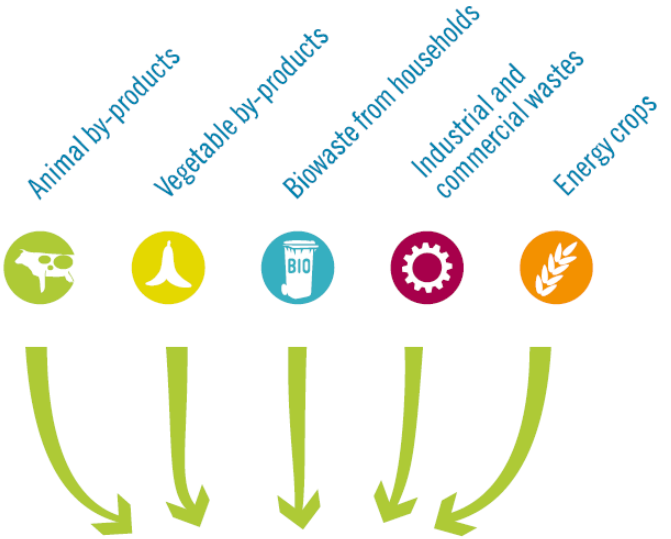
www.european-biogas.eu

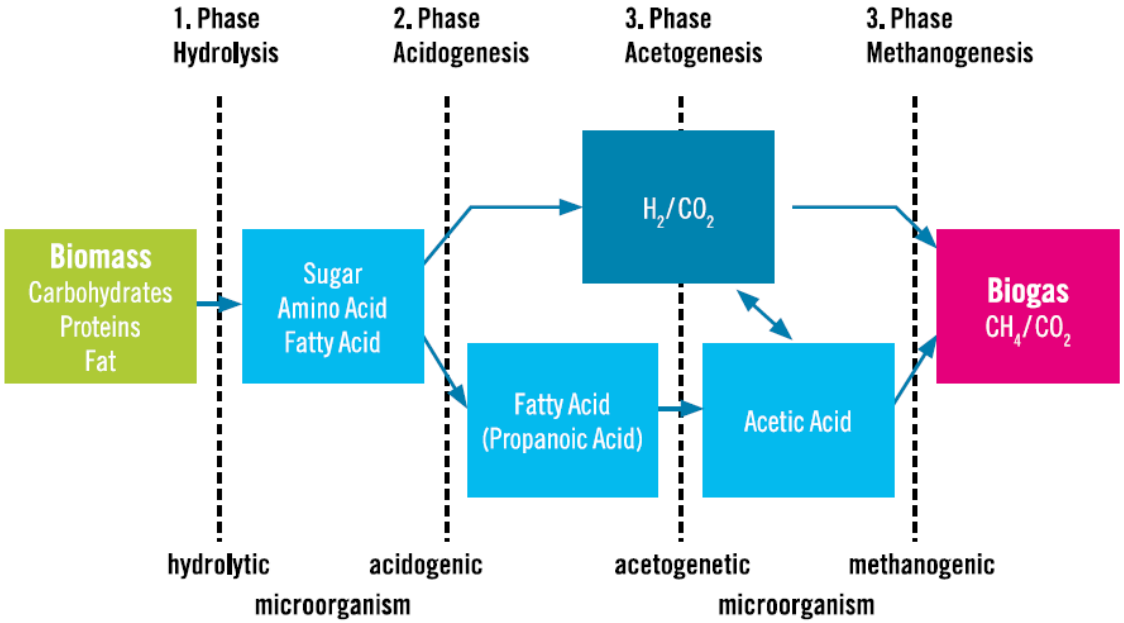
Associated members (companies, universities, private persons)

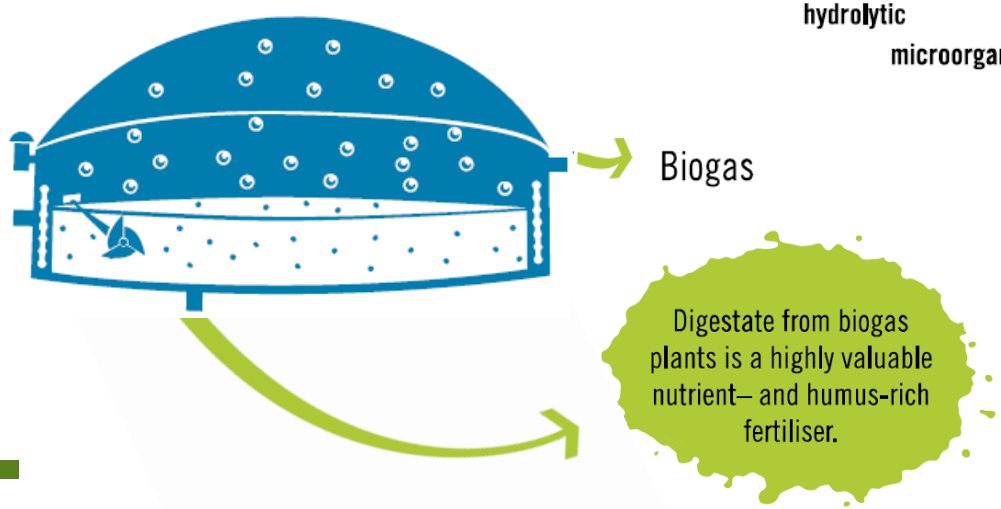
European Biomethane Industry



Biogas production process

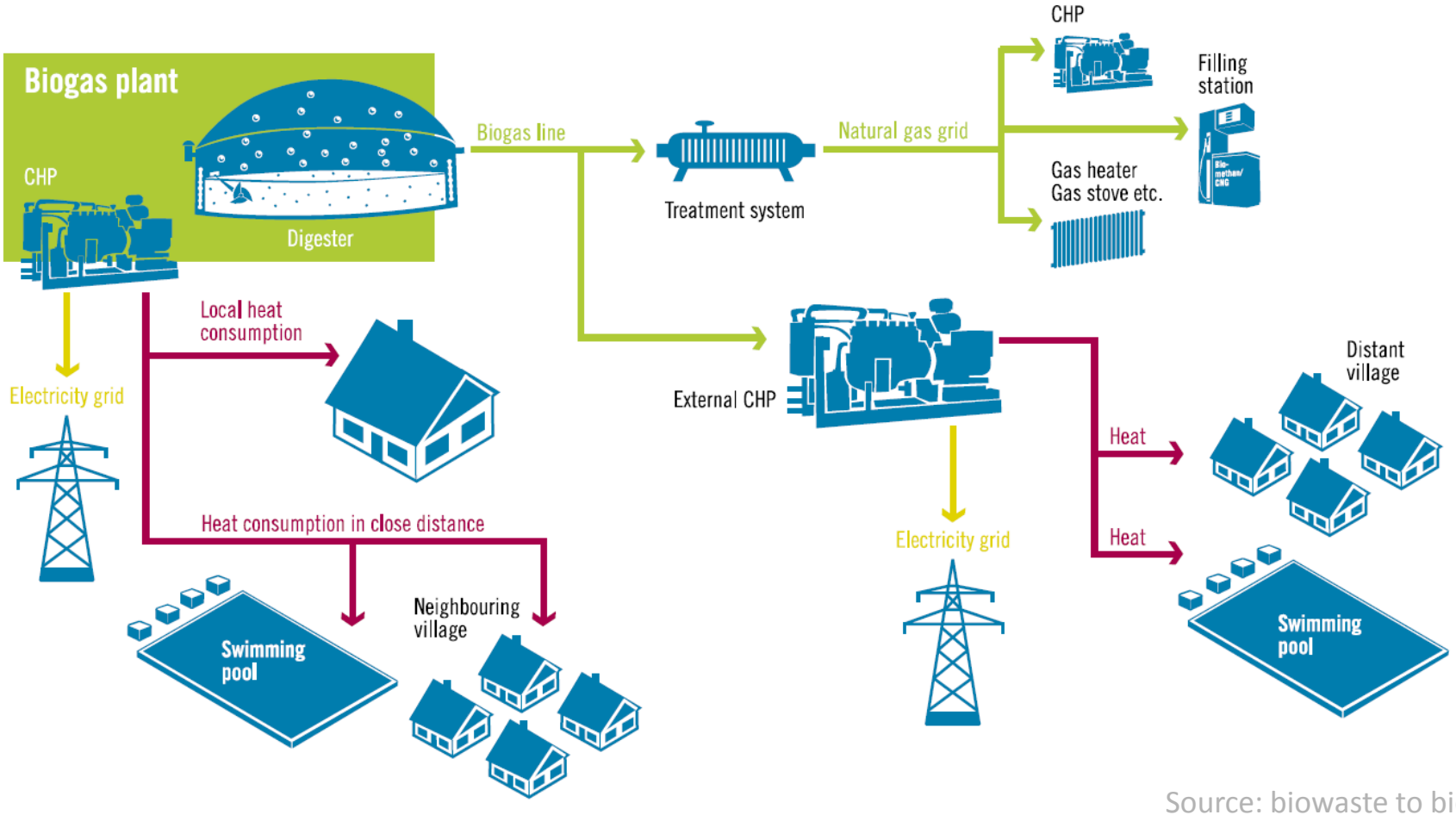






Source: biowaste to biogas (Fachverband Biogas)

End-use products



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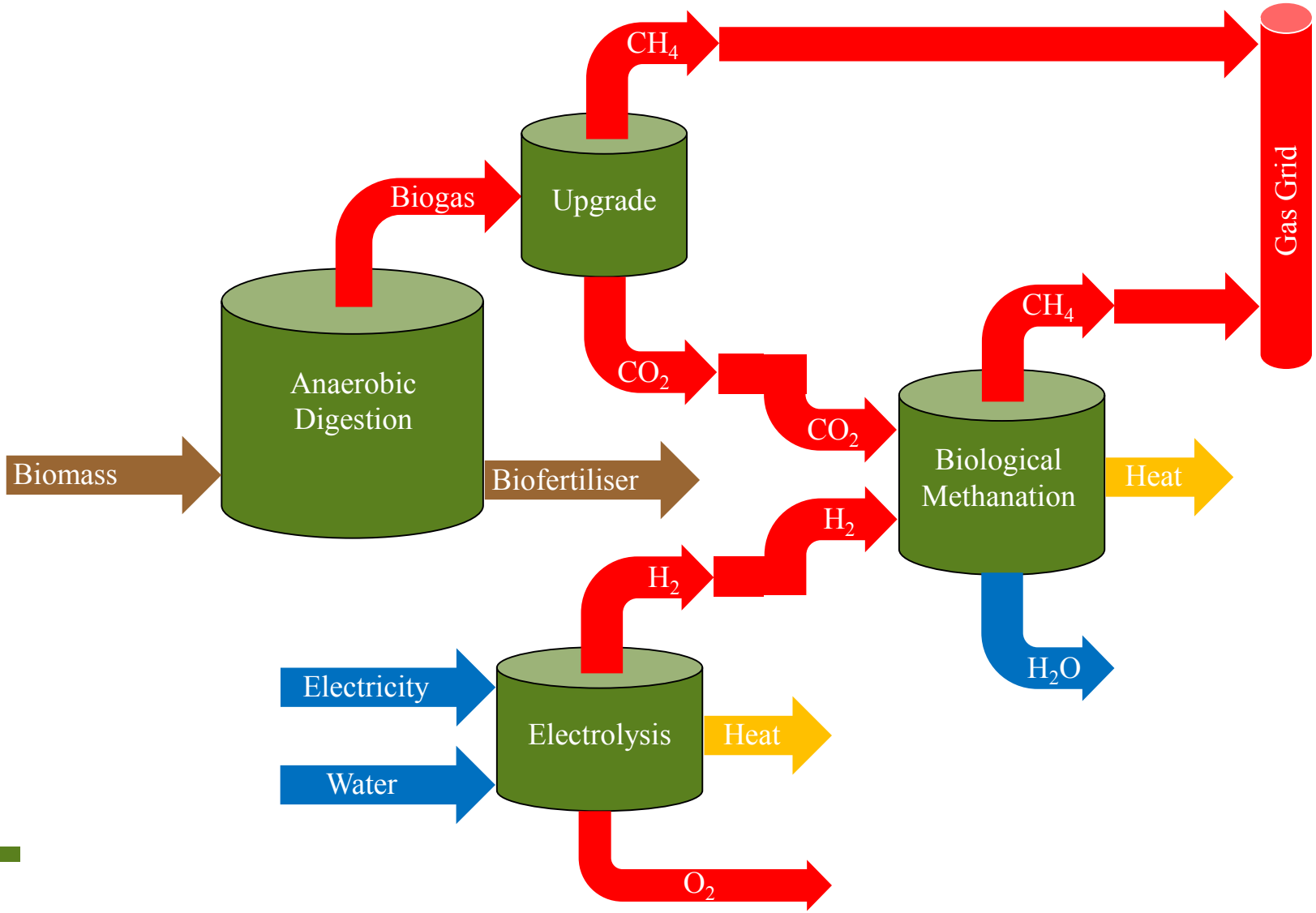
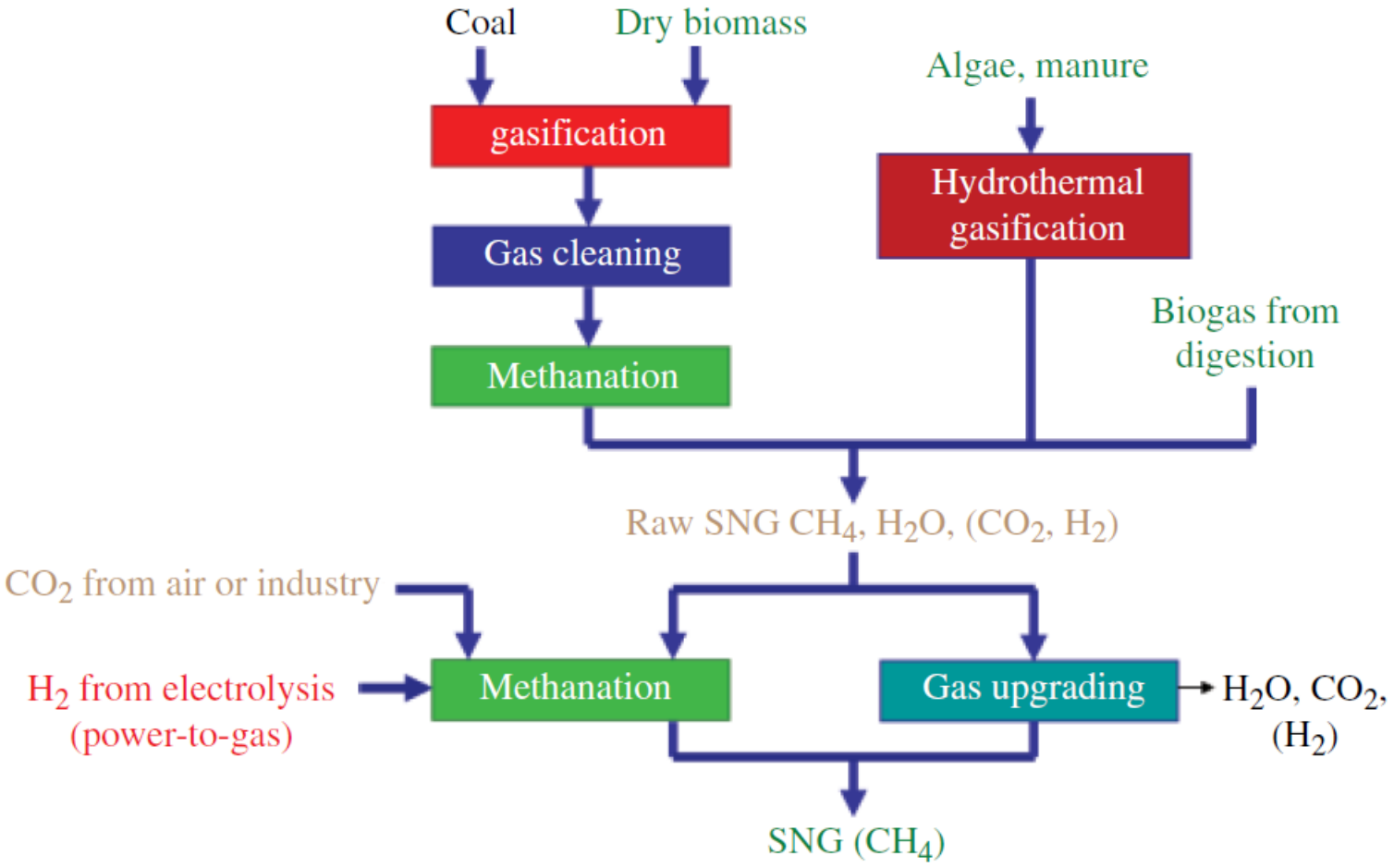
Power to methane (P2M or P2G)



Biomass gasification



Source: Synthetic Natural Gas from Coal, Dry Biomass, and POWER-TO-GAS Applications (Tilman 2016)

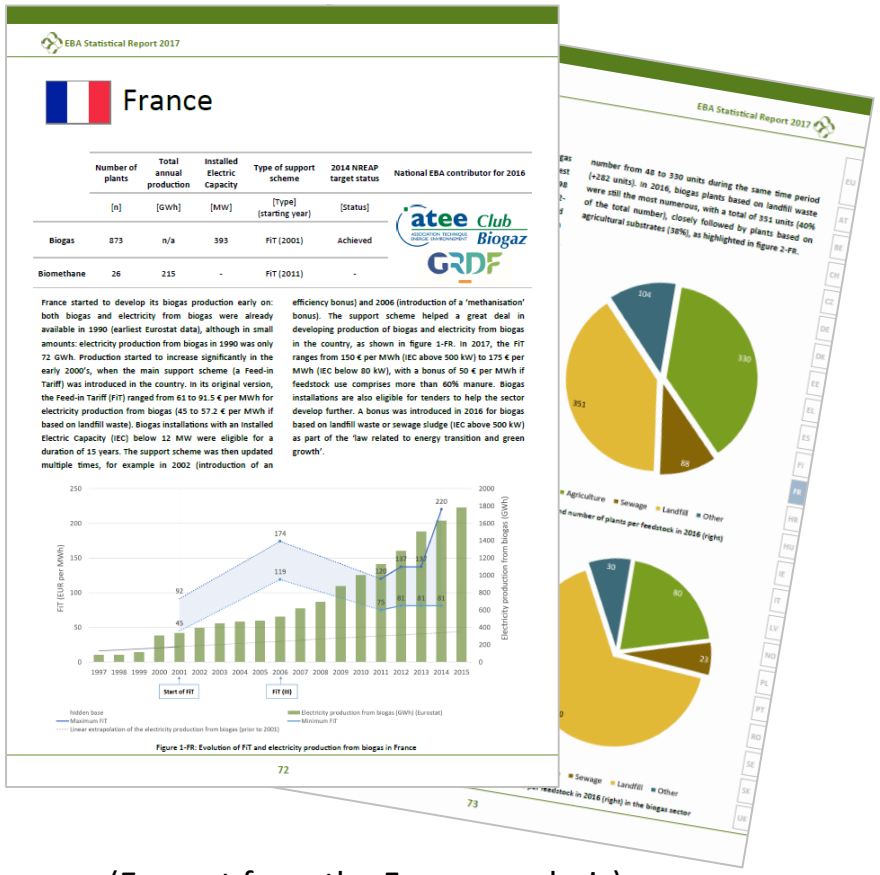
Gaya Project (France)

Biomethane vs H_2

- ***Existing infrastructure***, feed-in without any restrictions at any time: Pipelines, network, facilities, storage in caverns/aquifers, gas turbines, appliances compatibility, …
- ***Flexibility***: depending on the market situation and the infrastructure, energy can be transferred between different energy carriers.
- 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_4 is already an universal energy carrier - **CNG** cars and busses, CNG/**LNG** trucks, ships, industry
- Methane is also a ***raw material***!

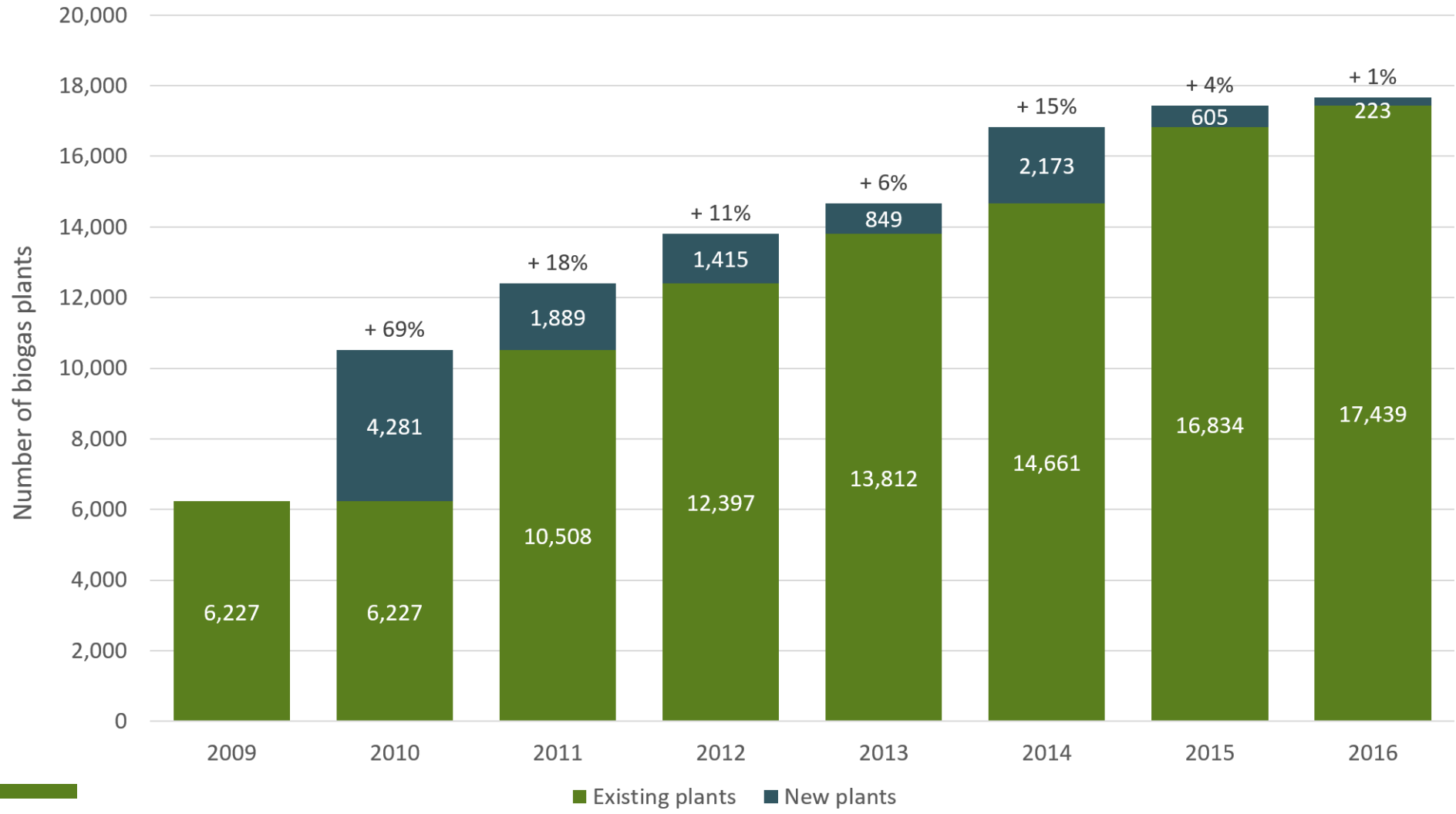
Statistical Report of the EBA 2017

- Annual **130 + pages** report
- **Extensive analysis of the European biogas and biomethane sectors** (coverage of 32 EU countries)
- **Detailed analysis of 23 EU countries** providing updated statistics and national legal background evolution
- Based on the expertise of **national associations and industries**
- Available to purchase for non-EBA members
- More info: info@european-biogas.eu

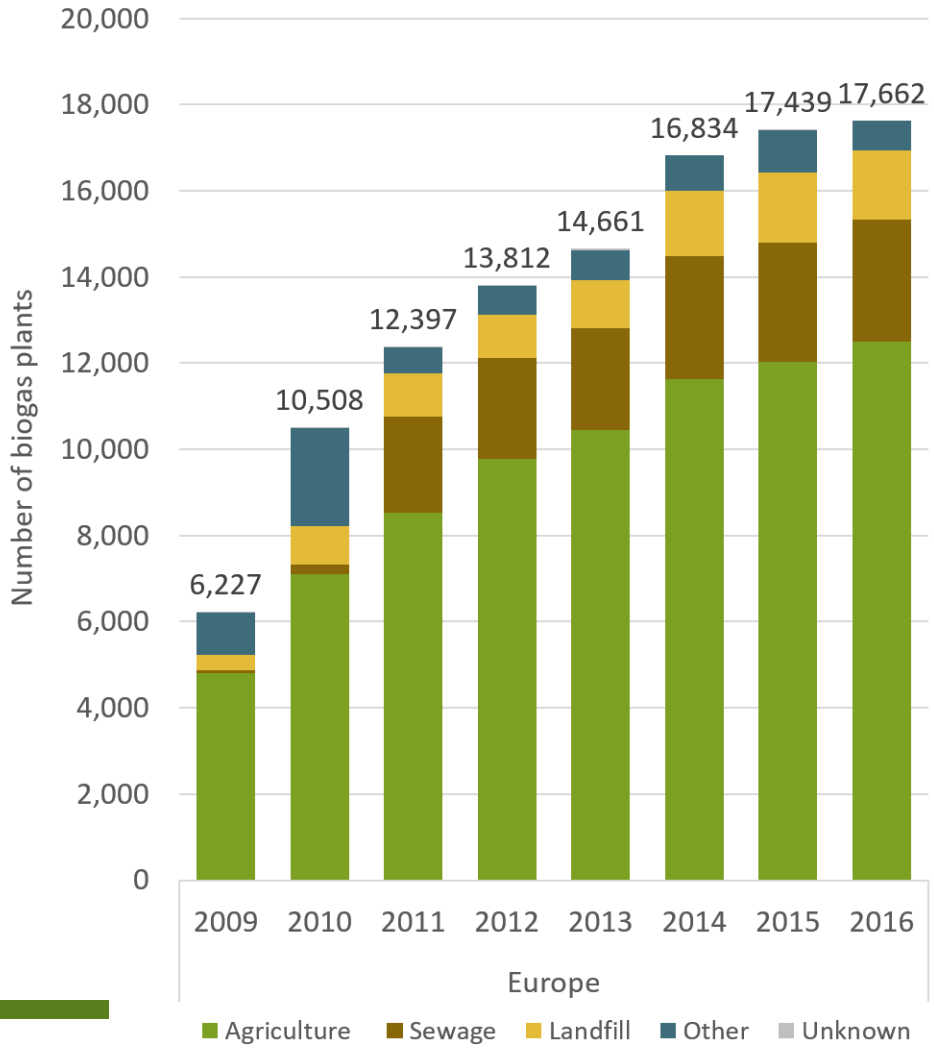


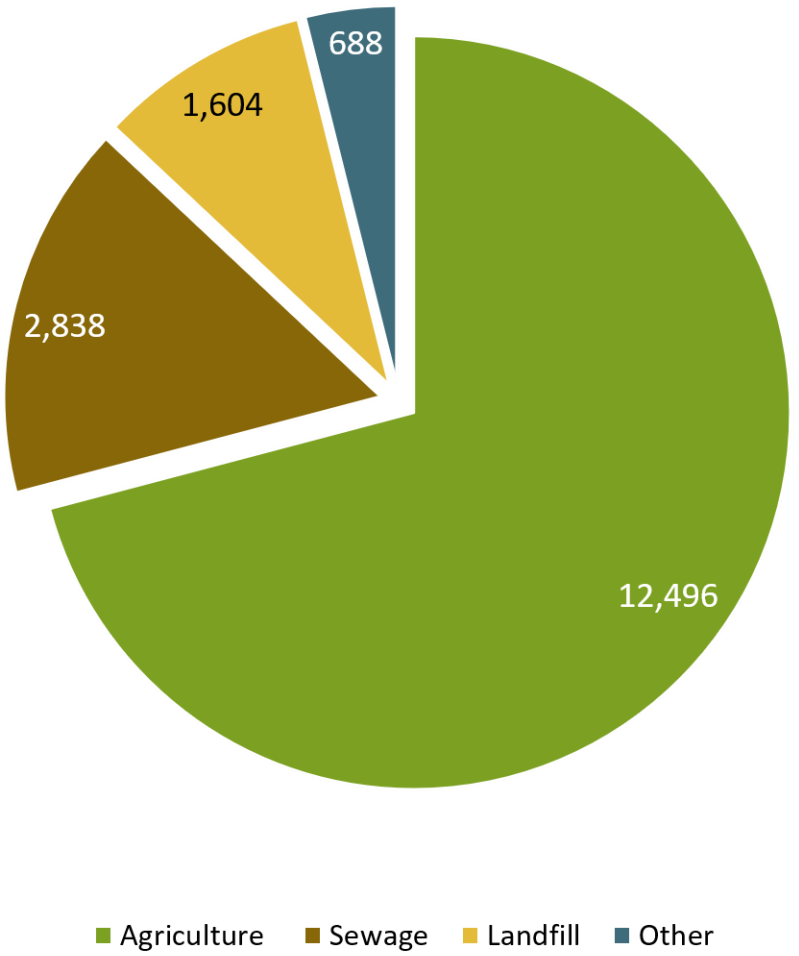
(Excerpt from the France analysis)

Evolution of the number of biogas plants in Europe

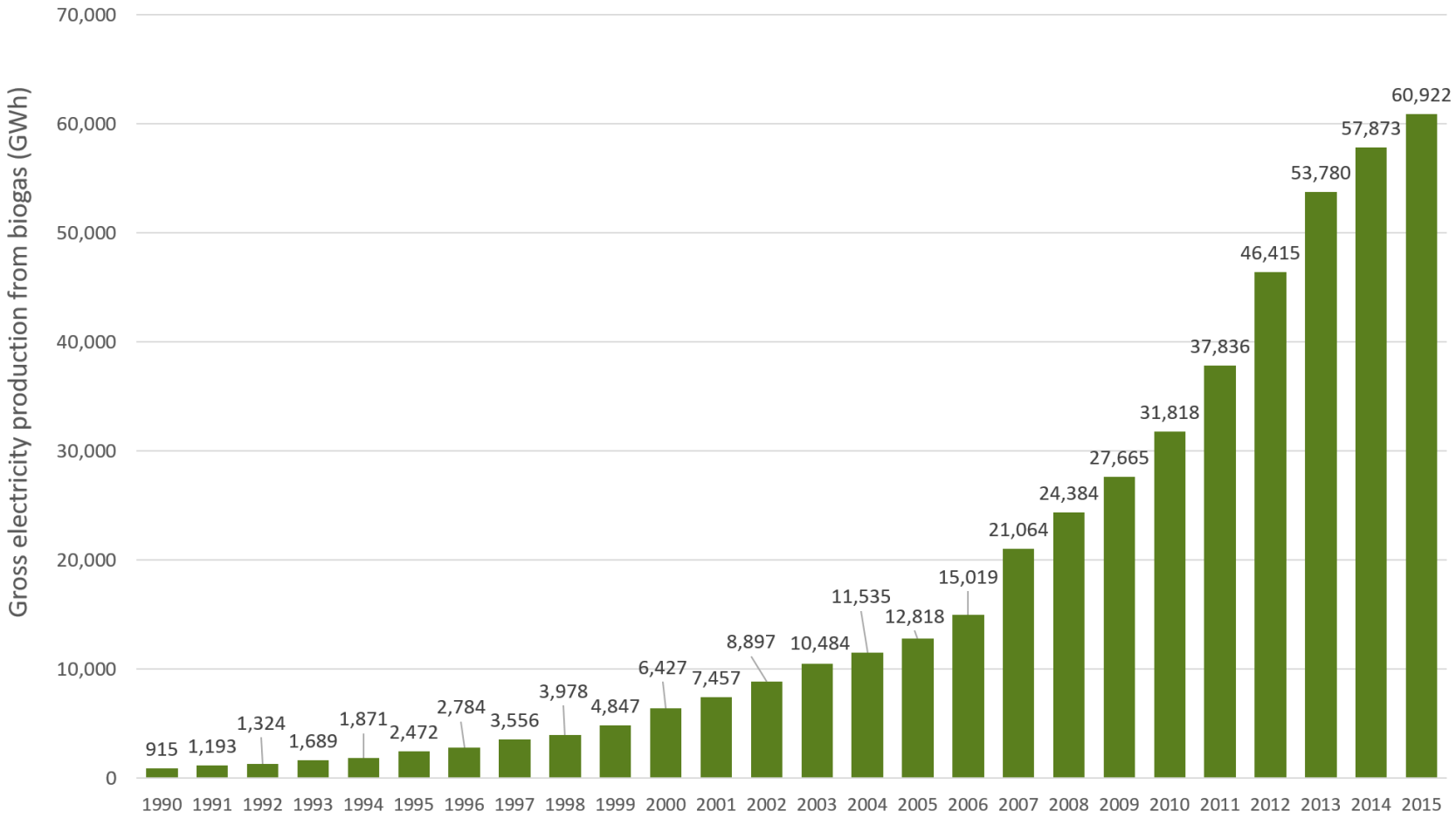


Evolution of the number of biogas plants in Europe



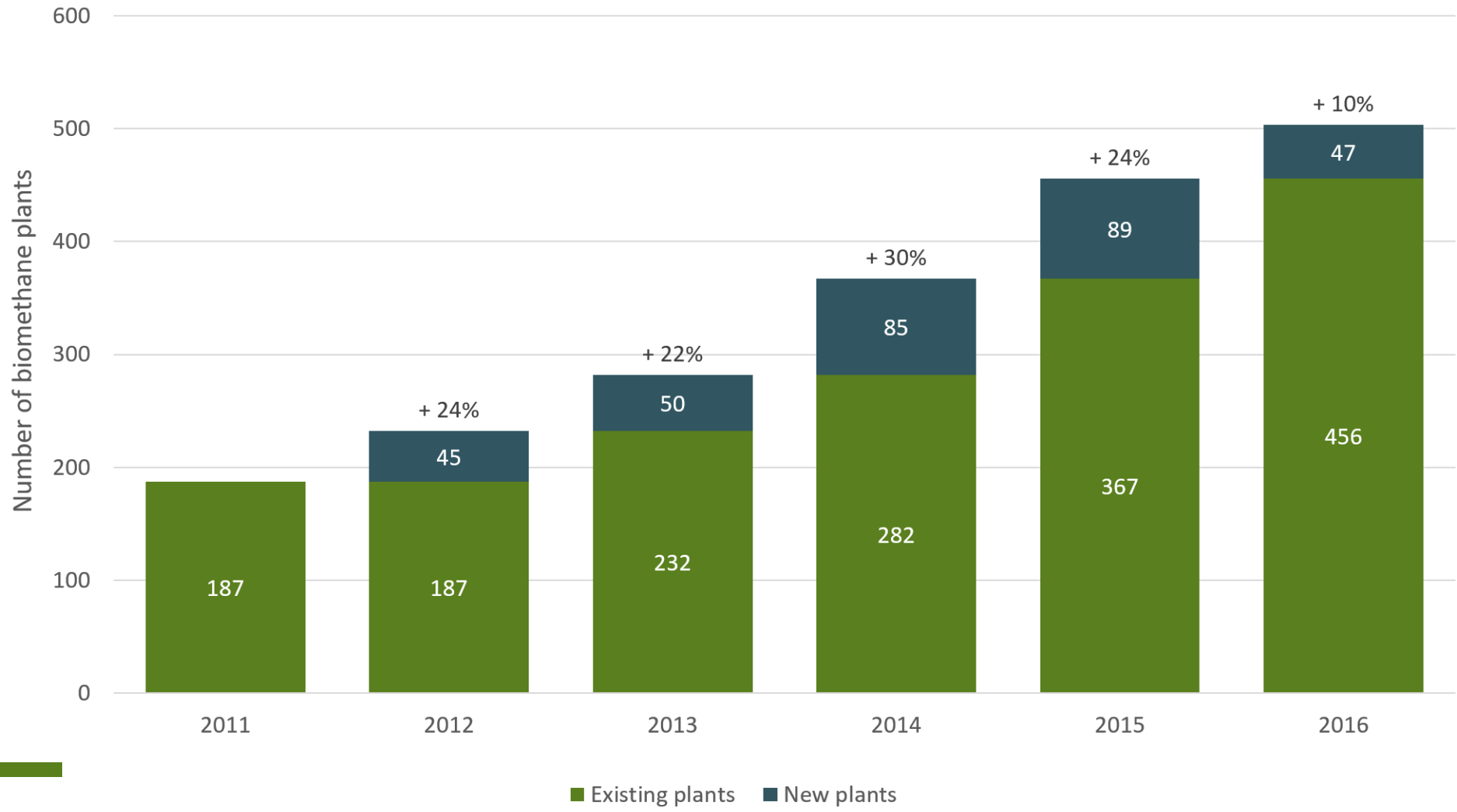


Electricity production from biogas in the EU28

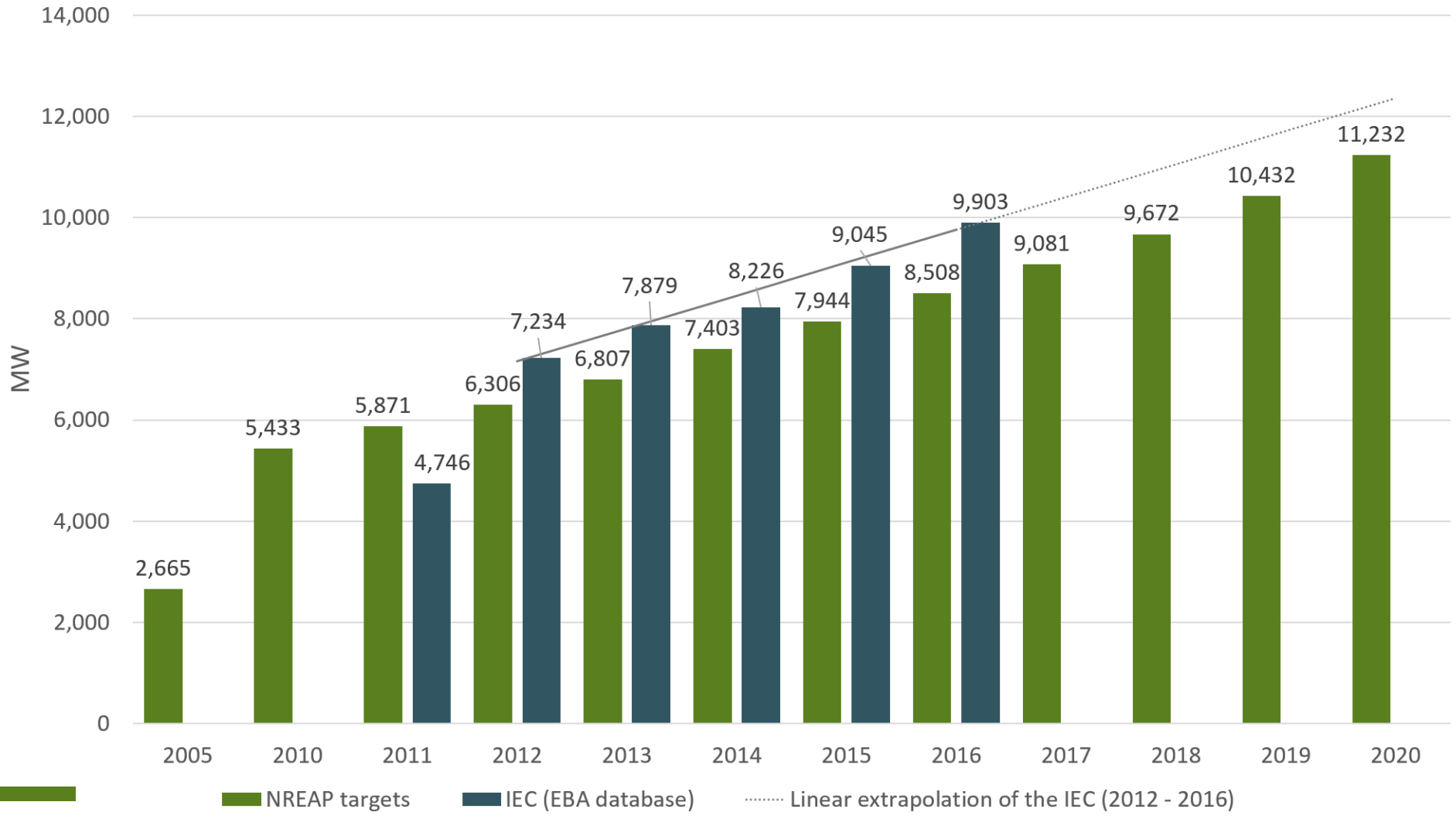


Source: Eurostat

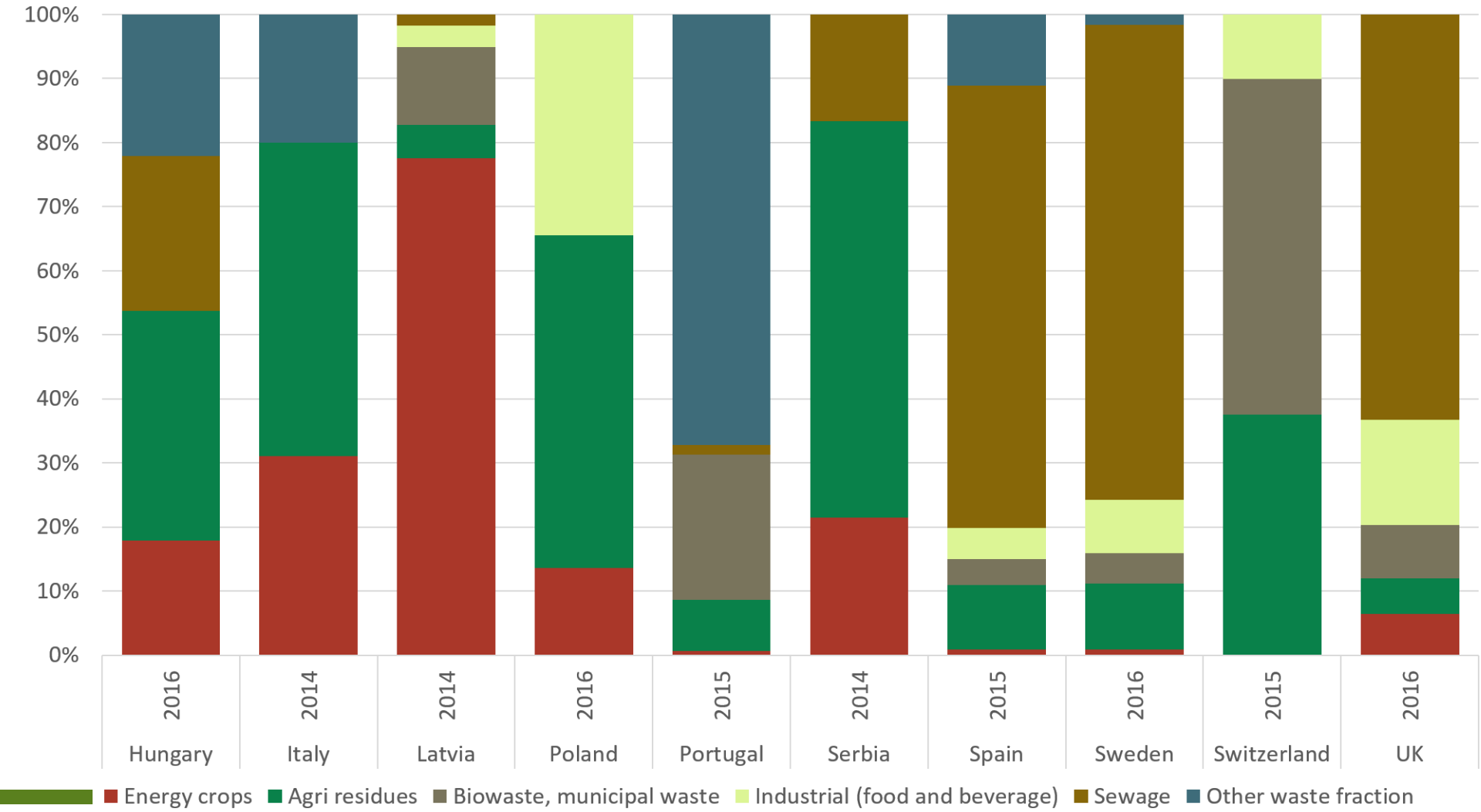
Evolution of the number of biomethane plants in Europe



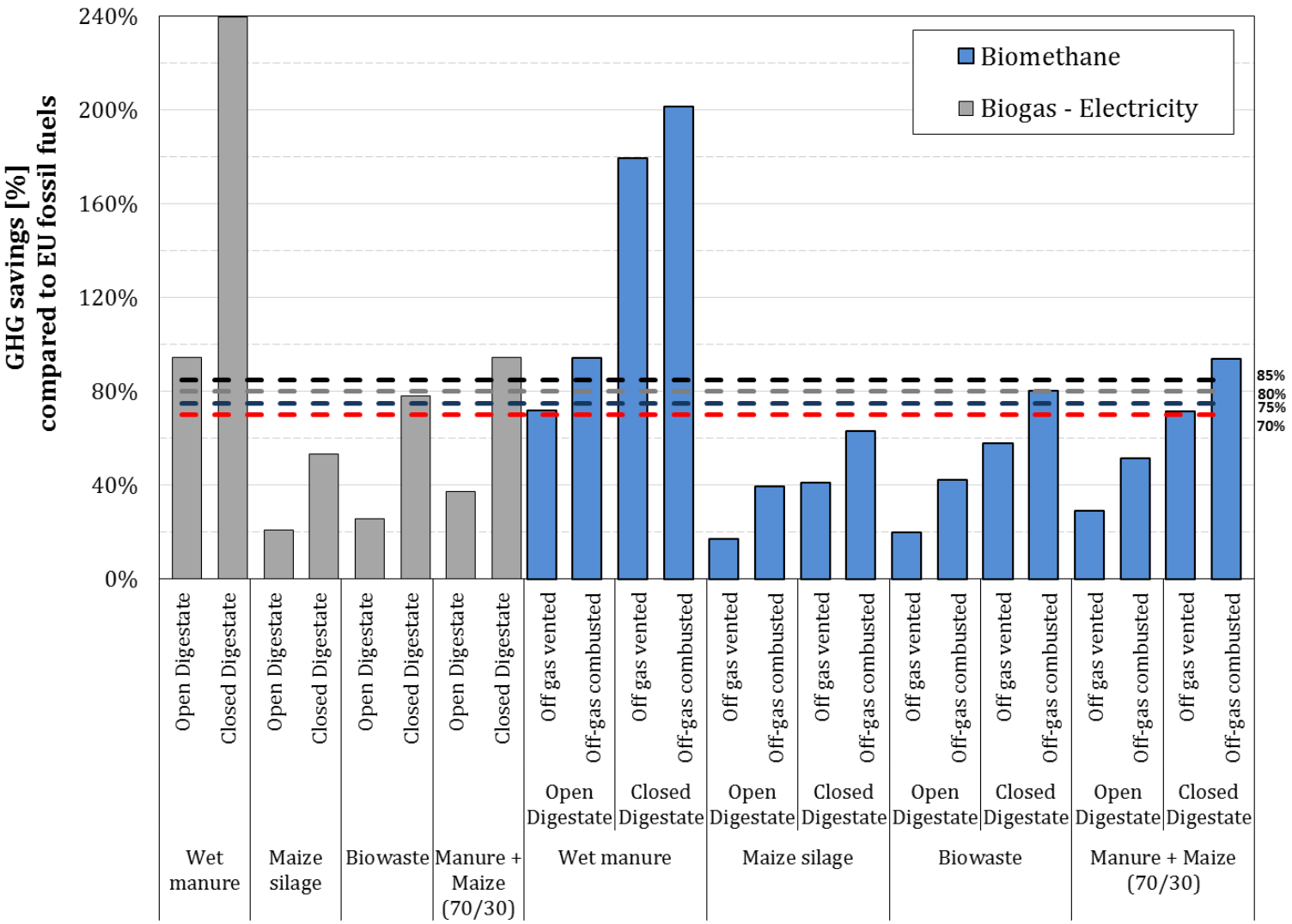
IEC, NREAP targets and forecast for the EU28



Feedstock use for biogas production in European countries as a mass percentage



GHG savings of biogas and biomethane



Source: solid and gaseous bioenergy pathways: input values and GHG emissions (JRC 2016)

EBA promotes sustainable use of resources through biogas & biomethane technologies

We estimate that **by 2020**, biogas has the potential to contribute **> 1.5%** of the EU's primary energy mix and **5%** of the EU's natural gas consumption (in energy equivalent terms).

We estimate that **by 2030,** the potential for biogas production from **AD > 30 bcm/yr**. Adding the potential from **gasification**, an estimate for the total production of biomethane is **> 50 bcm/yr**, equivalent to about **10%** of EU's current natural gas consumption.

4th EBA Conference

Antwerp (Belgium)
24 – 26th of January 2018

Thank you

European Biogas Association

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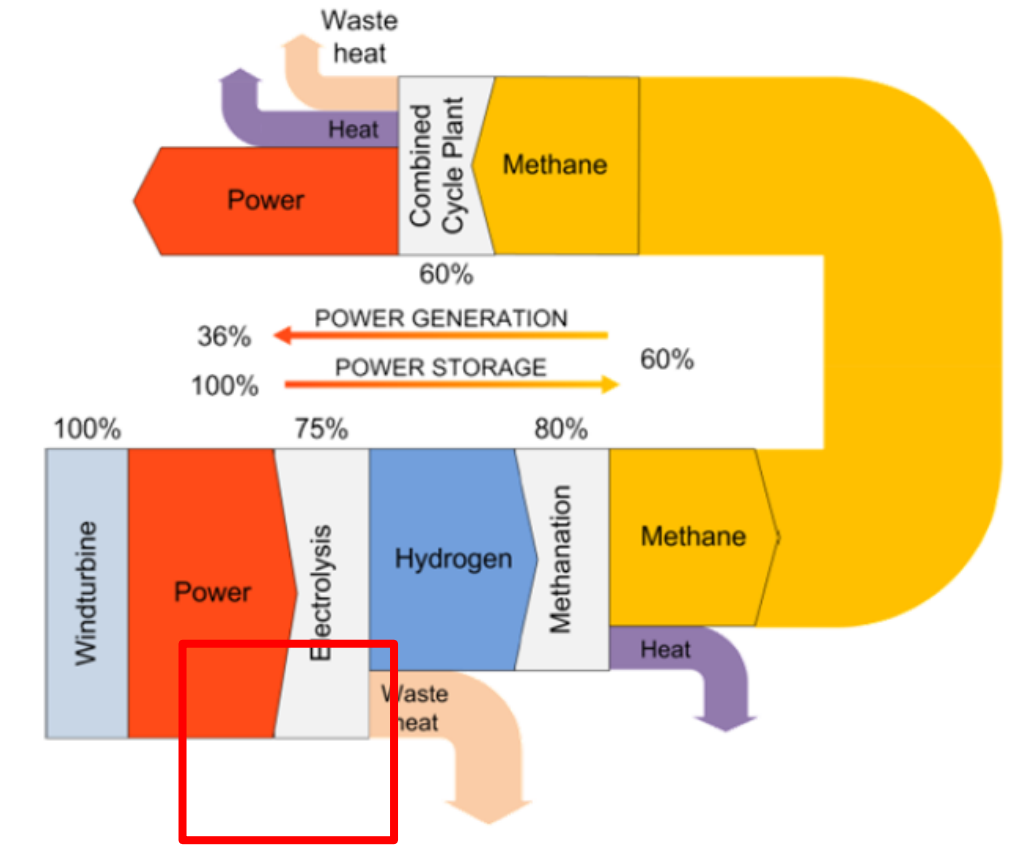
P_2M energy balance diagram



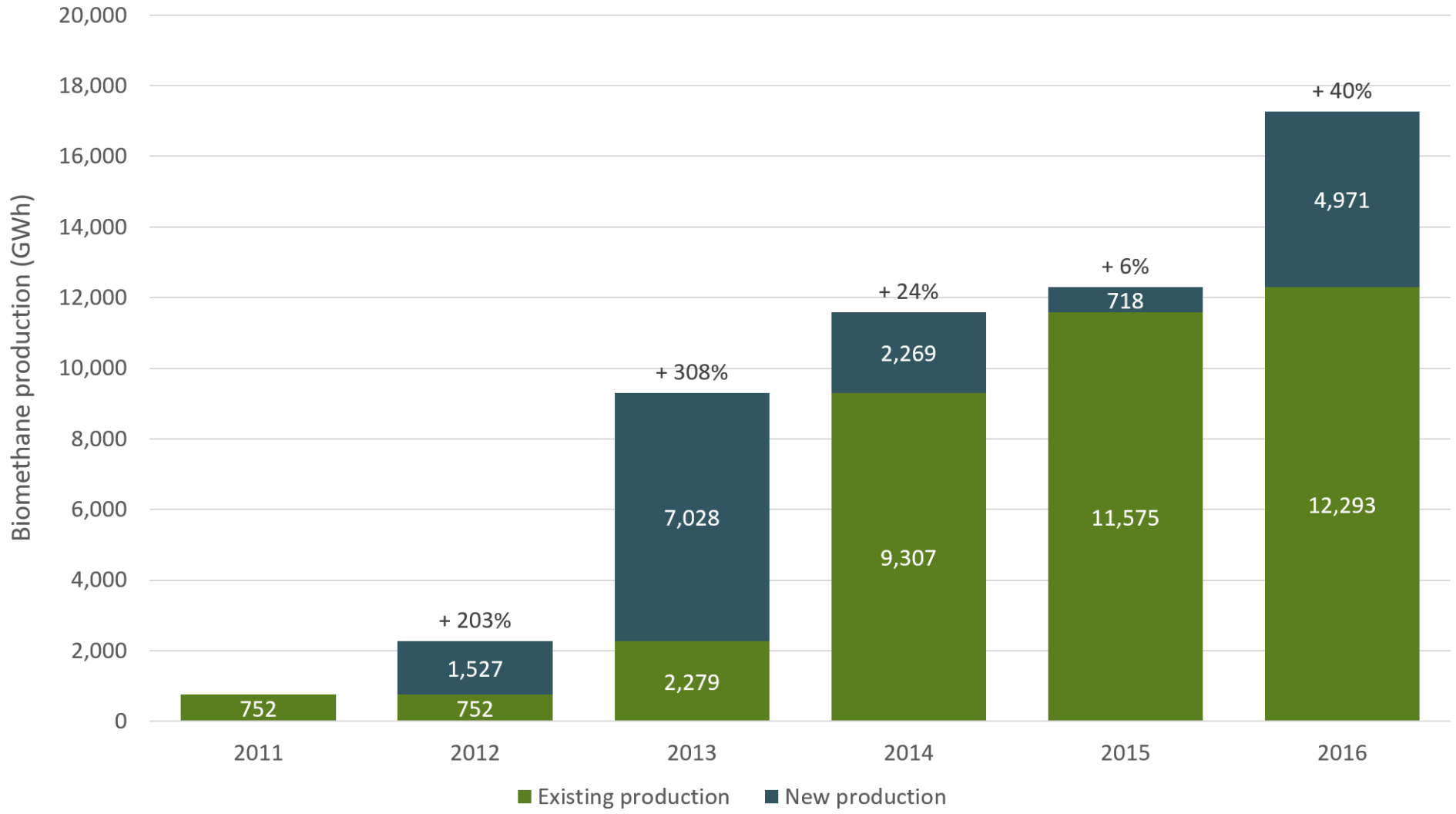
Source: Sterner, M.; et. al.: Renewable (power to) methane, Fraunhofer IWES, Germany

60-65% SNG

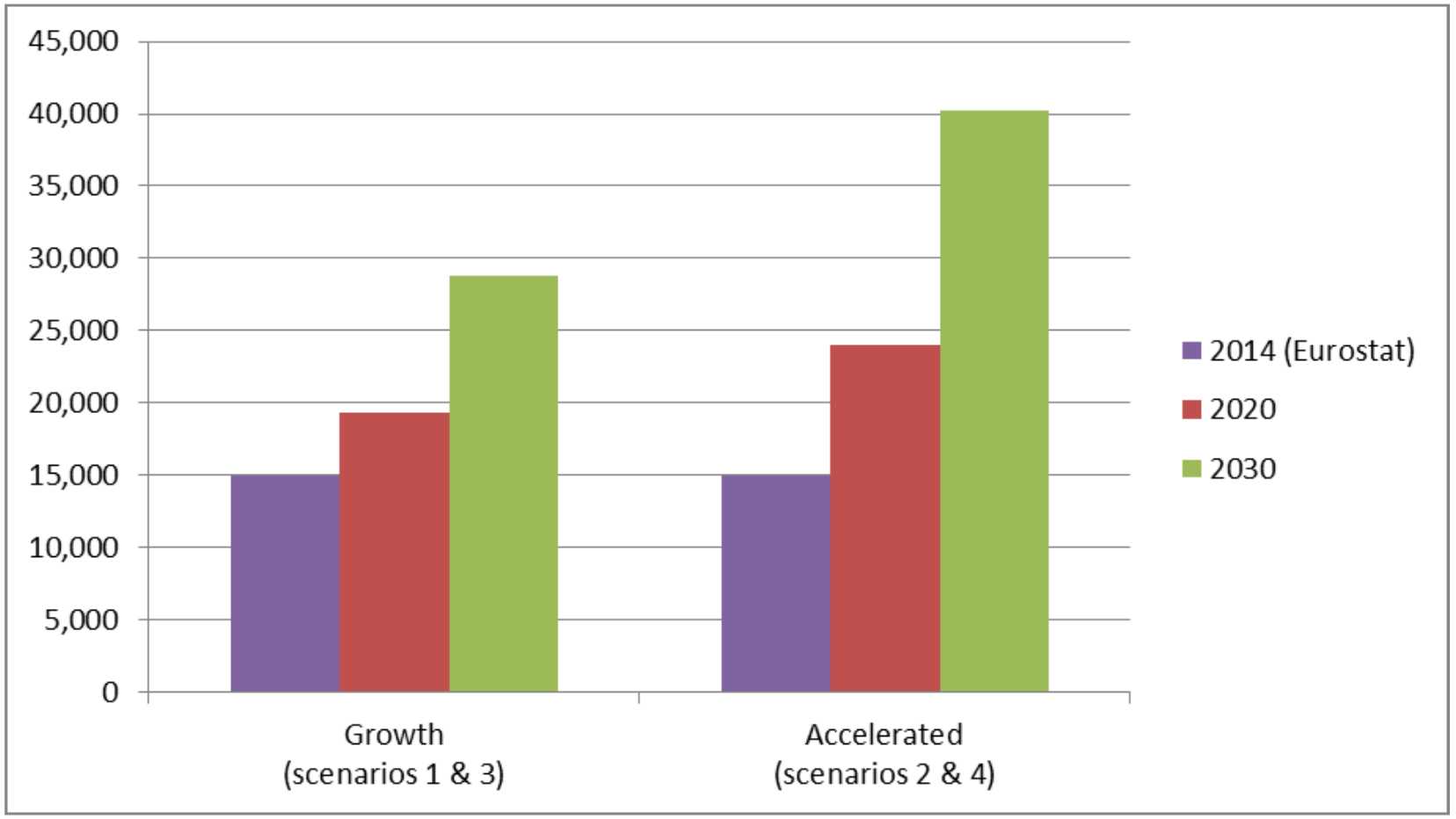
35-40% Power

50-60% Combined heat power

Evolution of biomethane production



Growth of biogas production in EU28



Source: optimal use of biogas from waste streams (CE Delft 2017)