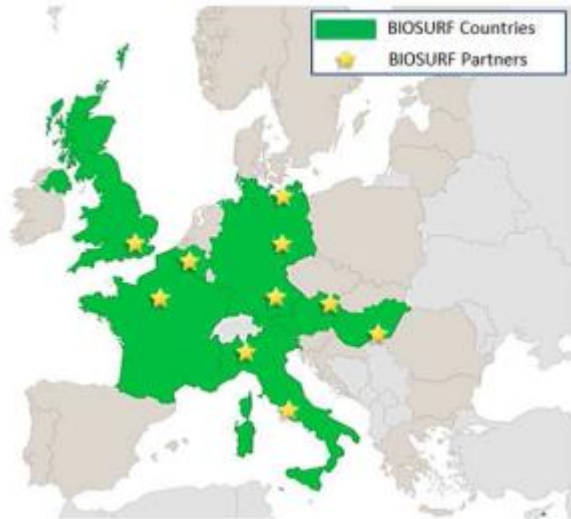


BIOMethane as SUSTAINABLE Renewable Fuel



- **Horizon 2020** project initiated by EBA
- **7 countries:** AT, BE, DE, FR, HU, IT, UK
- **3 years: 2015 – 2017**
- To address all important issues related to developing the European biomethane industry and market

BIOMethane as SUsustainable Renewable Fuel



Coordinateur du projet:

Istituto di Studi per L'Integrazione dei Sistemi
 ISIS | Italie

European Biogas Association
 EBA | Belgique

ARGE Kompost & Biogas Österreich
 AKB | Autriche

AGCS Gas Clearing and Settlement AG
 AGCS | Autriche

Consorzio Italiano Biogas e Gassificazione
 CIB | Italie

Fachagentur Nachwachsende Rohstoffe e.V.
 FNR | Allemagne

Magyar Biogáz Egyesület
 HBA | Hongrie

Deutsches Biomasseforschungszentrum GmbH
 DBFZ | Allemagne

Fachverband Biogas
 GBA | Allemagne

Renewable Energy Association
 REA | Royaume-Uni

Groupe Regional des Centres d'Etudes Techniques
 Agricoles
 GRCETA | France



Existing biomethane registries

- AT: Biomethan Register Austria
- CH: Federation of Swiss Gas Industry
- DE: Biogasregister
- DK: Energinet
- FR: RGO GrDF
- FI: Gasum
- NL: Vertogas
- UK: Green Gas Certification Scheme, Biomethane Certification Scheme

Introduction

- *Value of biomethane:*

physical (in use) value + intrinsic („bio“) value

- *Physical value: corresponds to prevailing market value of natural gas*
- *Intrinsic value: „green“, renewable, sustainable*
- The intrinsic value can be only partially quantified (GHG emission data)
- The **intrinsic value must be realised on the market**, in case of international trade it must be transferred cross-border
- **Conditions for biomethane export/import:**
 - The „bio“ quality must be certified in the producer country
 - The „bio“ qualification from the producer country must be acknowledged in the consumer country

Cashing the intrinsic value

Art of trade	Market	Source of bonus payments	Addressed in:
Physical product	Regulated by EU and national governments	State aid: financial support/ incentives	WP3 Tasks 1-3.
Product Certificate	Free market	willing consumers	WP3 Tasks 4-6.
Emission Certificate	Emission Trading System	environment polluters	WP5

Three pillars of cross-border biomethane administration

1. **European natural gas network** (consisting of the transmission and distribution systems) **treated as single logistical facility** with regard to injected biomethane.
2. **Mass balancing of injected and withdrawn biomethane consignments** within the European natural gas network
3. **Sustainability verification** (covering production) prior to grid injection and **cross-border transfer of sustainability claims**.

Virtual European biomethane grid

BioCH₄ value = physical value + intrinsic value

BioCH₄ grid = NG grid + mass balancing

*European natural gas grid to bring the **physical value** to the market*

+

*Administrative system for transferring the **intrinsic value** from the producer country to the consumer country (applying the mass balancing method)*

Proposed solution for cross-border mass balancing and transfer of sustainability claims

ERGaR (**E**uropean **R**enewable **G**as **R**egistry)

- ERGaR aisbl established 28th September, 2016
- Special purpose voluntary scheme
- **Function:** mass balancing of biomethane distributed along the European natural gas network
- European Biomethane **Guarantees of Origin** issued by the national biomethane registries
- **To be recognised by the Commission** under the RED

ERGaR members

- **AT** – AGCS Gas Clearing & Settlement AG
- **BE** – European Biogas Association
- **DE** – German Energy Agency (dena),
Landwärme GmbH
- **DK** – Energinet.dk
- **FR** – Gaz Réseau Distribution France
- **IT** – Consorzio Italiano Biogas (CIB)
- **NL** – STX Services B.V.
- **UK** – Renewable Energy Assurance Ltd.
- **CH** – Swiss Association of Gas Industry (VSG)
Energie 360° AG

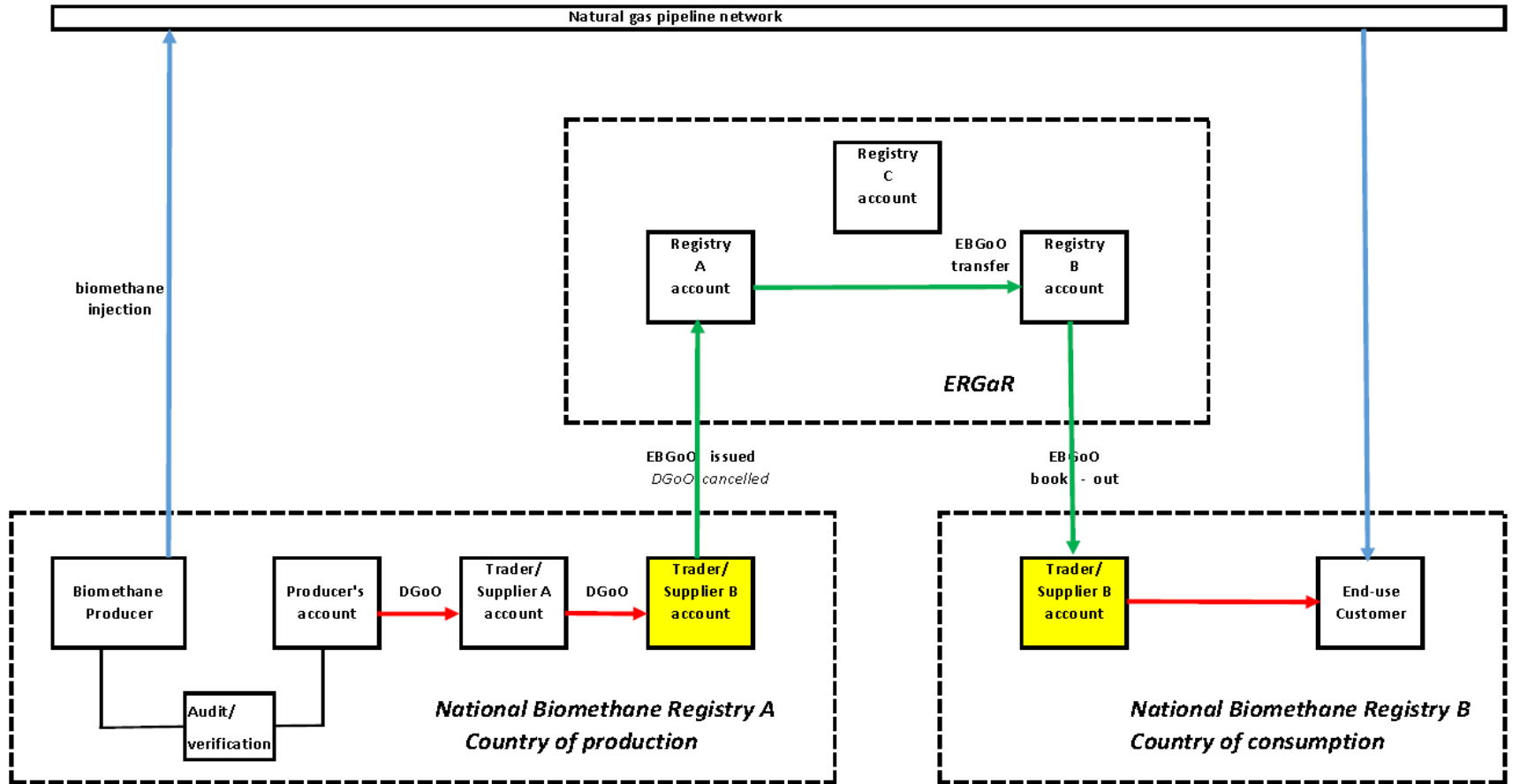
ERGaR will

- be the Europe-wide recognised organisation for **administering and mass balancing volumes** of biomethane virtually distributed along the European natural gas network,
- **rely on the national biomethane registries** as primary source of documentation,
- follow **jointly agreed procedures** for issuing and cancelling Guarantees of Origin for consignments with export destinations,
- provide for **cross-border transfer of sustainability claims** (GHG emission characteristics) attached to the consignments

Working on key issues

1. **Rules, procedures**, distribution of activities and responsibilities between ERGaR and the national biomethane registries
2. Content, verification and **transfer of sustainability characteristics**
3. **Mass balancing of biomethane consignments forwarded virtually** along the European natural gas pipeline system

ERGaR potential flow chart



Condition for EBGoo book-out: National Biomethane Registry B confirms to ERGaR that the physical transaction (Trader/Supplier B supplied the corresponding volume of natural gas to end-consumer)

— physical flow

— domestic GoO

— European GoO

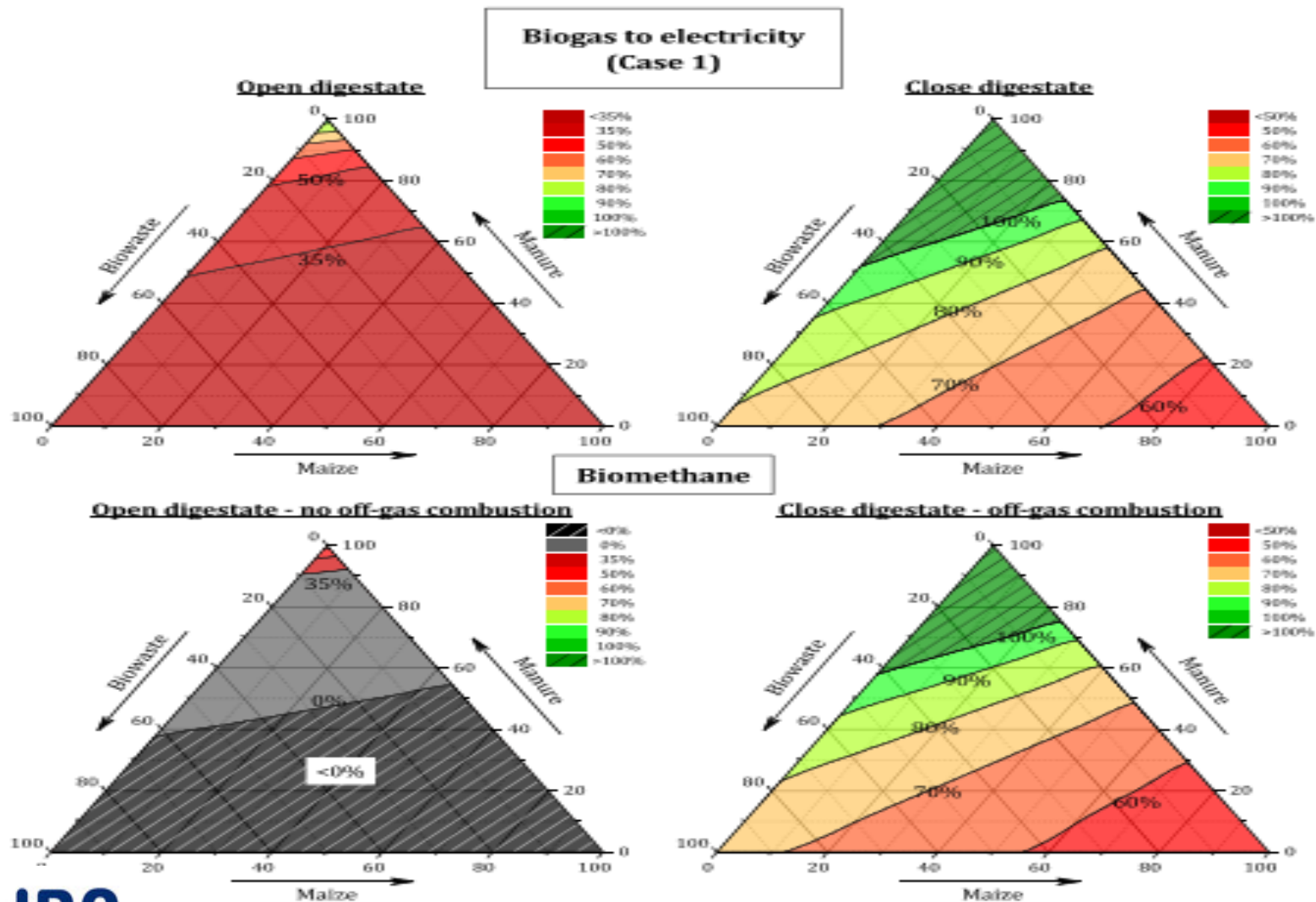
Annex I: Biogas substrates

	Substrate
A	Human/Municipal waste
1	Sewage sludge (typical municipal)
2	Source separated municipal organic waste
3	Biodegradable fraction of MSW (without source separation)
4	Restaurant, kitchen and supermarket waste
B	Animal excrements
1	Liquid pig manure (slurry)
2	Liquid cattle manure (slurry)
3	Cattle manure with straw
4	Corn stover (corn straw)
5	Chicken and turkey manure dry, without straw
C	Industrial waste streams
1	Waste from food/vegetable processing plants (FAB industry)
2	Slaughterhouse waste
3	Spent grains (Breweries, wineries, whisky distilleries)
4	Sludge from pulp and paper mills
5	Other organic industrial waste
D	Agricultural by-products
1	Second (catch) and cover crops
2	Corn and sunflower stover
3	Cereals straw
4	Grass from land maintenance
5	Other agricultural by-products and wastes
E	Main energy crops
1	Maize silage
2	Sorghum bicolor silage
3	Sugar and fodder beat – fresh
4	Grass silage
5	Other energy crops
F	Other biodegradable organic materials

Biomethane grades ?

Grade	A	B	C	D
Popular name	Extra	Premium	Super	Normal
GHG emission* gCO _{2eq} /MJ	< 20	< 50	< 80	non-certified
<u>Substrate categories allowed</u>				
1. Human/municipal waste	+	+	+	+
2. Animal extrements	+	+	+	+
3. Non-food cellulosic material	+	+	+	+
4. Agriculture and food industry by-products	+	+	+	+
5. Food/feed/energy crops	-	< 30%	+	+
RED Art. 17.3. High biodiversity value area	requirements fulfilled			
RED Art. 17.4. High carbon stock area	requirements fulfilled			
RED Art. 17.5. Undrained peatland	requirements fulfilled			
RED Art 17.6. Good agricultural practice	requirements fulfilled			
* from raw material supplies till pipeline injection				

Target RED II : 70 % GHG savings ?



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France < 15 % energy crops, 60 % Manure ; RED II 70 % GHV savings