# Does Mass Balancing need a dedicated certification system?

### Greenfact (26/05/2021) EU systems for tracking green gas



AGCS BIDMETHAN REGISTER AUSTR





### **Association: European Renewable Gas Registry**

- → International non-profit, non-governmental organisation (BE law) established in September 2016.
- → Founded by established biomethane registries
- → ERGaR provides a forum for the collaboration of renewable gas registries and market participants in Europe

#### **28 ERGaR members in 15 European Countries**

- Established biomethane / renewable gas registries, appointed issuing bodies
- Gas DSOs & TSOs
- Biogas associations
- Traders
- Other major stakeholders of the European biomethane market



#### **Associated Members**

1.00 8







# The European framework for renewable gas certification

Energy source of gas product									
Biogas / Biomethane		Renewable Fuels of Ne Biological Origin (RFN			Non- NBO)	Recycled Carbon Fuels (RCF)			
Requirements for demonstrating compliance with									
Sustainability Sustainability criteria GHG emission saving thresholds			Renewable energy content Additionality of energy Temporal correlation Geographic correlation			Mass balancing			
Requirements and options for verification and documentation									
Certificates d Proof of Sustainability (PoS) Guarantee of Origin (GO) Mas		do Is Mass Ur	Entities for locumentation Issuing bodies ss balancing systems Union Database		Voluntary and Nation Schemes		ational	al European Schemes for cross-border transfers AIB CertifHy ERGaR	
Purpose of gas certification									
RED II targets (union, transport, heating)	Disclosur renewable low carbo energy carriers	e E & (ze emi bi	EU-ETS ero CO2- issions for iomass)	Fuel ( Direc	tive tinance tinance		ny on L ble	abelling	Others (e.g. national support schemes)

- Different types of
  energy carriers (1)
- Diverse application purposes defined in different legislation pieces (4)
- Different requirements to demonstrate compliance (2)
- Different verification methods and competent organisations (3)
- Each application purpose requires transparent, secure and reliable certificate system

### **Documentation of renewable gases** along the chain of custody

#### **1** Direct physical deliveries

(road, rail, water)

- Renewable gas is usually physically segregated from fossil gas
- By means of certificates, the whole chain of custody is tracked.



# **<u>2</u>** Documentation of renewable value via book & claim

- Not the whole chain of custody is reflected
- Renewable value can be separated from the delivery of gas

#### <u>3</u>Documentation of renewable & sustainable values via mass balancing

- Mass balancing is applied throughout the whole chain of custody
- Renewable & sustainable characteristics
  remain always attached to the consignment
- Transport- and storage-related losses (e.g., within the gas grid) are considered
- REDII requires sustainability verification by means of mass balancing









### **Different Modes of Transfer: Requirements**

REQUIREMENTS	MASS BALANCE	BOOK & CLAIM		
<b>Physical connection</b> between production and consumption	Yes. Requirement to evidence transaction of physical product alongside transfer of Energy Attribute Certificates.	Not required: however, GO registries may impose specific requirements e.g. that producer and consumer are in Europe		
Time correlation between production and consumption	Maximum of 3 months defined by VS: with positive balances able to be carried forward into following 3-month-period	No restrictions: GO registries have set range of expiry dates EN 16325 will require <b>18 month expiry</b>		
Accounting for transportation <b>losses</b>	Yes Must recognise leakage of gas from grid and any other form of transport	No. One GO issued per kWh/MWh, One GO used per kWh/MWh consumed.		
Evidence of withdrawal	Yes must provide evidence of gas withdrawn (break-down on different levels possible)	No. Gas withdrawal is assumed but no evidence is required to cancel a GO.		
<b>Evidence</b> that requirements have been met	Yes. Clear documentation that above criteria have been met. When mass balancing sustainable biomethane, a Proof of Sustainability (PoS) is used and parties involved are usually certified under a Voluntary Scheme, as recognised by the European Commission.	Cancellation of a GO with allocation to a supplier/consumer.		

### **Different Modes of Transfer**

### Book & Claim <-> Mass Balance 🛇 Sustainability



- So far for voluntary uses/applications
- In the future for Guarantees of Origin (GO) for consumer disclosure of energy supply (Art 19 RED II)

Recital 55: Guarantees of origin issued for the purposes of this Directive have the sole function of showing to a final customer that a given share or quantity of energy was produced from renewable sources. A guarantee of origin can be transferred, independently of the energy to which it relates, from one holder to another. However, with a view to ensuring that a unit of renewable energy is disclosed to a customer only once, double counting and double disclosure of guarantees of origin should be avoided. Energy from renewable sources in relation to which the accompanying guarantee of origin has been sold separately by the producer should not be disclosed or sold to the final customer as energy from renewable sources. It is important to distinguish between green certificates used for support schemes and guarantees of origin.

Art 19 (2): The guarantee of origin shall have **no function** in terms of a Member State's **compliance** with Article 3. Transfers of guarantees of origin, separately or together with the physical transfer of energy, shall have **no effect on the decision of Member States** to use statistical transfers, joint projects or joint support schemes for **compliance with Article 3** or on the **calculation of the gross final consumption of energy from renewable sources in accordance with Article 7**.



#### Levels

- . physical value
- Trade: producer and consumer in contract
- 2. renewable value
- Certificate <u>decoupled</u> from physical gas flow

#### 3. sustainable value

**Ex**cludes: transfer of GHG minimum savings

### **Understanding Sustainability Criteria**

Book & Claim <-> Mass Balance OO Sustainability

#### Legal definition of "sustainability criteria"

- > Art 18 RED I: particularly addressing liquid, sustainable biofuels
- > FQD: (EU) 2009/30 Fuel Quality Directive
- Art 25-31 RED II: extension towards renewable gases

#### Significance in theory and practice

> Criteria on raw materials (land use, cultivation) Art 29 (2-7) RED II

#### GHG minimum savings Art 29 (10) RED II

- Total GHG emissions along the whole supply chain
- Undercutting the respective reference value of the Fossil Fuel Comparator (FFC)
- Specific reference values per application purpose published by EC
- Total GHG emissions biomethane < GHG emissions FFC reference value</p>

Mass Balance Art 30 (1) RED II to document sustainability criteria

- Documentation of the entire supply chain
- From substrates via production plant to the end user



### **Different Modes of Transfer**

#### ergar European Renewable Gas Registry

#### Book & Claim <-> Mass Balance OO Sustainability

- Mass balancing builds link between renewable gas installation and application purpose
- Proof of Sustainability (PoS) for target compliance
- Documentation within the respective system boundaries
- National: easily traceable, e.g., via balance group model
- Europe-wide: within the European, interconnected gas grid (Voluntary Scheme pending)



#### Levels

- 1. physical value
- Trade: producer and consumer in contract
- 2. renewable value
- Certificate <u>coupled with</u> physical gas flow
- 3. sustainable value
- Includes: transfer of GHG minimum savings

### Mass Balancing cross-border gas transfers



The concepts for the mass balancing of renewable gaseous energy carriers (within specific system boundaries) across the European gas grid are very different:

- 1. National **gas grids and/or market areas are considered as separate mass balancing units** that are connected via interconnection points. For each interconnection point between the point of injection and the point of withdrawal, capacities must be booked (and gas flows have to be nominated).
- 2. A gas flow into the national gas grid and/or market area of the point of withdrawal needs to be demonstrated via capacity booking at the interconnection point.
- 3. The interconnected European natural gas network is considered as one single logistical facility (mass balancing unit) and injection and withdrawal of renewable gases are balanced with each other.



	European natural gas network	_	$\rightarrow$
3iomethane 100 MWh (X)	Mass Balance: X=Y	Natural gas / biomethane blend out 100 MWh (Y)	eligible for
	,	Î	target compliance

### Mass Balancing: tracking the Chain of Custody





Chain of Custody: Biomethane via gas grid for target compliance, e.g. in the transport sector Mass balancing in two parts: PART I: from of raw materials from point of origin of biorefinery plant according to recognised voluntary scheme (e.g.: ISCC, REDcert, NTA8080) PART II: of the renewable gas from biorefinery to fuelling station along the gas grid - National grid: domestic registry Furgment grid: according to recognised voluntary

European grid: according to recognised voluntary scheme; ERGaR RED MB scheme undergoing recognition process



### ERGaR: team work and bottom-up approach





#### Development of Scheme Rules for the ERGaR CoO Scheme

- Development of the Documentation Package for the ERGaR RED MB Scheme for recognition process to become voluntary scheme by the European Commission
  - Engagement of Vertogas B.V. as IT-provider
  - Development of the ExtraVert Platform as IT-system
    - Harmonisation of attributes (list, specification), technology codes, biomass codes
    - Harmonisation of business processes
    - Finding common denominator for countries, independent of level of advancement
      - Collaboration Tech WG
      - Leader: VP Jesse Scharf, GGCS (UK)
      - Understanding each other's systems
        - Building on knowledge, expertise and resources of established registries

#### Foundation of ERGaR joint initiative by established registries

### **ERGaR Schemes: Overview**



	ERGaR Co	O Scheme		ERGaR RED MB Scheme		
MODE OF TRANSFER	BOOK 8			MASS BALANCE		
APPLICATION PURPOSE	Consumer disclosure	Market Initiatives		Target compliance transport sector		
BACKGROUND	Art 19 RED II	Market and Scheme Rules		Sustainability 8 Art 25-3	& Mass Balance 31 RED II	
COMPETENT AUTHORITY	Issuing Bodies by gov. mandate	Registries via ERGaR CoO Scheme		Voluntary Scheme recognised by EC	Registries via ERGaR RED MB Scheme	
RULES AND STANDARDS	<b>CEN-EN 16325</b> standard on GoO	ERGaR Gergar CoO Scheme		E.g.: ISCC, REDcert, NTA 8080	ERGaR dergar RED MB Scheme	
DOCUMENT TYPE	<b>Guarantee of Origin</b>	CoO (E) Certificate of Origin		PoS Droof of Sustainability	PoO  Proof of Origin	
<b>STATUS</b> (May 2021)	preparation for launch			under recognition by the European Commission as voluntary scheme		

### ERGaR's 4 core principles for mass balancing



Sustainability

No certificate can be issued without a valid **Proof of Sustainability for** every biomethane consignment

Single logistical facility The **interconnected European natural gas network** is treated as one single logistical facility

#### Chain of custody

**Mass Balance** = coverage of the complete chain of custody for biomethane injected into the interconnected European natural gas grid

Export destination

ERGaR provides a solution for crossborder title transfers; no national solution; Exclusively **biomethane consignments destined for export** 

Negotiation under RED I, re-submission under RED II Renewable Energy Directive

# ERGaR

We are the first organisation proposing an administrative solution for mass balancing biomethane within the interconnected, European natural gas network.

# RED MB

Mass Balancing as defined in Art 18 RED I Art 25-31 RED II

### by the European Commission

Voluntary

Seeking recognition as VS

# Scheme

Administration system as defined in Art 19 of RED I Art 30 of RED II

### **THANK YOU !**

#### **CONTACT US!**

Secretary General, Matthias Edel, <u>edel@ergar.org</u> Deputy Secretary General, Flore Belin, <u>belin@ergar.org</u> President, Jeppe Bjerg Executive Board Member, Stefanie Königsberger, <u>Stefanie.Koenigsberger@agcs.at</u>

