



Crossing borders with biomethane

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What is biomethane?

Biomethane is biogas which has been cleaned and upgraded to natural gas quality (ca. 10 kWh/m3 energy value)

It is the renewable version of natural gas – can be used for everything natural gas can!

Can be injected into natural gas grid – traded, sold and used <u>identically</u> to natural gas

Biomethane can attract government subsidies when used as

- •Vehicle fuel (as CNG) counts towards EU 10% renewable fuel target
- •For electricity generation (CHP)
- As heating source



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Biomethane special issues

Biomethane is....

- Chemically identical to methane once injected into gas pipeline
- Cannot differentiate between biomethane and methane in a pipeline (no 'green' molecules)

Solution: Volumes must be 'tracked' - but how?

Build a biomethane registry!

The registry issues Guarantees of Origin (GOOs)

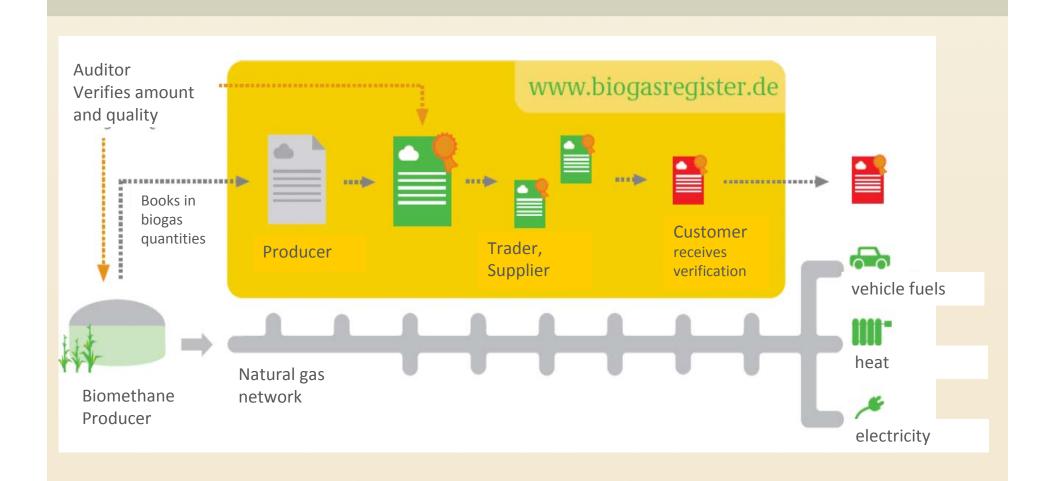
GOOs prove:

- Amount injected
- Period of injection
- Producer
- Substrates
- Properties

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Process flows biomethane registry – example dena Biogasregister



Information held in registries

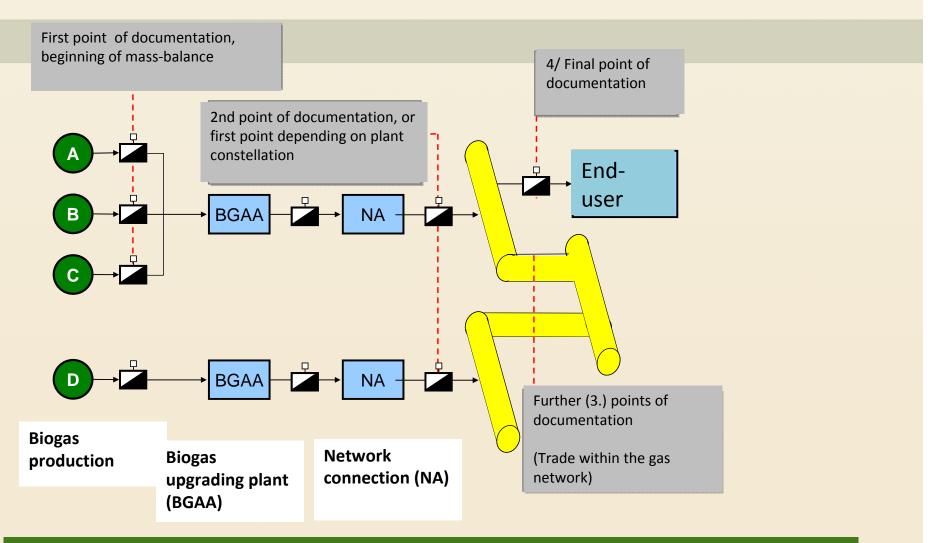


ID Guarantee of Origin
Producer Name
Plant Address
Period of Injection
Amount injected
Proof of Injection (DSO)
Trader ID
Substrate (1st/2nd gen)
ID/ Address end-user
Confirmation gas take-off

- Information stored in registry
- Minimum information requirement for crossborde transfer of biomethane
- Destination market (fuel, heating, elec) determines information
 - Fuel market: need sustainability certification
 - Heat, power: only basic info

biogas rat dezentrale energien

Mass Balance – physical link ,green' quality and gas



The German 3 point mass-balance model for biomethane, source BMU





Conditions for biomethane trade:

Recognition of ,green' characteristic of biomethane

Biomethane registry

Currently: case by case

Planned: Automated, registry cooperation





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Name	Count ry	Operator ?	Mass balance system?	Description
Biomethanregist er Austria	AT	Banks/TS O	Yes	Input and output registry for biomethane. Usage is compulsory for subsidies
dena biogasregister	DE	Energy Agency	Yes	Input and output registery for biomethane, documentation for EEG payments, audits input balances/feedstock mix.
ENERGINET, DK	DK	TSO	No	Simple register operated by Danish TSO; registers injected quantities.
naturemade !	СН	Label	No	Label, certified guarantees of biomethane origin
Green Gas GERTIFICATION SCHEME	GB	Asso- ciation	Yes	UK certification system, analogous to dena Biogasregister. Financed by stakeholders (E.On, Centrica, National Grid, etc.)
Vertogas	NL	TSO	No	Input and output register for biomethane, audits (annual) input balances/feedstock mix.

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Deliverables

Identify legal and economic framework for cross-border transport of biomethane

- Mass-balance method
- Sustainability criteria
- Substrates and their documentation (different countries have different definitions!)
- Regulatory framework
- Auditing
- Transparency

The registries and guarantees of origin:

- Existing registries –where? Which models?
- Registry Cooperation approach and methods
- Development of an EU-registry model



Develop a market-led model for cross-border transit of guarantees of origin



EU Regist Project partners



Partners from throughout value chain: producers, suppliers, traders, certification bodies/ registries, including...

















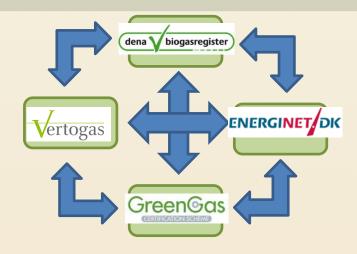


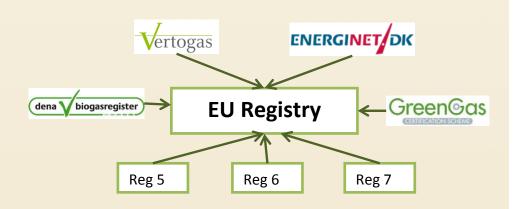


BioMCN

Models for EU Registry cooperation







Bilateral cooperation

- Reflects current planning
- Cooperation agreement UK, DE, DK, NL under way
- Recognition of other registries as equivalent
- Recognition of biomethane attributes as equivalent
- Role of TSO?

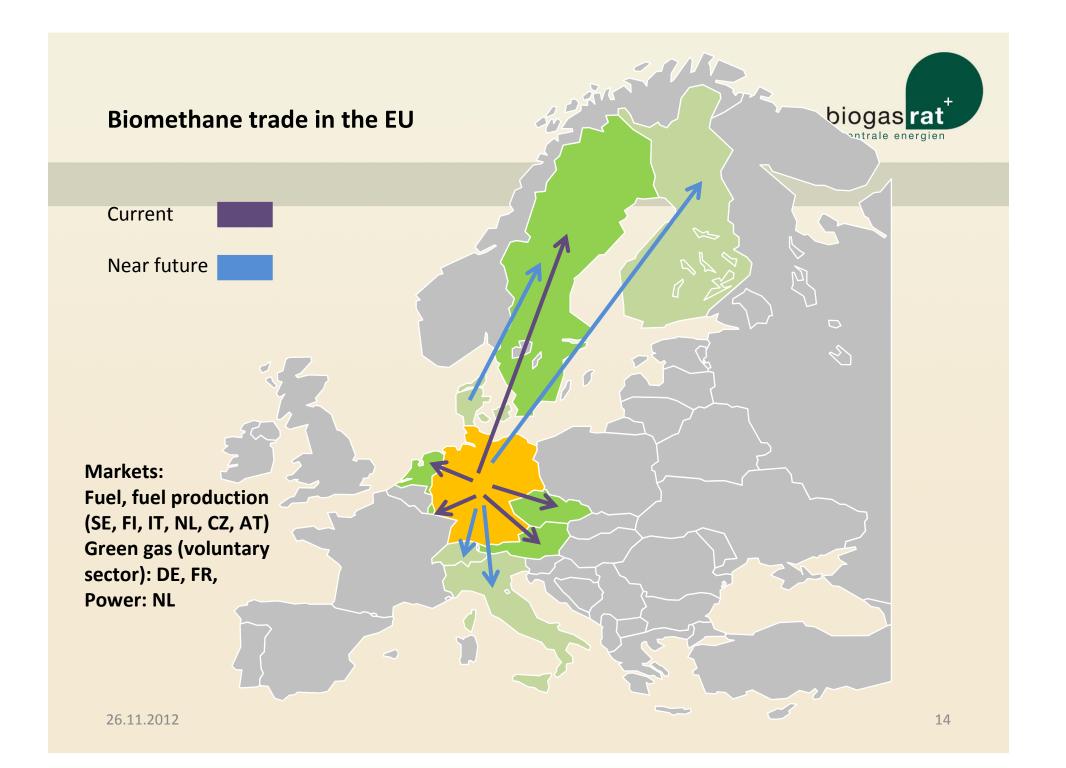
The centralised approach

- Central administrative body issues standard certificate form
- Issues EU guarantee of origin
- Medium long term solution?
- Interest from market





Vielen Dank für Ihre Aufmerksamkeit.





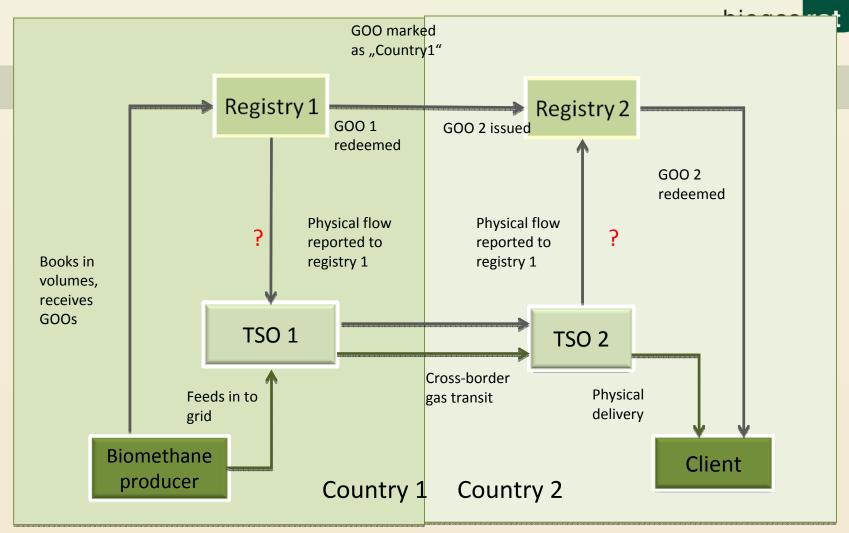
Status Quo and growth projections, EU Biomethane market

Land	CNG- Fahrzeuge	Einspeisean lagen	Einspeise- menge, 2011, mcm	2020 Ziel (indikativ, mcm)
IT	730000	0	0	60
DE	91000	84	393,1	6000
SE	32000	47	18,5	800
СН	9600	14	12,0	
NL	1500	13	32,5	
FI	700	1	0,0	100
GB	220	2	1,0	
LU	200	0	4,2	
BE	176	0	0,0	
DK	0	2	1,5	

Lack of indicative goals for biomethane
Imbalance between targets and current production – opportunities for exporters?

2nd gen biomethane (manure) particularly attractive for vehicle fuels market

Cross-border trade status quo> insert flow diagram from report



Coupling physical/virtual flows only on injection/offtake from gas grid? Simple massbalance

Guarantee of
origin
Gas flow

Cross-border trade



Current practice

- Destination market (fuel, heat, electricity) should serve as orientation for transportable data
- Fuel market requires detailed documentation: CO2-Emissions, substrates utilised
- Current practice: Registry 1 hands the following documents to registry 2:
 - Sustainability certificate (ISCC, REDCert)
 - Registry statement from registry 1
 - Audit statement
 - Substrate diary
 - Proof regarding cross-border capacity booking
- This is reflective of biomethane produced in Germany. Different countries have different information densities

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