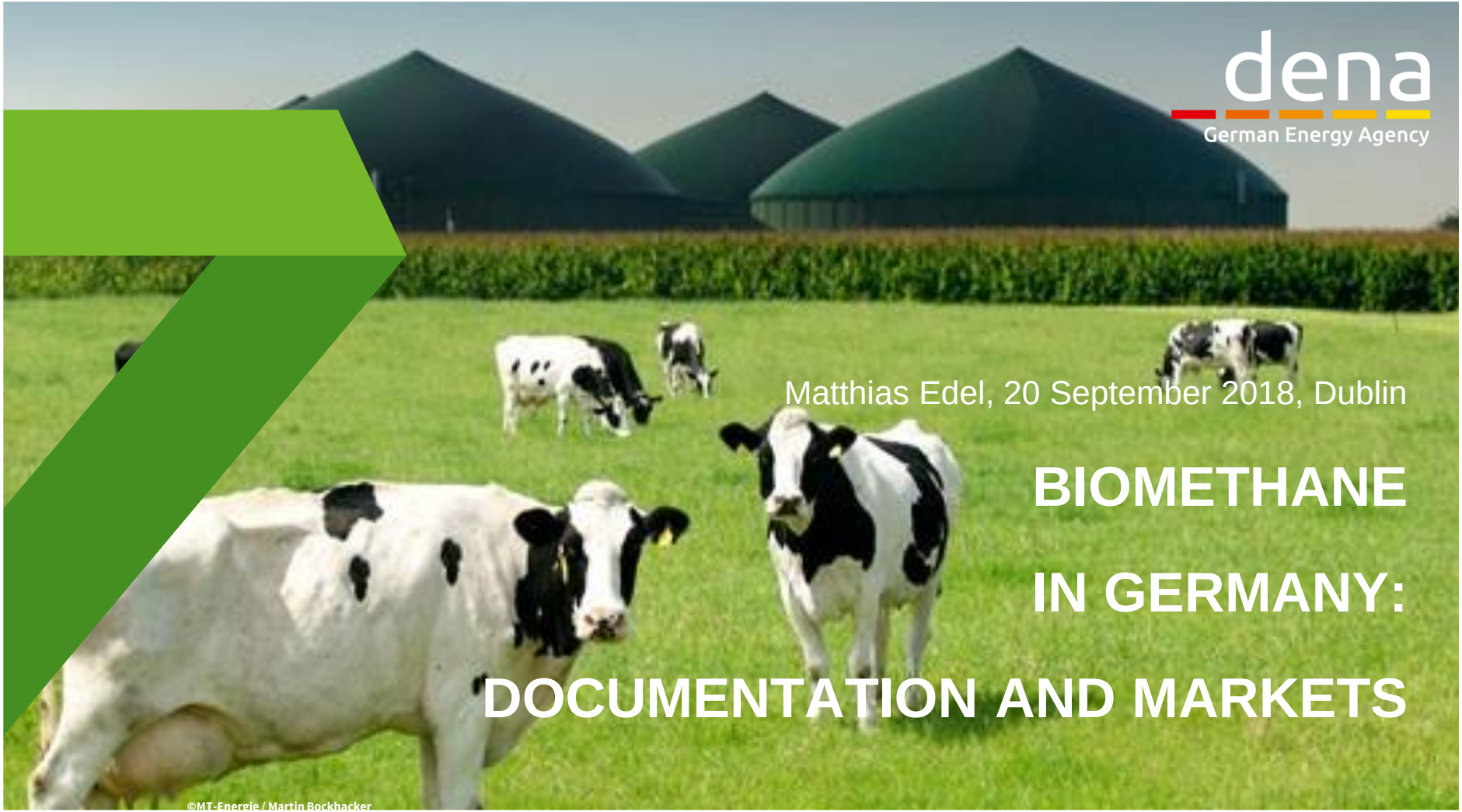

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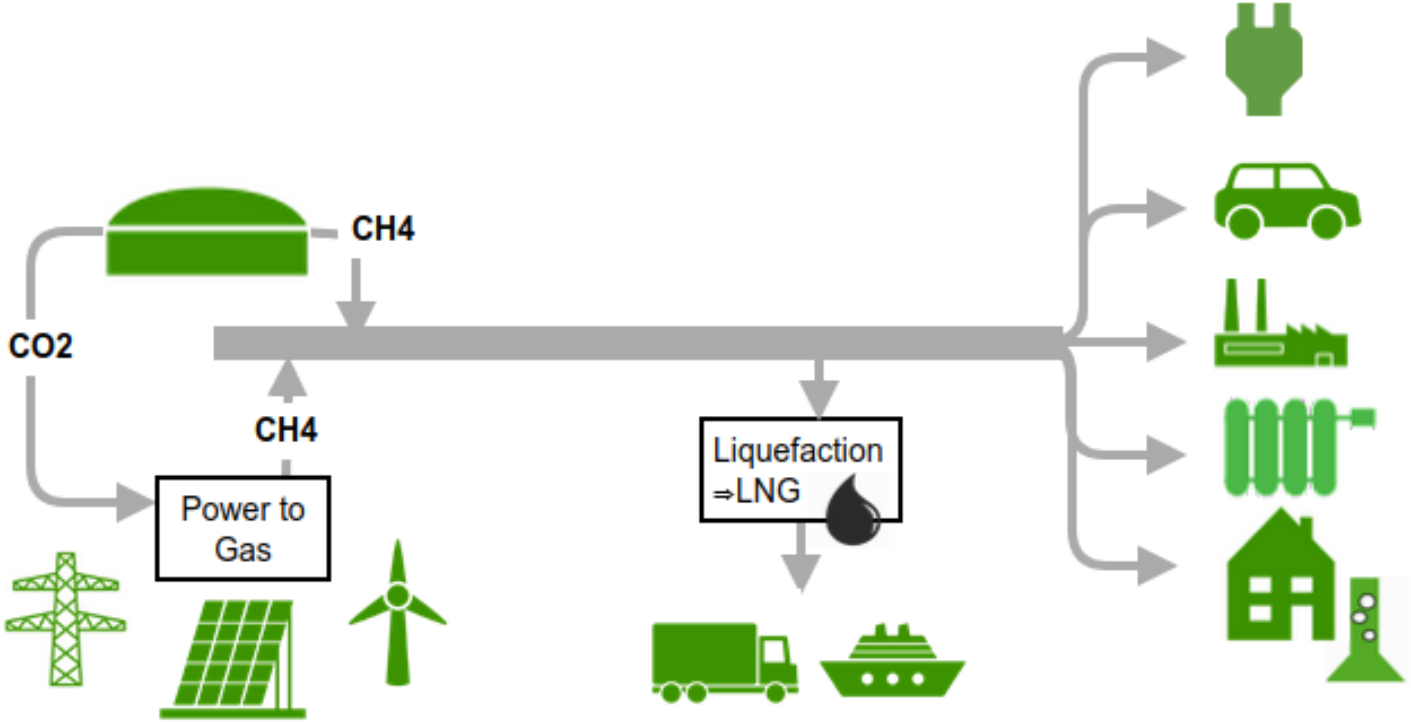
Matthias Edel, 20 September 2018, Dublin

BIOMETHANE IN GERMANY: DOCUMENTATION AND MARKETS

AGENDA

- **Market: Biomethane Production and Utilization**
- **Documentation: Biogasregister Deutschland**
  - Legal Framework
  - International Transfers
  - Green Gas Products
- **Outlook: RED 2 and National Legislation**

THE GERMAN BIOMETHANE MARKET



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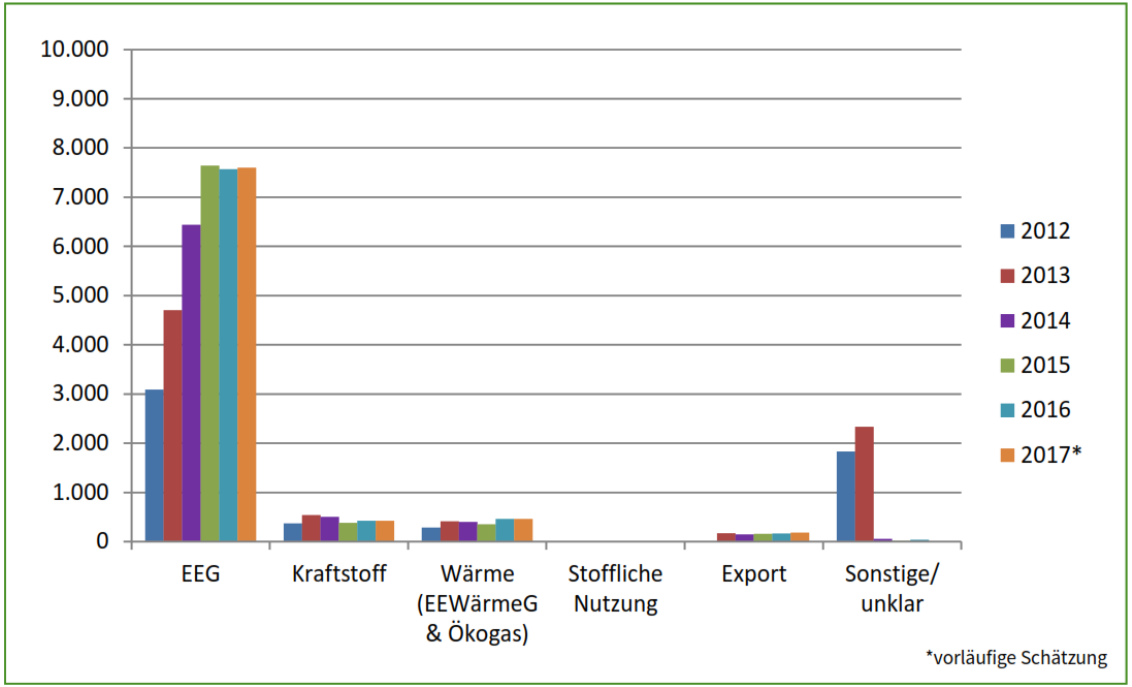
BIOMETHANE PROUDUCTION & DEMAND IN GERMANY

- 208 Biomethane plants in operation and 9,8TWh total injected amount in 2017
- Renewable Energy Sources Act (EEG) is the main driver for biomethane in Germany

Biomethane Demand 2012-2017



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DOCUMENTATION: BIOGASREGISTER DEUTSCHLAND

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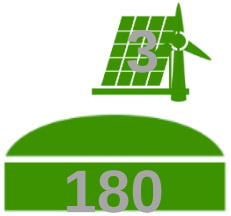
DOCUMENTATION: VERY DIFFERENT REQUIREMENTS

Application	Legal Framework	Mass balancing	Documentation Requirements
CHP	EEG / KWKG	✓	Comprehensive information
Biofuels	37. BImSchV	✓	Sustainability criteria
P2G-Fuels	37. BImSchV	✓	Pilot plant, congestion management, RE GoO
Emission Allowances	TEHG	✓	Very simple
Heat	EWärmeG & EEWärmeG	✓	Simplified
Green Gas Products	--	×	Individual
Bio-LNG	37.BImschV*	✓	Sustainability Criteria

THE GERMAN BIOGASREGISTER – Facts & Figures

account holders



Upgrading plants registered

In accordance with German law:

- Renewable Energy Sources Act (EEG)
- Renewable Heat Act (E(E)WärmeG)
- Emission Trading Scheme (ETS)
- Cogeneration Law (KWKG)

Bilateral agreements with Energinet and AGCS

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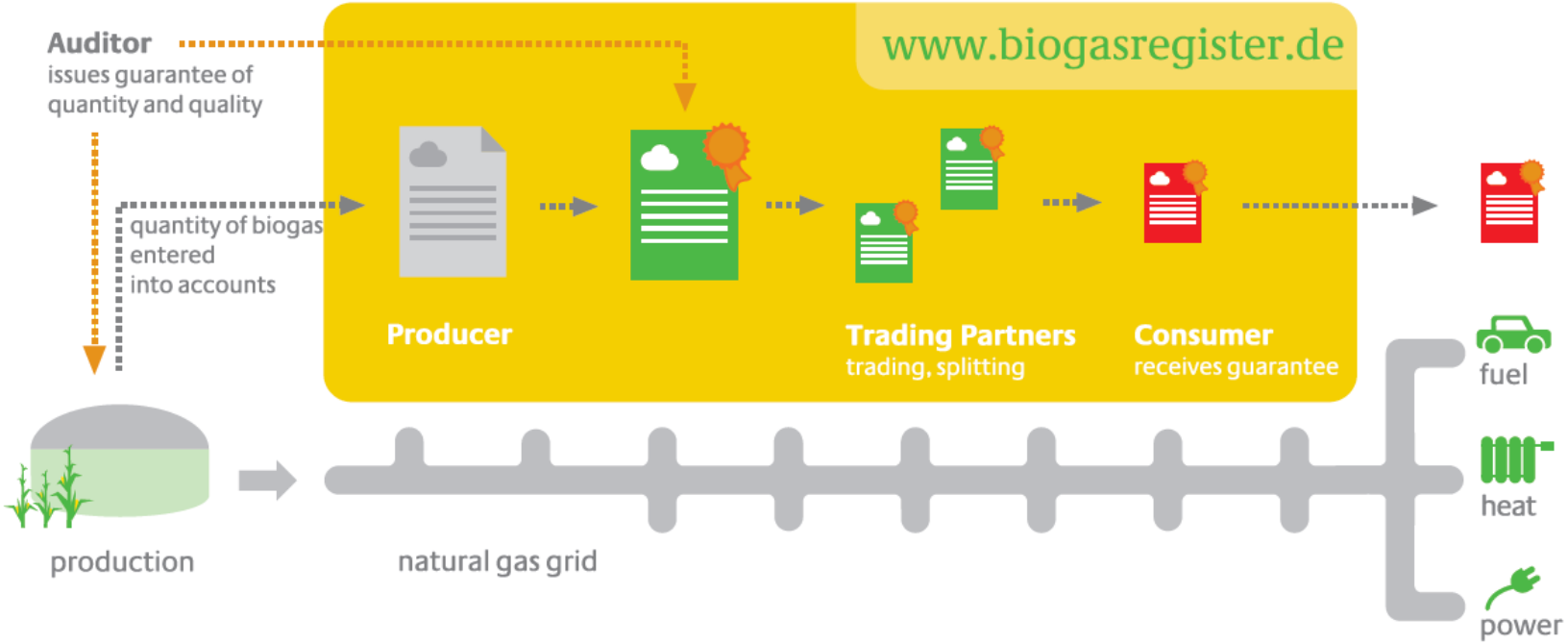
THE GERMAN BIOGASREGISTER



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CRITERIA ACCORDING TO LEGAL FRAMEWORK

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As of: 23/09/2013	Products (no warranty)	Criteria[1]	1 Biomass within the meaning of the Biomass Ordinance [Biomasseverordnung, BiomasseV]	2 Exclusivity	3 Other biomass [StromSG]	4 Quantity structure is plausible	5 Seconds/the substance used	6 Feed-in quantity into the natural gas network	7 Natural gas quality for the entire quantity	8 Maximum electricity consumption [Renewable Energy Sources Act [Erneuerbare-Energien-Gesetz, EEG] 2009/2012 and Renewable Energies Heat Act [Erneuerbare-Energien-Wärmegesetz, EEWärmeG] 2009/2011]	9 Regenerative process heat [EEG 2009/2012]	10 Capacity up to 2500Nm³	11 Capacity 350-700Nm³	12 Capacity 350-700Nm³	13 Linking of gas processing plants did not exist	14 "renewable raw materials [NaWaRo] renewable resources, Nawaro/maize	15 Quality typical crops	16 Fermentation residue covered flare	17 Landscape conservation	18 Landscape conservation	19 Landfill gas exclusively	20 Sewage treatment gas exclusively	21 Methane emissions [Renewable Energies Heat Act [Erneuerbare-Energien-Wärme-Gesetz, EEWärmeG] 2009]	22 Process heat/waste heat [EEWärmeG 2009]	23 DIN EIGA	24 Mass balance system Federal Office for Agriculture and Food [Bundesamt für Landwirtschaft und Ernährung, BLE]	25 Proof of sustainability for the interface	26 Mass balancing up to the feeding into the natural gas network	27 Substance tariff class 0	28 Substance tariff class 1	29 Substance tariff class 2	30 Substance tariff class 2a	31 Substance tariff class 2b (manure)	32 Rated output 700-1,000Nm³/h	33 Rated output 1,000-1,400Nm³/h	34 Rated output 1,400-2,000Nm³/h	35 Storage facility for fermented on residues, retention time, gas consumption facility	36 Fermenter is directly linked to the composting facility for fermentation residues	37 Maize ceiling (max. 60%)	38 Maximum methane emissions [EEG 2012 and EEWärmeG]	39 Biowaste (min. 90%)	40 Recycling of the fermentation residues	41 Biomass within the meaning of the EEWärmeG	42 Biomass within the meaning of the Section 7 of the 36th Federal Immission Control Ordinance [Bundes-Immissionschutzverordnung, BImschV]	43 Biomass within the meaning of the Monitoring Ordinance [Monitoring-Verordnung, MVO]	44 Gas exclusively from renewable-based electricity.	45 Temporary storage prior to the network	46 No deliberate generation of CO_2.[6]	47 EE/CH4 pechmann4 from EE according to EL2009/28/EG
EEG 2004	Basic compensation Biogas		X	X		X		X																					X																			
	↳ Technology bonus 2¢								X																																						
EEG 2009	Basic compensation Biogas		X	X		X		X																					X																			
	Basic compensation Biogas (also biomass outside the Biomass Ordinance)		X	X		X	X	X																					X																			
	↳ Technology bonus 1 ¢ and/or 2 ¢ [4]								X		X		X	[x]	[x]	X																															
	↳ Renewable raw materials [Nawaro] bonus (exclusively renewable raw materials)						X										X		X																												
	↳ Renewable raw materials bonus (with partial quantities of plant-based by-products)						X										X	X	X																												
	↳ Landscape conservation bonus																			X																											
	Storage gas reconversion					X		X																					X																X		X	
EEG 2012	Basic compensation Biowaste		X	X		X	X	X																					X									X		X			X	X				
	Basic compensation Landfill gas							X													X								X																			
	Basic compensation Sewage treatment gas							X														X							X																			
	Basic compensation Biogas		X	X		X	X	X																					X	X								X[2]			X[2]							
	Basic compensation and substance tariff classes 1, 2a, 2b [3]		X	X		X	X	X																					X	[x]	[x]	[x]	[x]					X[2]			X[2]							
	↳ Processing bonus 1 ¢ and/or 2 ¢ and/or 3 ¢ [4]								X		X		X																					[x]	[x]	[x]					X							
	Storage gas reconversion					X		X																					X																X	X	X	
EEWärmeG 2009	Federal energy recovery (biomass within the meaning of the Biomass Ordinance)		X					X	X	X													X	X					X																			
	Federal energy recovery (biomass outside the Biomass Ordinance)							X	X	X													X	X					X															X				
	Federal energy recovery (landfill gas)							X		X											X		X	X					X																			
	Federal energy recovery (sewage treatment gas)							X		X												X	X	X					X																			
EWärmeG 2009	Heat recovery Baden Wuerttemberg							X																																			X				
EEWärmeG 2011	Federal energy recovery (biomass)		X					X	X	X		X																	X													X						
	Federal energy recovery (biomass outside the Biomass Ordinance)							X	X	X		X																	X													X		X				
	Federal energy recovery (landfill gas)							X		X		X									X								X													X						
	Federal energy recovery (sewage treatment gas)							X		X		X										X							X													X						
Energy Tax Act [Energiesteuergesetz, EnergiesStG][5]	Energy tax relief		X					X																	X	X	X																				
	Electricity tax exemption (biomass)			X																																											
	Electricity tax exemption (landfill gas)																				X																										
	Electricity tax exemption (sewage treatment gas)																					X																									
Biofuel Quota Act [Biokraftstoffquotengesetz, BioKraftQuG][5]	Biofuel quota		X					X																	X	X	X																				
	↳ Biofuel quota (double weighting)		X					X																	X	X																	X				
Greenhouse Gas Emissions Trading	Exemption from the tax liability ("biomass" within the meaning of the Monitoring Ordinance)					X		X																																					X		
	Exemption from the tax liability (biomass outside the Monitoring Ordinance)		[x]			X		X																																		[x]		[x]	[x]			

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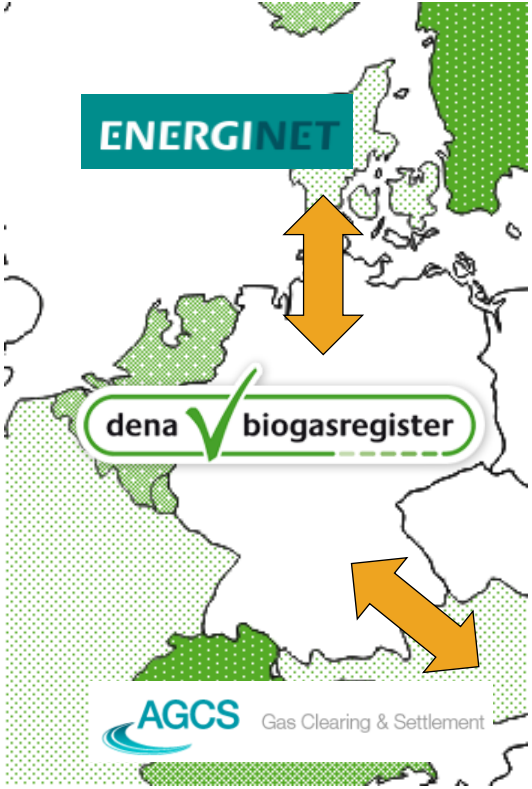
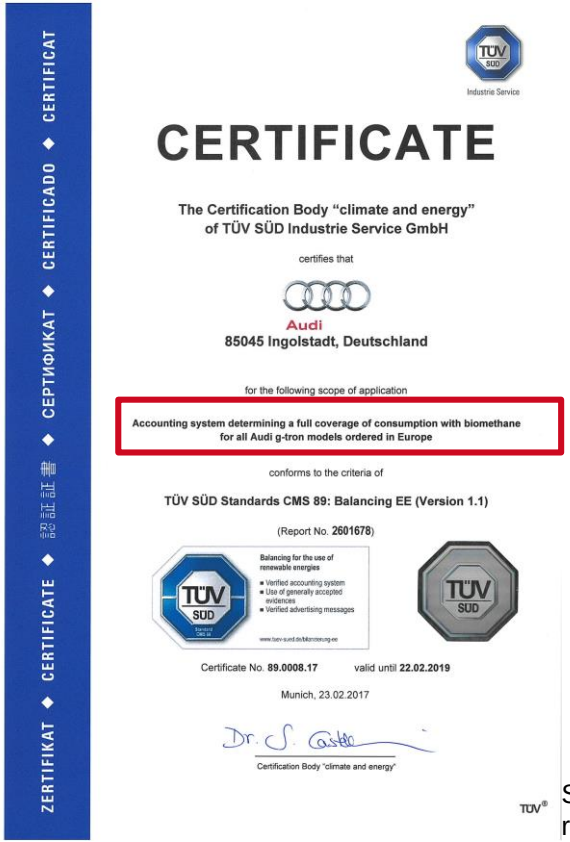
INTERNATIONAL BIOMETHANE TRANSFERS

- **TRANSFERS ENERGINET & AGCS → DENA**
  - 2017: 48 GWh
  - 2018: 30 GWh (only first half year)
  - 6 biogas plants involved
- **Transfers from other European destinations:**
  - 2017: 97 GWh
  - 2018: 3 GWh (only first half year)



GREEN GAS PRODUCTS



ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD Industrie Service

CERTIFICATE

The Certification Body "climate and energy"
of TÜV SÜD Industrie Service GmbH

certifies that

Audi
85045 Ingolstadt, Deutschland

for the following scope of application

Accounting system determining a full coverage of consumption with biomethane for all Audi g-tron models ordered in Europe

conforms to the criteria of

TÜV SÜD Standards CMS 89: Balancing EE (Version 1.1)

(Report No. 2601678)

Balancing for the use of renewable energies
- Verified accounting system
- Use of generally accepted evidences
- Verified advertising messages

www.tuev-sued.de/bilanzierung-ee

Certificate No. 89.0008.17 valid until 22.02.2019

Munich, 23.02.2017

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Source: https://www.audi.com/content/dam/com/EN/corporate-responsibility/product/Audi_e-gas_Zertifikat_Englisch.pdf

OUTLOOK

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OUTLOOK – RED2

Article 19: Guarantees of Origin (GoO)

- How many GoOs will be imported for green gas products (disclosure only) in the future?

Article 25: Renewable Energy in the Transport Sector

- How much biogas feedstock are available for advanced biofuels (Annex IX, Part A)?
- How will the number of gas vehicles develop in the future?
- Will the German government incentivize the utilization of biofuels in the maritime sector?

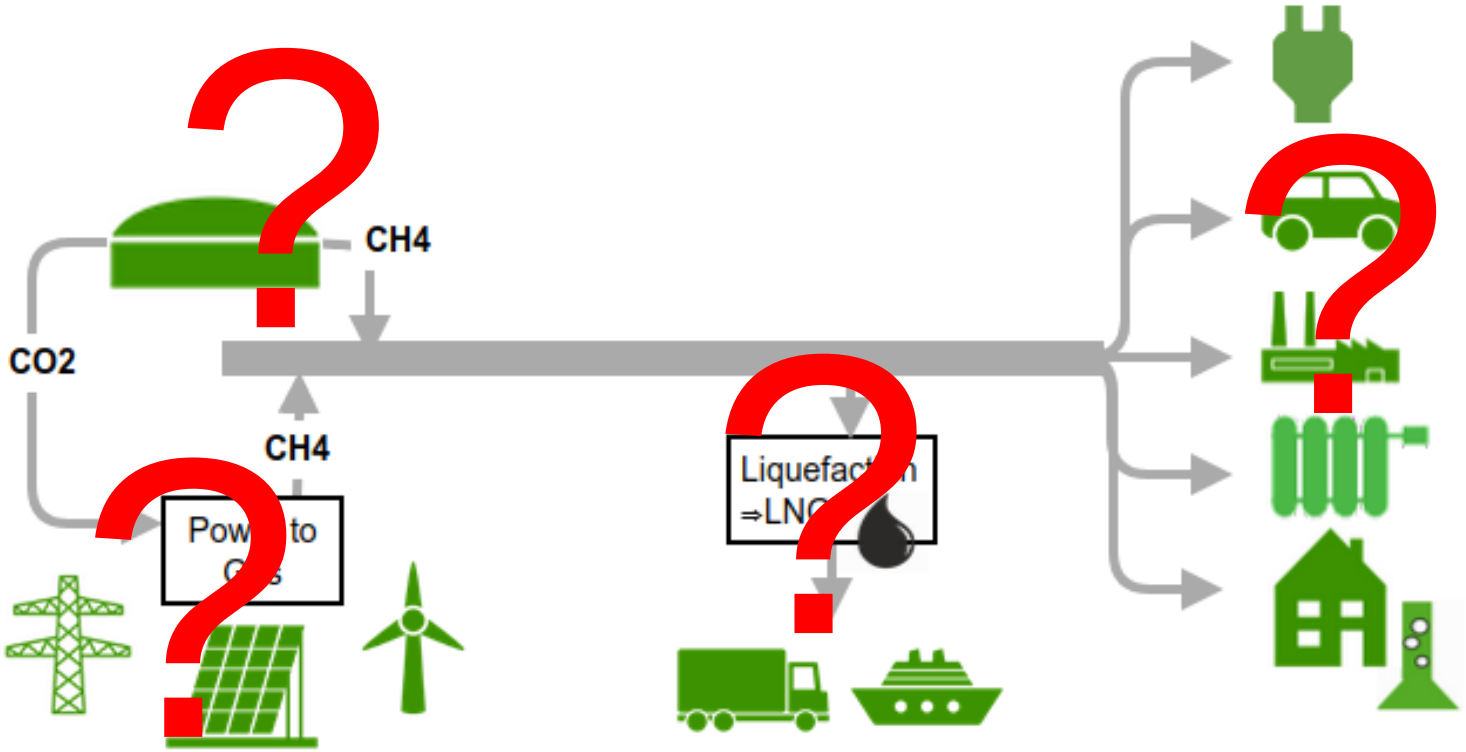
Article 26: Sustainability requirements for solid and gaseous biomass

- Which threshold will the German government implement for biogas/biomethane chp plants (0-2MW)?
- Can mixtures of maize and manure fulfill the ghg thresholds?

OUTLOOK – NATIONAL LEGAL FRAMEWORK

Application	Current Development
CHP (RES only)	• EEG: only 1 biomethane chp plant applied and won a tender in the 2017 auction
CHP (fossil with RES)	• KWKG: there are some options to utilize biomethane in combination with innovative CHP projects, but no experience, yet
Biofuels	• The implementation of advanced fuels could accelerate the market development of biomethane and Bio-LNG in Germany • The infrastructure must improve and the number of gas vehicles and ships must increase in the same time
Emission Allowances	• CO2 prices are not high enough yet
Heat	• Biomethane could replace a large volume of natural gas in existing buildings, an amendment of the Renewable Heat Act is pending
Green Gas Products	• many different options to improve company‘s or individual‘s ghg performance • increasing interest of companies to distinguish from competitors

OUTLOOK



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CONCLUSION

- There is **no „political agreement“** how to utilize and incentivize renewable gases in the future
- The implementation of RED2 will very likely **stimulate the production of biomethane from** Annex 9, Part A feedstocks for transportation
- In the **long-term** the **extension of sustainability requirements (RED2)** towards CHP and heat only applications could harmonize biomethane markets, in the **short-term** it creates **additional effort on certification and documentation**
- Integrated renewable gas production, international transfers, new application technologies and legal requirements **increase the importance of proper documentation** of origin and quality of renewable gases

MANY THANKS FOR YOUR ATTENTION!

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