BBioNets

Boosting the adoption of Bio-Based Technologies

Cross-Fertilisation Meetings

Bio-Based Practices on Farms & Forests

"Opportunities in Green Biorefineries"

Experience with the construction and operation of biomethane stations

Ondřej Frič, agriKomp Bohemia

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Ondřej Frič

Chief Sales Officer for Czech and Slovak market

- graduated from VUT Brno, Civil engineering – building constructions in 2007
- actively involved in the field of renewable resources for more than 18 years
- responsible for sales of biogas/biomethane plants, repowering and services; organizing subsidy projects and marketing of the entire company; managing R&D projects
- **currently the CEO of the first biomethane plant Rakvice in the South Moravia**
- speaks English, German, Polish and Spanish
- open to new opportunities and challenges in the biogas/biomethane sector



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agriKomp

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About us

agriKomp Bohemia

agriKomp Bohemia is one of the leading companies in the field of biogas and biomethane plants construction. It has been operating on the market since 2006. It provides customers with a complete and top-notch service. The service portfolio includes all areas of biogas technologies - from consultancy and design activities to handling the administration of the EIA process to complete turnkey construction of plant, including biological supervision by its own laboratory. It also provides consultancy on subsidy issues.

We are members of the European agriKomp group!


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Europe
Canada
China
Kenya
Finland
1
Sweden
12
Denmark
2
Poland
34
Germany
575
8
Czech Republic
87
2
Slovakia
7
Austria
3
Switzerland
11
Romania
6
France
169
49
Croatia
2
Italy
125
1038
biogas plants
59
biomethane plants
Year 2025
agriKomp
Bohemia

BBioNets


Czech Republic
100+
realization
Velké Chvojno
Velká Bukovina
Všebořice
Holany
Turnov
Lánov
Prosečné
Heřmánkovice
Košťálov
Vlčice
Pěkov
Chotěvice
Odolice
Olešnice
Račiněves
Dětenice
Újezd
Trnov
Stratov
Černíkovice
Rusín
Horní Slavkov
Praha
Dlouhá Ves
Žlutice
Chrášťany
Dříteč
Rokytno
Býkov
Uvalno
Žihle
Sedlec
Mostek
Dolní Dobrouč
Loděnice
Velká Černá Hať
Svídnice
Němčice
Knapovec
Postřelmov
Horní Benešov
Ostrov
Dlouhomilov
Ostrava
Doubravice
Litomyšl
Plzeň
Vidlatá Seč
Makov
Dětřichov
KRAKOŘICE
Dolní Lhotka
Vojtěchov
Kunčina
Domašov
Tošanovice
Kámen
Sedletín
Pacov
Moravská Huzová
Telecí
Haňovice
Bohuňovice
Jičina
Dolní Město
Valečov
Městský Dvůr
Velké Opatovice
Keřkov
Nový Dvůr
Velký Týnec
Krásno
Radňov
Bořitov
Rokytnice
Zárybničná Lhota
Určice
Troubky
Obora
Újezd u Černé Hory
Kouty
Hodov
Puchýrna
Hvozdná
Římov
Budišov
Brno
Krahulov
Lípa
Holečkov
Klučov
Střelice
sídlo firmy
Časlavice
Lesonice
Cizkrajov
Bratčice
České Budějovice
Chroboly
Bořetice
RAKVICE
Pánov
Chabičovice
Mikulčice
Věžovatá Pláně
Milná
Kyselov
Agricultural building
Biogas plant
Biomethane plant

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Slovakia
Huncovce
Belá
Koš
Jelšava
2×
Velké Ripňany
Kostolná
pri Dunaji
Biogas plant

25 biomethane-producing countries in Europe

Biomethane production in 2024

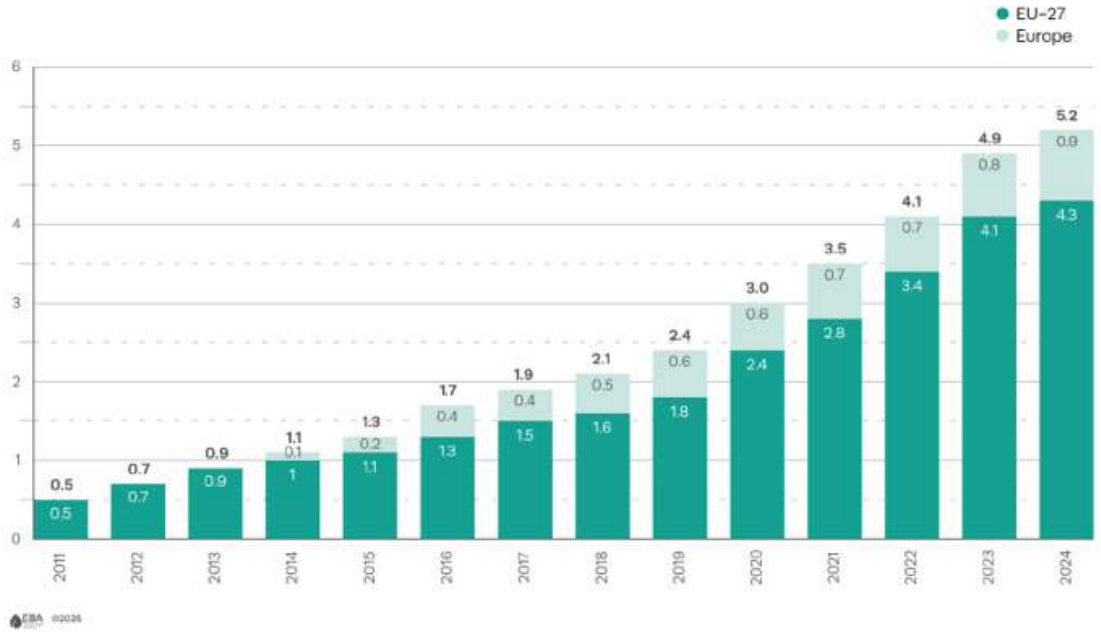
5.2 bcm
produced in Europe

4.3 bcm
produced in the EU-27

7 bcm/year
biomethane installed capacity in Europe (Q1 2025)

France, Germany, Italy, Denmark, and the UK are leading the production and scale-up of biomethane

Biomethane production in the EU-27 and Europe (bcm)



EBA European Biogas Association

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Grid connections and upgrading technologies

Biomethane plants connected to gas grid in Europe in 2025

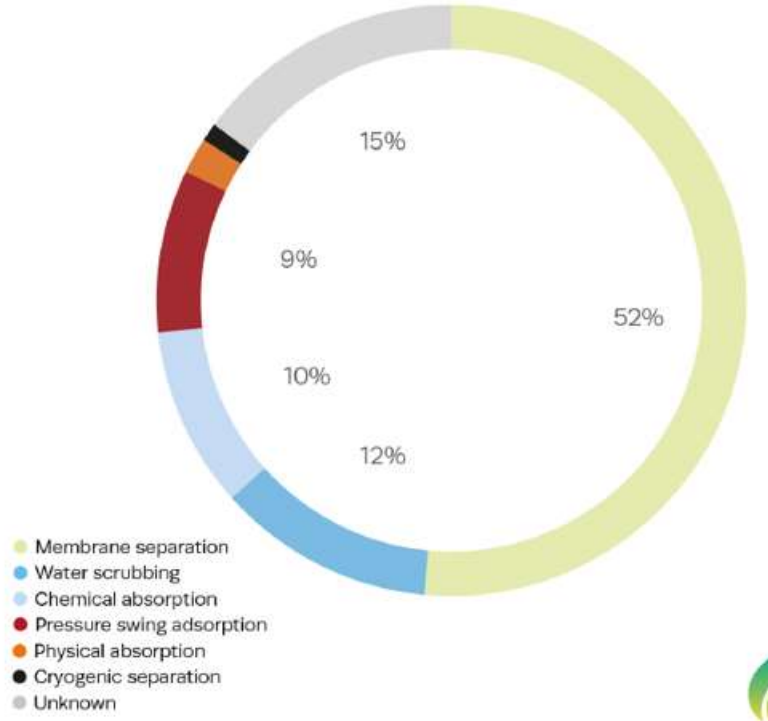
86% connected to grid
Mainly distribution grid



yellow – connected, blue – not connected, red – unknown

Upgrading technologies for biomethane production

½ of biomethane plants use
Membrane separation



EBA European Biogas Association

Digestate's role in circularity and sustainability



Circular approach

Sustainable crop yields with recycled nutrients

Fertilising value

Substituting part of synthetic fertiliser import in EU, which amounted to 24.2 Mt in 2024

Natural gas avoidance *2 bcm gas use avoided*

Natural gas: main raw material and energy source to produce synthetic nitrogen fertilisers

GHG reduction potential *10 Mt of CO_2 equivalent saved*

By displacing synthetic nitrogen fertilisers with digestate

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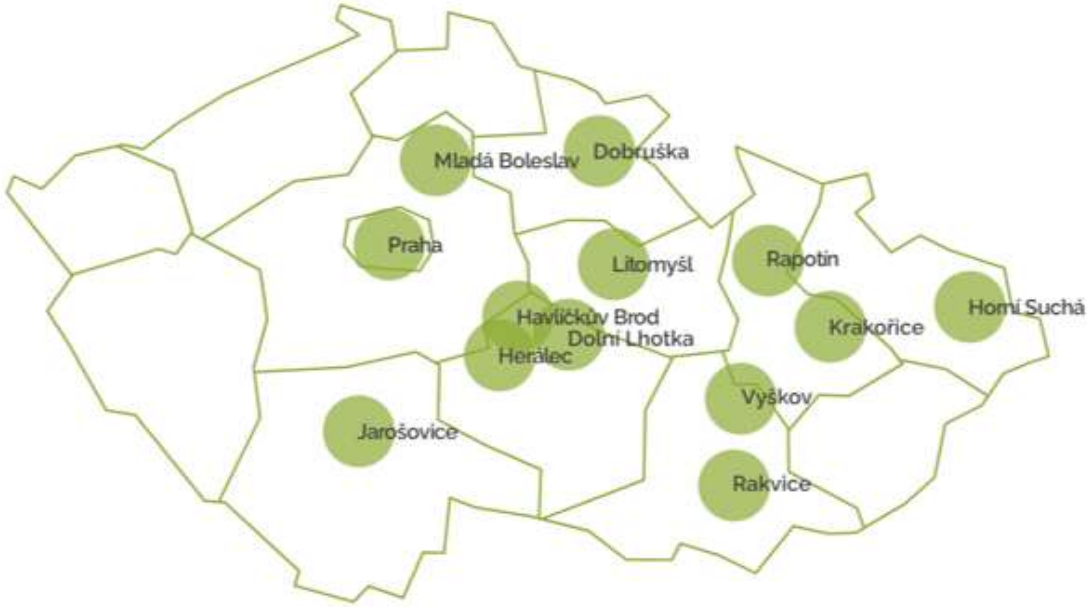
Why biomethane?



- **ecological benefit** – reduction of greenhouse gas emissions
- **stable source of income** – independent of fluctuations in agricultural commodity prices
- **efficient use of waste** – conversion of agricultural residues into clean energy
- **substitution of fossil fuels** – biomethane can fully replace natural gas

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Current situation in CZ



- today approx. 600 BGP + 13 BMP
- majority agricultural BGP
- guaranteed FiT for 20 years ends approx. 2028
- by 2030 at least 100 new biomethane stations should be built

Biomethane production 2024: almost 7 million m^3

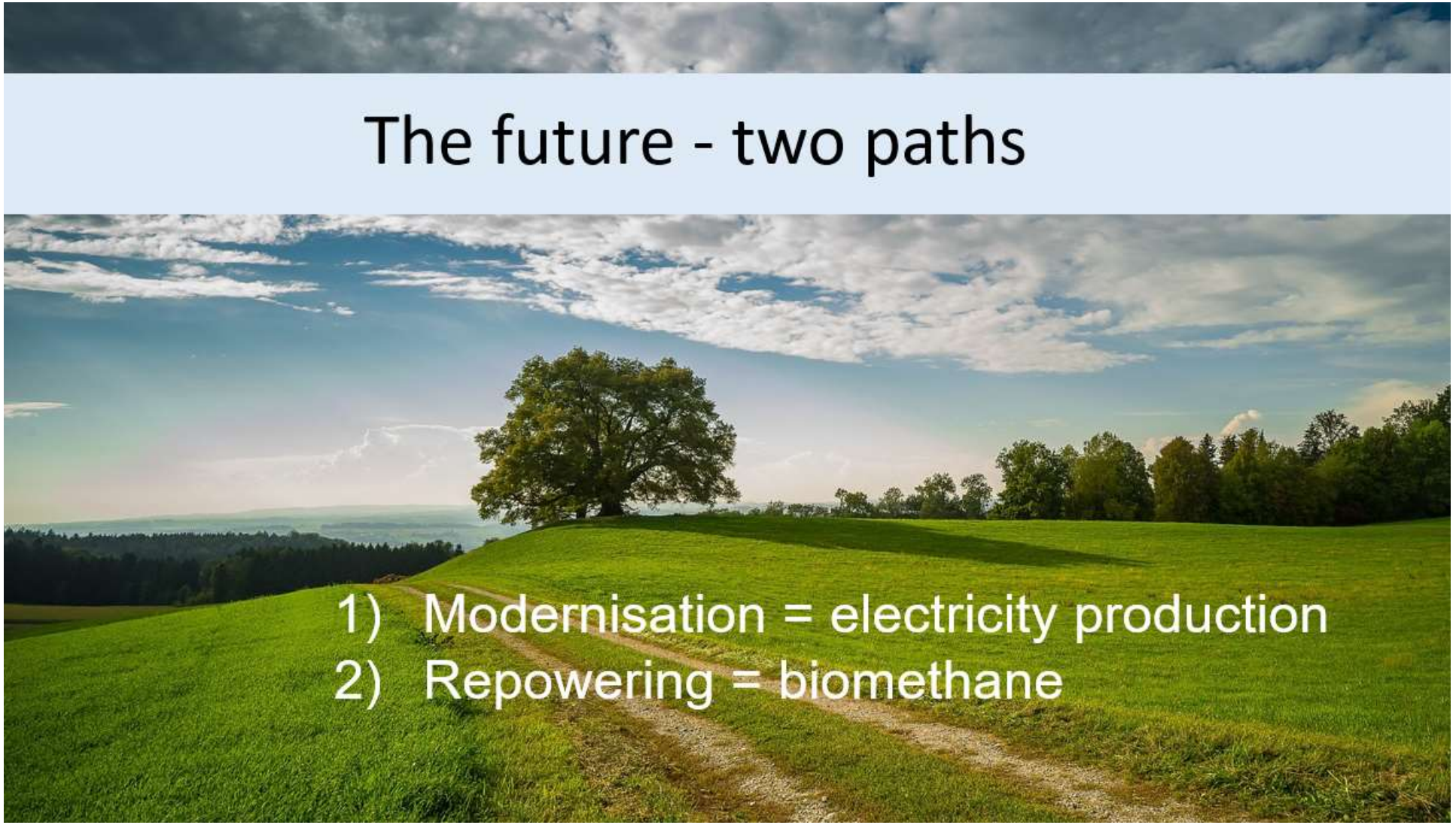
Installed capacity: 17,7 million m^3 per year

Target by 2030 – 500 million m^3 per year

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The future - two paths



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- **Start of operating auctions for biomethane:**

The first competitive auctions for operating support for biomethane production should be announced in spring 2026. The state will then submit an evaluation of the competition in the middle of the year. Investors will then have three years to put the stations into operation. The success of these auctions will decide whether the target of one hundred biomethane stations by 2030 can be met. It will be difficult to meet the targets given the deadlines and the sector faces a major competitive battle.

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- **Massive wave of modernization (repowering) and transformation to biomethane:**

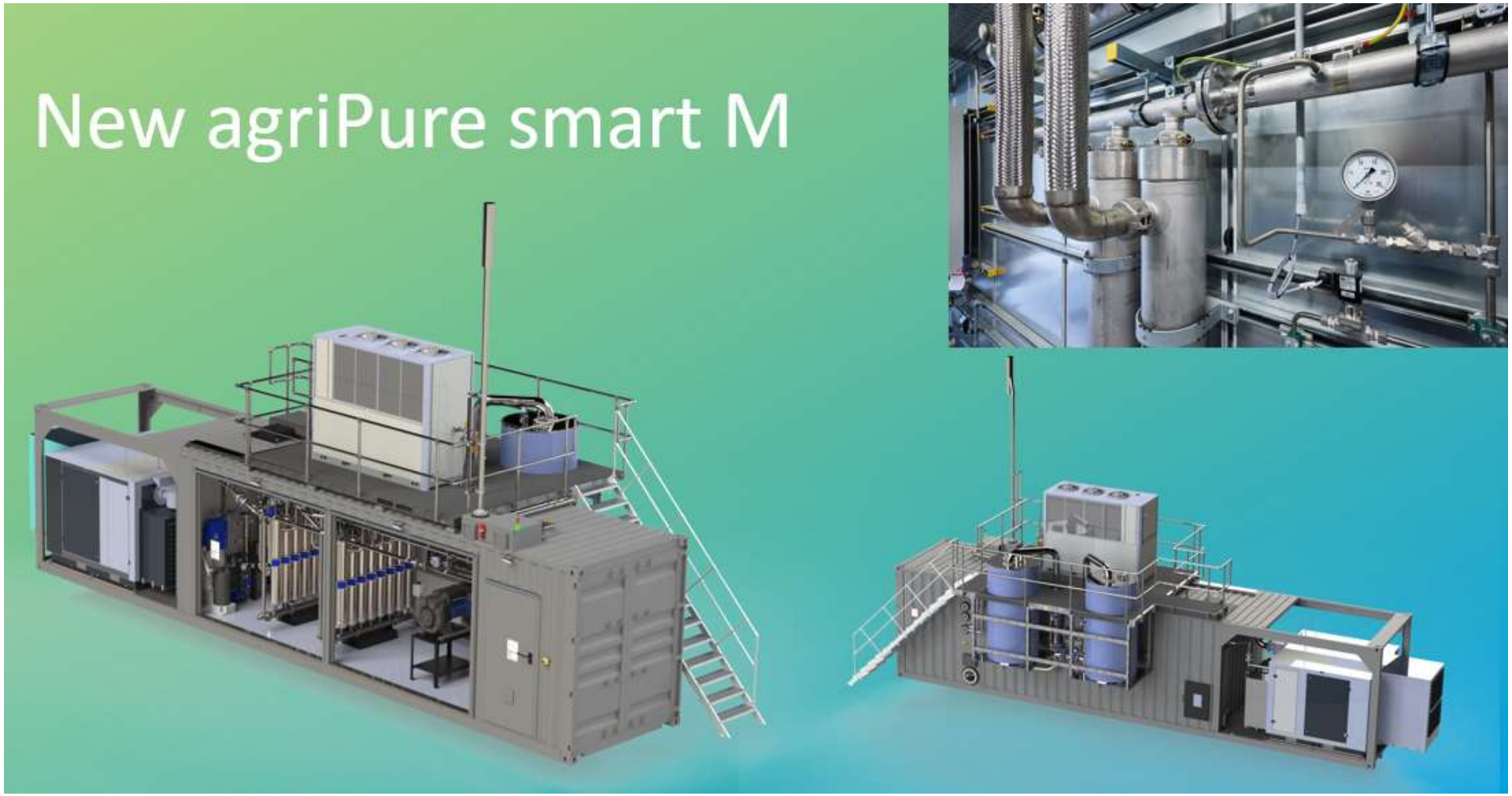
A large part of biogas stations built around 2006–2010 are approaching the end of their service life or the end of their original support. 2026 will be the year of decision: either invest in conversion to biomethane and injection into the gas grid, or switch to highly efficient and flexible electricity generation. However, the current modernization conditions are absurdly set, and at the same time many facilities cannot or are not suitable for conversion to biomethane. Decentralized production using energy at the production site is still the most advantageous solution.

- **The risk of closing stations** for which, on the contrary, modernization or transition to biomethane production will be economically meaningless or technically impossible. The gradual end of support means considerable uncertainty for many operators and the current state steps do not give the sector certainty that there will be interest in the stations. Transformation to biomethane production makes sense only for some stations, while other operators must then be able to use other forms of support (for example, to provide flexibility).

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- **Infrastructure development:** For biomethane production plants located far from distribution networks, a solution is being prepared in the form of a central injection point, where biomethane can be imported. Modification of gas distribution networks is also expected to make it possible to inject biomethane to the lowest pressure level and thus make less capacious parts of the distribution network accessible.




New agriPure smart M

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Technical data sheet

agriPure® Smart M 335-620 Nm³

agriKomp FERTIGUNG

		<0,5 % CH4 slip in exhaust gas				<0,7 % CH4 slip in exhaust gas, energy-optimized				<0,2 % CH4 slip in exhaust gas, emission-optimized		
Nominal flow rate		335	430	530	620	335	430	530	620	300	400	550
System type		Container	Container	Container	Container	Container	Container	Container	Container	Container	Container	Container
Length	m	12,2	12,2	12,2	12,2	12,2	12,2	12,2	12,2	12,2	12,2	12,2
Width (without attachments)	m	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
Height (without attachments)	m	2,9	2,9	2,9	2,9	2,9	2,9	2,9	2,9	2,9	2,9	2,9
Weight (indicative)	kg	13.100	13.100	13.100	13.100	13.100	13.100	13.100	13.100	13.100	13.100	13.100
Raw biogas interface	DN	250	250	250	250	250	250	250	250	250	250	250
Biomethane interface	DN	50	50	50	50	50	50	50	50	50	50	50
Technical data												
Optimum operating range	Nm³/h	200 to 335	300 to 430	320 to 530	400 to 620	200 to 335	300 to 430	300 to 530	300 to 620	300	400	550
Minimum raw biogas flow	Nm³/h	200	250	270	350	200	270	270	350	-	-	-
Minimum biomethane flow rate (at 55 % CH_4)	Nm³/h	109	137	148	192	109	151	151	196	-	-	-
Biomethane flow rate at nominal flow rate (at 55 % CH_4)	Nm³/h	183	236	290	339	183	241	297	340	163	219	301
Expected specific electrical energy requirement at nominal flow rate [1] [2]	kWh/Nm³ biogas	0,29	0,29	0,29	0,29	0,29	0,27	0,27	0,27	0,36	0,32	0,32
Expected specific electrical energy requirement at minimum flow rate	kWh/Nm³ biogas	0,32	0,34	0,33	0,33	0,32	0,32	0,32	0,32	-	-	-
Heat recovery at nominal flow rate [3]	kW	66	85	105	122	66	79	97	114	73	87	120
Maximum pressure of product gas (inlet pressure)	bar(g)	14,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0	11,0	11,0	11,0
Volume of activated carbon filters [4]	m^3	2 x 1,3	2 x 1,3	2 x 1,3	2 x 1,8	2 x 1,3	2 x 1,3	2 x 1,3	2 x 1,8	2 x 1,3	2 x 1,3	2 x 1,8
Emissions												
Methane slip in exhaust gas at nominal conditions (standard) [5] [6]	%	≤ 0,5	≤ 0,5	≤ 0,5	≤ 0,5	≤ 0,7	≤ 0,7	≤ 0,7	≤ 0,7	≤ 0,2	≤ 0,2	≤ 0,2
Sound pressure level at a distance of 10 m [7]	dB (A)	60	60	60	60	60	60	60	60	60	60	60

Further technical information		Sizes 335 - 620 Nm³/h
Supply voltage	V	400
Mains frequency	Hz	50
Membrane type	Type	EVONIK Sepuran
Process type	Steps	3
Gas type		Biogas from organic fertilizer and plant-based raw materials [8]
Biomethane quality	% by vol. CH_4	> 97
Dew point biomethane	°C	≤ -50
Ambient temperature	°C	+ 20 to +35

Equipment	Sizes 335 - 620 Nm³/h
Automation platform	Siemens TiaPortal
Visualisation	WinCC
Remote acces	Available
Gas quality detection	Biogas, biomethane and exhaust gas

The specified power consumption includes the following components:
- Gas cooling
- Precompression
- Pre-purification
- Main compressor
- Membrane unit incl. associated control
It may not include other components such as post-compression, post-combustion, separate desulphurisation, biogas technology, etc.

Mean concentration of the product gas:	
Methane	> 97 % by volume
Carbon dioxide	1-3 % by volume
Others	< 1 % by volume

Nominal conditions	
Load	50-100 %
Gas inlet temperature (before condensation drying)	20 °C
Rel. humidity	100%
Outside temperature	20 °C
Gas specification raw biogas	55 % CH_4
	44 % CO_2
	0,4 % N_2
	0,4 % O_2
Inlet pressure	+2 mbarg
For further information on permitted impurities, please refer to the applicable document for the gas specification agriPure (2000027).	

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Mitglied im Fachverband Biogas e.V.

Fachbetrieb nach WHG
Zertifiziert nach ISO 9001

1. Realization RAKVICE

Biomethane station with unique technology

agriPure® Cube 220 Nm^3/h





The biomethane production was put into operation in the spring 2024.

Inputs: biomethane produced 100% from manure

CO_2 emissions: -104.4 gCO_2 eq/MJ of biomethane input

Sale of gas (commodities) + guarantee of origin and certificate proof of sustainability

Revenues growth for BM against EL +40%

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agriKomp
Bohemia



2. Biomethane station KRAKOŘICE

The first newly built agricultural biomethane station in the Czech Republic

Opening: May 19, 2025

One main project supplier = a guarantee of reliability!




Krakořice 2025

Main parts

- input sump for liquid inputs 13/6 m
- silage trough with a capacity of 33 thousand m^3
- 2 fermenters 22/6 m (+Vielfrass® feeding equipment)
- sub-fermenter 22/6 m
- final storage 36/8 m
- KGJ agriKomp BGA136 (250 kWel)
- cleaning unit agriPure V2 500 (500 Nm^3/h biogas)
- biomethane injection unit into VTL GasNet (distance 1.097 km)



INPUTS:

- Animal manure and litter
- Silage residues and silage tops
- Beet pulp and corn silage

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Biogas station start-up



- loading of the tanks, subsequent heating, biogas production
- KGJ without overflows – what does this mean for the start-up of the BGP
- obtaining a permit to inject
- we managed to get the gas company to think about the methodology for testing biogas, which components will be checked in agricultural BGP
- testing the injection unit
- sealing the chromatograph, flow meter
- CELEBRATIVE TURNING OF THE TAP

Biomethane stations connecting

- ✓Standardized procedures
- ✓Information on the website
- ✓Excellent communication
- ✓Odorization station
- ✓VTL gas pipeline

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Biomass potential

- 1 t manure: 60 m^3 biogas
- 1 t distillery waste: 100 m^3 biogas
- 1 t sugar beet pulp: 100 m^3 biogas
- 1 t grass: 150 m^3 biogas
- 1 t corn: 200 m^3 biogas
- 1 t food waste: 300 m^3 biogas
- 1 t lecithin sludge: 400 m^3 biogas
- 1 t G-phase: 700 m^3 biogas



1 m^3 biogas = 2 kW electricity and 2 kW heat

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The future of CO_2 use

- **CO_2 liquefaction technology**
- **Chemin du Roi, France**



Capacity: 500–940 kg/h liquid CO_2
Input: 250–480 Nm^3/h CO_2
Operating pressure: approx. 14 bar(g)
Input conditions: 30–40 °C,1.0–1.1 bar(a)

Operating range: −20 to +38 °C
Non-condensable gases: < 1%, sulfur max. 2 ppm
Process: multi-stage purification (VOC, water, adsorption)

Thank you!

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