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Prospects of biomethane in Ukraine

Georgii Geletukha,

Doctor of Sciences (Engineering)

Head of the Board,

Bioenergy Association of Ukraine (UABIO)

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UABIO

Bioenergy Association of Ukraine – non-profit civic union, that unites business and experts for sustainable bioenergy development in Ukraine.

10
years

20+
experts

43
companies

11
individuals



Biogas/biomethane in Ukraine (2022)

Parameter	Biogas	Biomethane
Installed capacity, MWe	140 (33 MW for LFG)	3 mill m ³ /year
Generated electricity, GWh	505.4 (122.2)	–
Number of plants	83 (33 for LFG)	1
Gas networks (km)	33 400	
Gas refilling stations for CNG	~ 300	

- The individual projects ranged from **125 kW_e** to **26 MW_e** installed capacity.
- **A wide range** of industries and different types of **feedstock**
- **First biomethane project** has started operation in April 2023 on the base of existing biogas plant



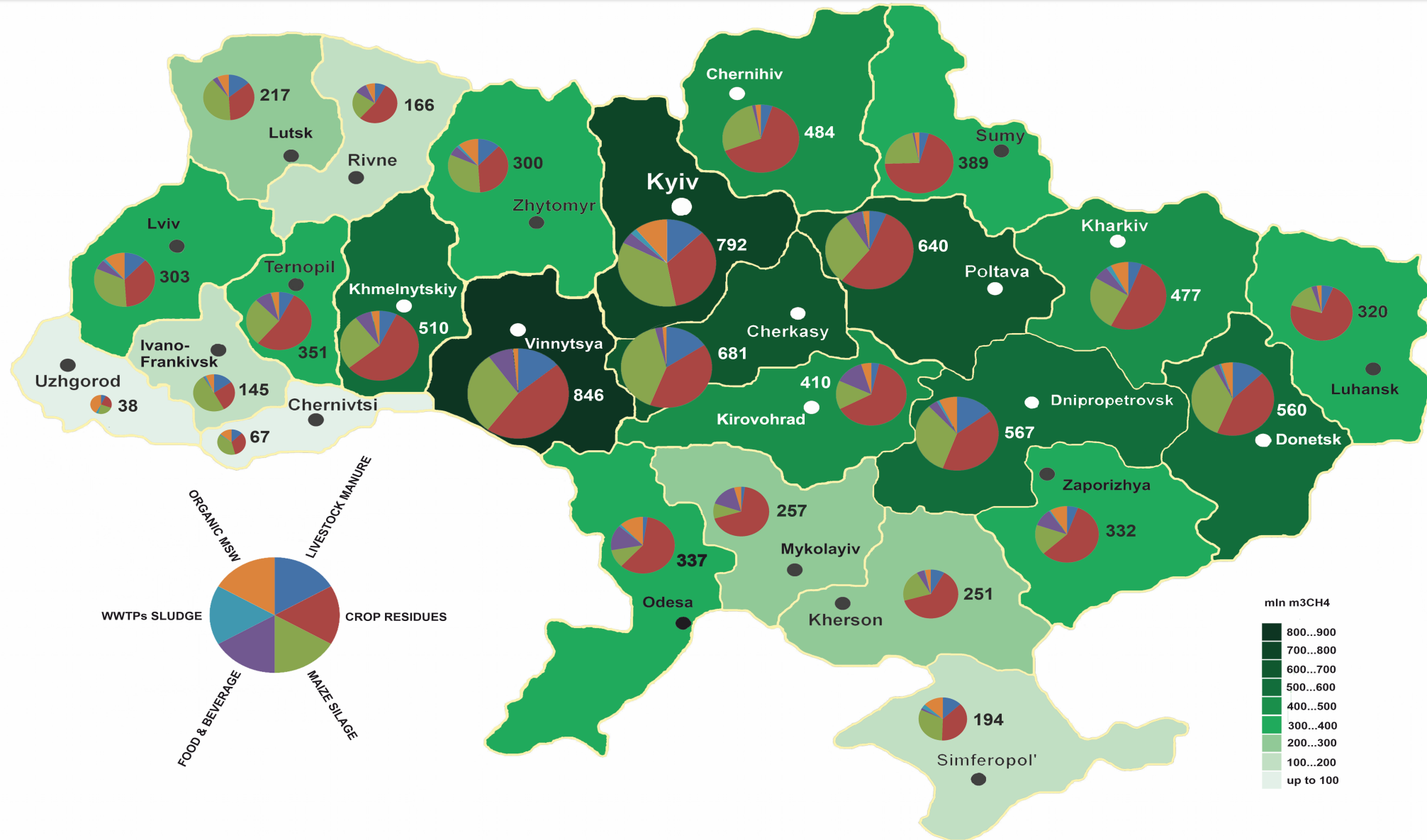
Why biomethane and why in Ukraine?

- Biomethane is **absolutely ready for injection into the gas network** today. No investment is required in the modernization of gas networks (GTS and GDS) and gas equipment (gas burners, engines, turbines,...).
- Ukraine **can compete with any country in the production of biomethane**. Ukraine can offer the cheapest raw materials for biomethane production. Ukraine has the largest area of agricultural land in Europe, and, accordingly, one of the world's best potentials of agricultural raw materials for biomethane production.
- Biomethane plants, in addition to biomethane, generate **digestate, which can become the main organic fertilizer** needed for the revival of Ukrainian soils.
- Today it is **the cheapest of the possible renewable gases**.
- The EU adopted ambitious plans for the production of biomethane (REPowerEU): **35 billion m³/year in 2030**. Ukraine can potentially provide up to **20%** of this need.

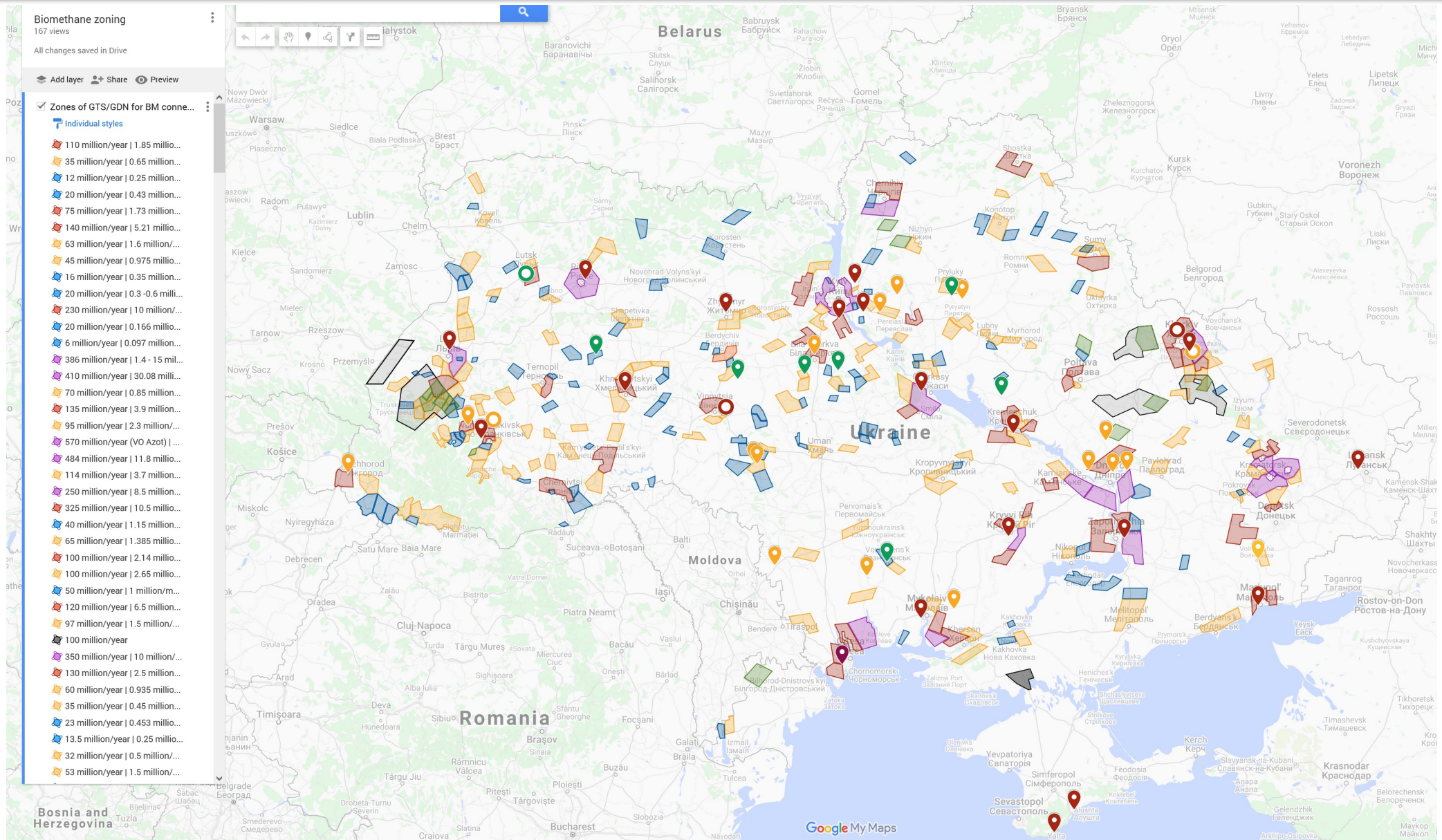
Biogas/biomethane production potential in Ukraine

BIOGAS/BIOMETHANE, billion m3 CH4/year	
Biogas from animal waste	0,9
Biogas from harvest residues of agricultural crops	5,2
Biogas from by-products of the food processing industry	0,7
Biogas from solid household waste	0,5
Biogas from sewage sludge (municipal treatment plants)	0,1
Energy plants: biogas from corn silage (from 1 million hectares)	3,8
Biogas from cover crops (20% of arable land)	9,8
Biogas from BM obtained by thermal gasification (10%)	1,0
BIOGAS/BIOMETHAN, total, billion m3 CH4/year	21,8

Regional structure of biomethane potential in Ukraine



Interactive map of optimal zones for location of biomethane plants in Ukraine



Link to the map: https://www.google.com/maps/d/u/0/edit?mid=1ttZ12uWjd2NxxH-xc3Lin61fN_4JrE1D&usp=sharing

Feasibility study of biomethane production (10 mill m³/year)

Indicator		straw/corn stalks + manure
Straw/Stalks and corn silage price	€/t	40
Biomethane price	€/MW*h	90
CAPEX	mill €	16,3
NPV	mill €	28,2
IRR	%	28,3
Simple payback period	years	3,6
LCOE (biomethane)	€/MW*h	49,7

Basic legislation implemented in Ukraine for development of biomethane sector.

[Law of Ukraine "On Amendments of some Laws of Ukraine regarding the development of biomethane production" № 1820-IX from 21.10.2021 p.](#)

Definition of the term "**biomethane**", establishment of the **biomethane register** and the **GoO system for biomethane**.

[Law of Ukraine "On state support of investment projects with significant investments in Ukraine" No. 3311-IX dated August 9, 2023](#)

For projects on production of bioethanol, **biogas and biomethane** with total investments **more than 12 mill Euro**:

- 1) exemption from payment of **certain taxes and fees**;
- 2) exemption from **import duty taxation** of new equipment and accessories for it;
- 3) the **predominant right to land use** of state or communal property;
- 4) provision at the expense of **budget funds for the construction of engineering and transport infrastructure** or compensation for such construction;
- 5) compensation of costs for **connection to engineering transport networks**;
- 6) exemption from compensation for forestry production losses.

[The Procedure of the functioning of the Biomethane Register](#) was adopted by the Resolution of the Cabinet of Ministers of Ukraine in July 2022 (Decree #823). **The Register should start operation till the end of 2023.**

[NEURC \(the Regulator\) amendments on 8 June 2023 to a number of its resolutions aimed at supporting the development of the biomethane sector in Ukraine](#) The concept of a **Reverse Flow Compressors** has been introduced.

First Ukrainian Biomethane Plant

Location: biogas plant of Gals Agro company (Chernihiv reg.)

Start of operation: April 2023

Production of **3 mill m3 of biomethane/ year** (eq. 1,3 MWe) on the base of existing biogas plant of 6,9 MWe.

Feedstock: manure, sugar beet pulp, corn silage

Upgrading: membrane technology



Some investment opportunities for biomethane projects in Ukraine (FS is done or in the progress)

No	Company name	Capacity, mill m3 of biomethane/y	Raw materials	CAPEX, mil €	IRR, %	Payback period, years	Contact
1	LLC "Pro-energy"	15,0	Manure, sequential crop silage, straw etc.	20,9	35	3,5	ruslan.delidon@pro-energy.com.ua
2	HarvEast Holding	6,6	Crop residues, energy crops;	10,5	22,8	5,4	Tetiana.Mushenok@harveast.com
3	LLC "Chernihiv Industrial Dairy Company"	10,0	crop residues, manure, straw etc.	16,3	28	4,3	y.andrushkina@imcagro.com.ua
4	LLC "Zelena Doluna"	2,2	beet pulp	20,4	19,2	6	v.medvid@akzd.com.ua
5	LLC "LVN LIMITED"	10,0	corn stillage, energy crops	16	273	1,5	iaroslav.boiarchuk@nemiroff.pro
6	PE "Demetra Bioenergy"	5,0	chicken droppings, crop residues, grain waste	17	38	3,7	sov775@gmail.com

Some investment opportunities for biomethane projects in Ukraine (FS is done or in the progress)

No	Company name	Capacity, mill m3 of biomethane/y	Raw materials	CAPEX, mil €	IRR, %	Payback period, years	Contact
7	DIONYS BIOGAS ENERGY LLC	Biomethane plant	Crop residues, energy crops, stillage.	10,3	50	3,2	dvvddm@gmail.com
8	YUSEFO-MYKOLAIVSKA BIOGAS COMPANY LLC, UM LIQUID GAS LLC	bio-LNG 14 600 t/year	Crop residues, energy crops, beet pulp	34,5	28,5	4	v.denechko@sparrow-capital.com
9	GALS AGRO	6,0	Energy crops, manure, crop residues	5,1	13	5	v.medvid@akzd.com.ua
10	AgroRos-Invest LLC	8,6	chicken droppings, pig manure, crop residues, cover crops, straw, grain waste	20	32	4	dmytro.zolotoverkhyi@agro-ros.com.ua
12	"VITAGRO ENERGY" LLC	Biomethane plant	-	7,2	19	6,3	ivakhiv@vitagro.com.ua

UABIO optimistic scenario of Ukrainian biomethane market until 2050 (under removal of all barriers)

	2027	2030	2035	2040	2045	2050
Production of biomethane, bcm/y	0,25	1,00	2,1	4,5	9,5	20
Export of biomethane, bcm/y	0,13	0,50	1,05	2,25	4,8	10
Consumption in Ukraine, bcm/y	0,13	0,50	1,05	2,25	4,8	10
Number of biomethane plants, units	50	200	420	900	1900	4000
Necessary investments, billion €	0,5	2,0	4,2	9,0	19,0	40
Reduction of GHG emissions, mill t of CO ₂ -eq./y	0,6	2,5	5,3	11,3	23,8	50
Created new jobs, thousand units	3,1	12,5	26,2	56,2	118,7	250

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**Welcome to Ukraine
and to UABIO!**

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E-mail: geletukha@uabio.org