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Prospects of Biomethane Development in Ukraine

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

9

years

20+

experts

34

companies

11

individuals



Figures on biogas/biomethane in Ukraine

Parameter	Biogas	Biomethane
Installed capacity, MW e (2021)	124.3 (32.4 MW for LFG)	0
Production volume, GWh (2021)	1361.3	0
Electricity production volume, GWh (2021)	552.7	0
Number of plants	73 (31 for LFG)	0
Gas networks (km)	33 400	
Gas refilling stations for CNG	~ 300	

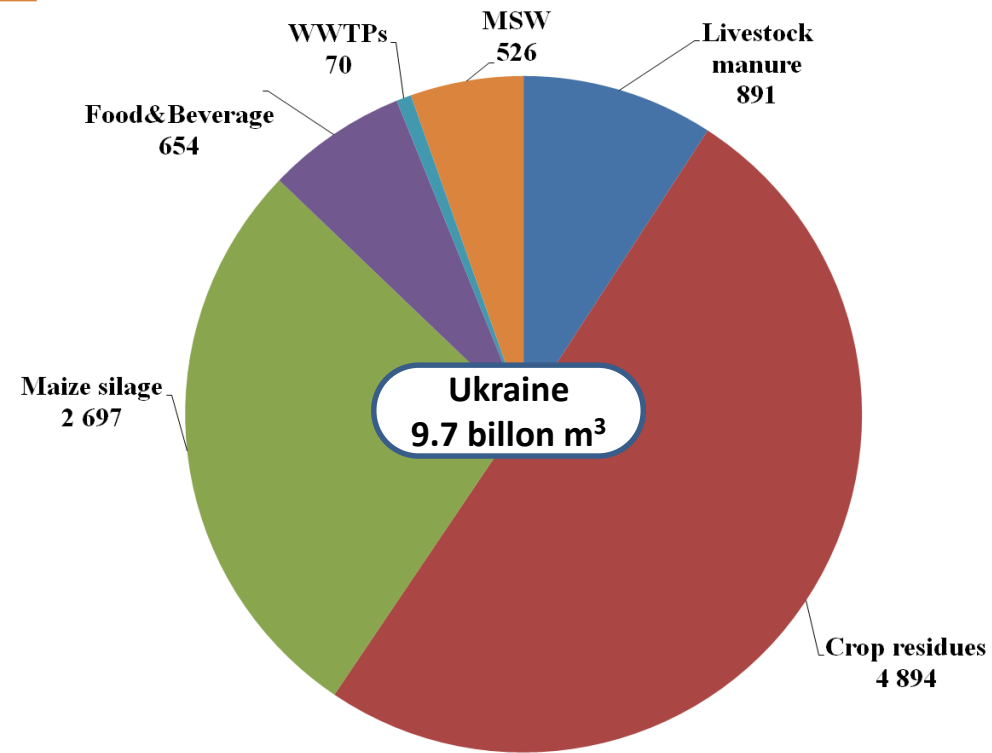
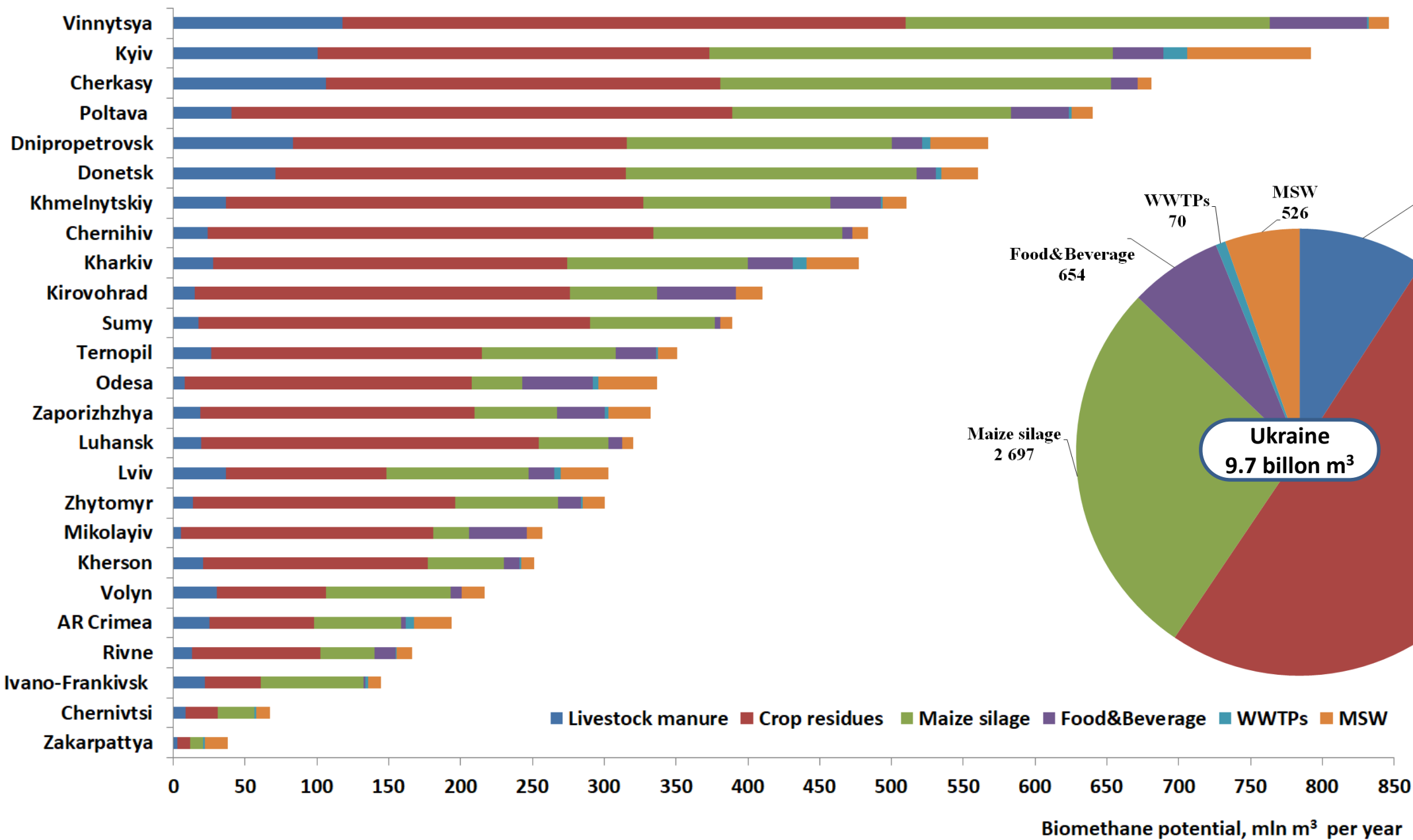
- The individual projects ranged from **125 kW_e** to **26 MW_e** installed capacity.
- Despite the limited number of implemented agricultural biogas plants their technical scope covers a **wide range** of industries and different types of **feedstock**
- **First biomethane project(s)** in 2022-2023 (conversion of existing biogas plants)



Why biomethane?

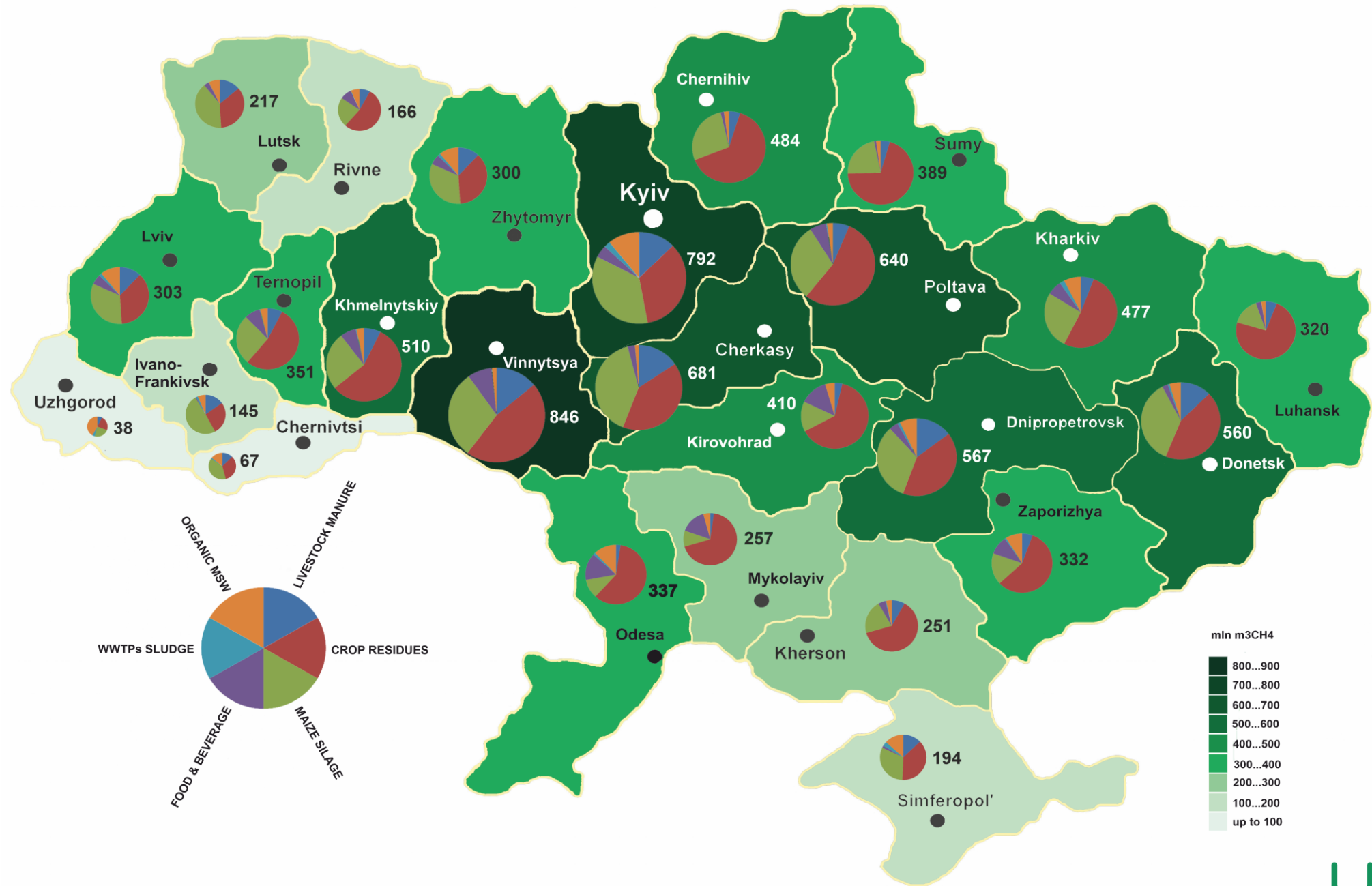
- Biomethane is **absolutely ready for injection into the gas network** today, unlike hydrogen. No investment is required in the modernization of gas networks (GTS and GDS) and gas equipment (gas burners, engines, turbines,...).
- Ukraine **can really compete with any country in the production of biomethane**. 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**.

Biomethane production potential in Ukraine - 9.7 billion m³/year (2020)

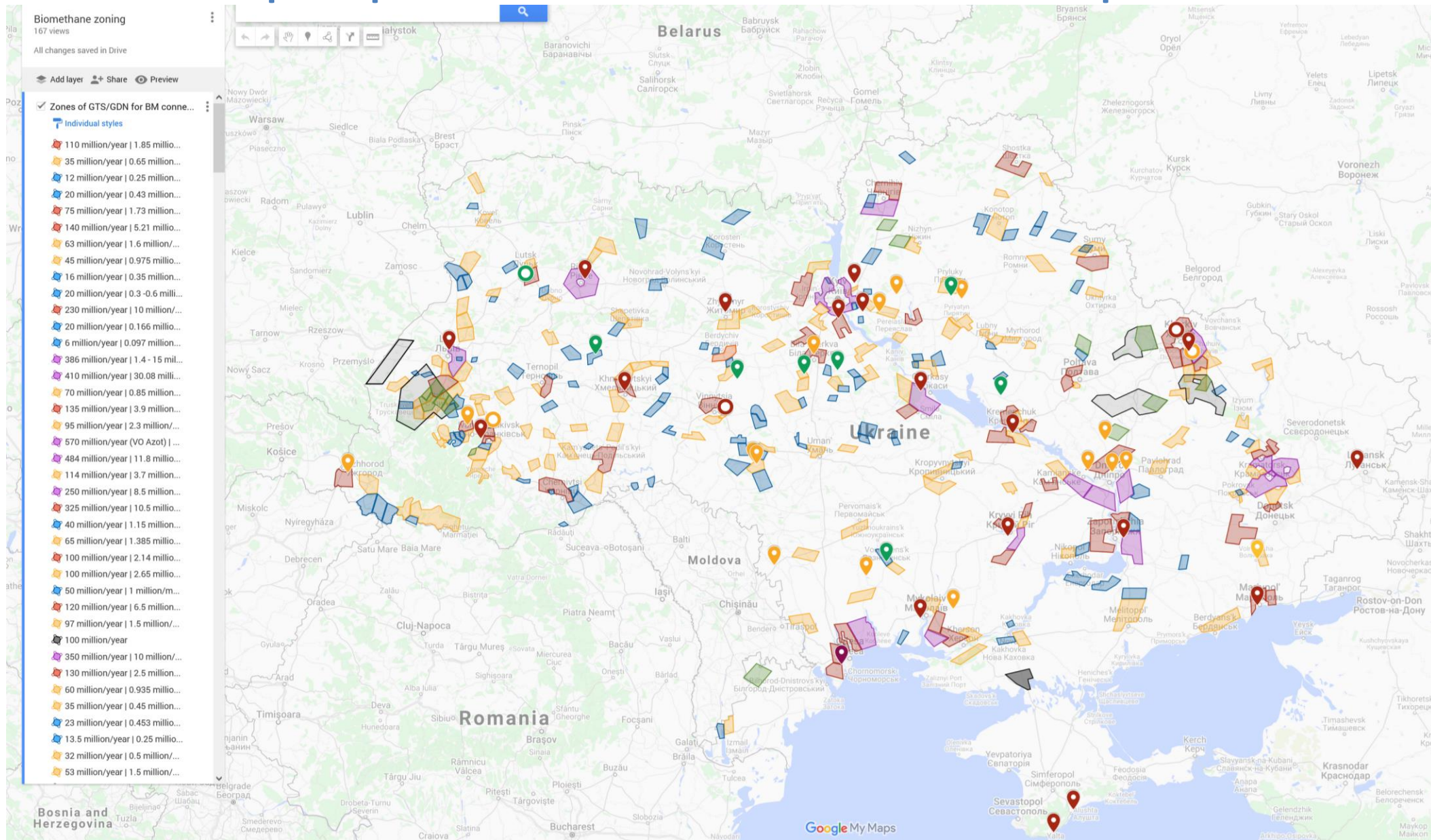


Biomethane potential, mln m³ per year

Regional structure of biomethane potential in Ukraine



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) from wheat straw/ maize stalks + corn silage + manure

Indicator		straw/stalks processing via bio-extruders + corn silage
Straw/Stalks and corn silage price	€/tDM	40
Biomethane price	€/1000 m ³	900
CAPEX	mill €	16,31
NPV	€	28 273 046
IRR	%	28,3
Simple payback period	years	3,6
LCOE (biomethane)	€/1000 m ³	524
	€/MW*h	49,7

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

(<https://zakon.rada.gov.ua/laws/show/1820-20#Text>)

Amendments to the Law of Ukraine "On alternative fuels":

- 1) **Definition of the term "biomethane"** – biogas with physical and technical characteristics that meet the requirements as for natural gas for supply to the gas transmission and gas distribution system or as for the motor fuel.
- 2) **Establishment of the biomethane register** – to record biomethane submitted to or taken from the gas transmission or gas distribution system.
- 3) **Development of issuance system for guarantees of biomethane origin** - documents generated by the biomethane register that confirms that biomethane **is produced from biomass** and contains information **about the amount** of biomethane submitted to the gas transmission or gas distribution system.

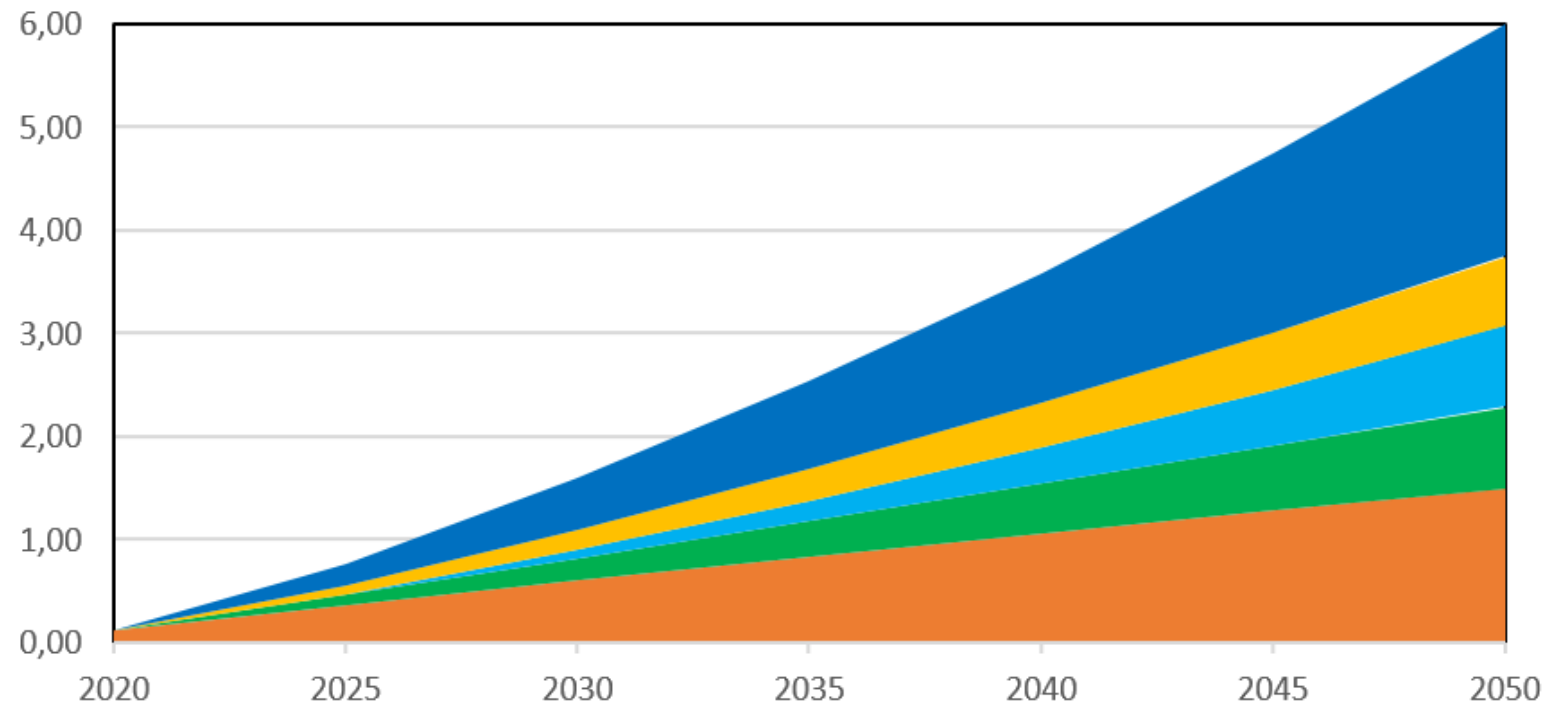
Amendments to the Law of Ukraine "On the Natural Gas Market":

The provisions of this Law on natural gas shall apply on a non-discriminatory basis to biogas or other types of gas from alternative sources, if biogas or other gas from alternative sources meets the requirements for access to gas transmission and distribution systems, gas storage facilities, LNG installations.

The Procedure of the functioning of the **Register of biomethane** production and consumption was adopted by the Resolution of the Cabinet of Ministers of Ukraine in July 2022 (Decree #823). Expected result is a launch of the Register of biomethane production and consumption in the beginning of 2023.

Prospects for the development of the biogas/biomethane sector until 2050, billion m³ of CH₄/year

Annual production of biomethane and biogas, billion m³



- Biogas (power, heat)
- Biomethane (CHP)
- Biomethane (transport)
- Biomethane (export)
- Biomethane (heat/industry)

	2030	2050
Biogas (CHP), bill m ³ CH ₄ /year	0,6	1,5
Biomethane , bill m ³ CH ₄ /year, including:	1,0	4,5
Export	50%	50%
CHP	22,5%	17,5%
Heat	20%	15%
Transport	7,5%	17,5%

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and to UABIO!**

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