

# ADVANTAGES OF BIOGAS POWER PLANTS IN ENERGY TRANSITION OF PANNONIAN COUNTRIES (2) - Benefits for the national economy

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The national economy and energy sector have a number of very significant benefits from investing in the construction of biogas plants (BgP) compared to other renewable sources - as shown in Figure 1 and tables 1 - 2.

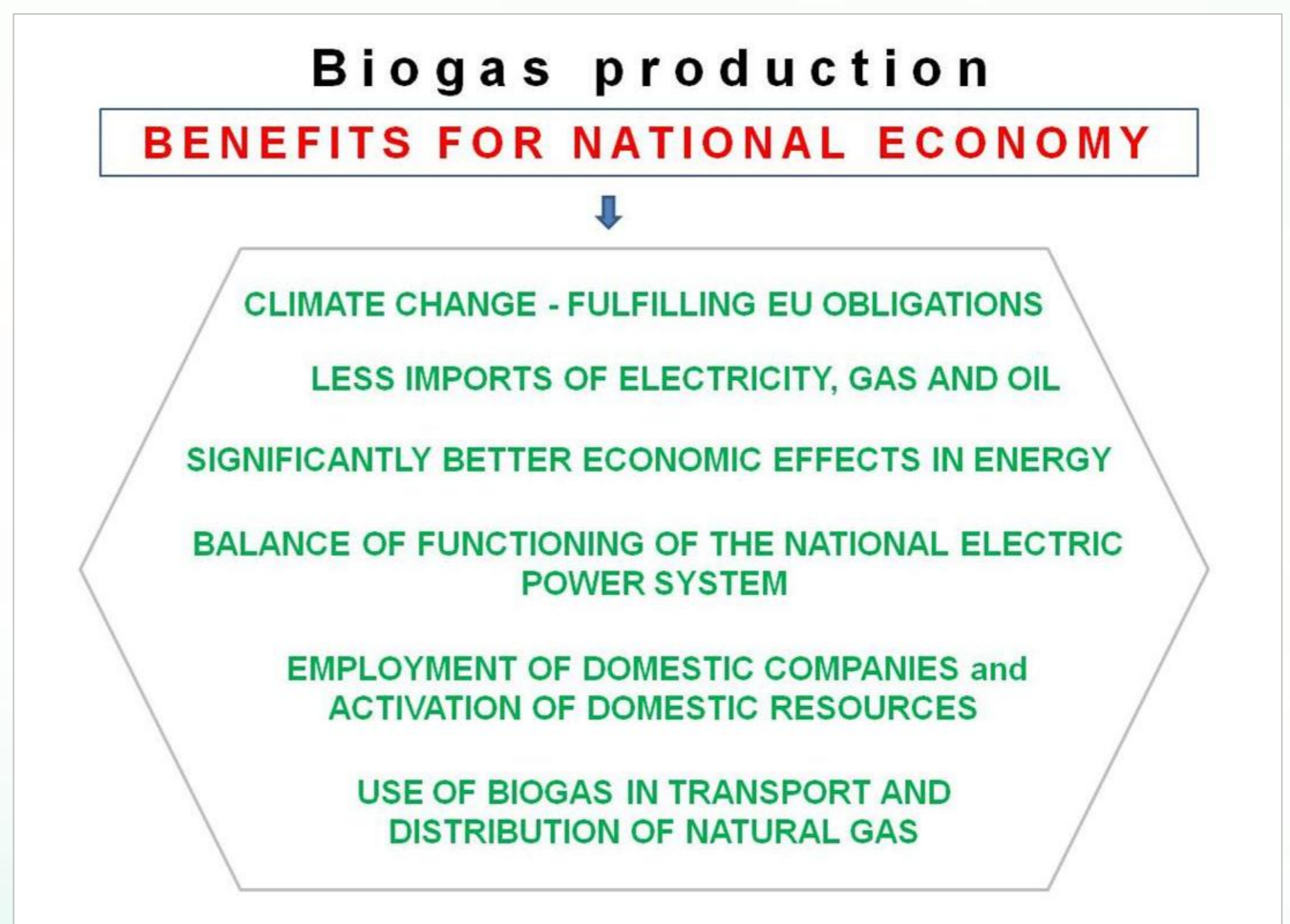


Fig. 1. Benefits to the national economy from the construction of biogas power plants

Table 1. Investment channels - effects on € 1 million value of total investments

Indicator	Power plant type	Wind farms	Solar	Biomass	Biogas	Small hydropower
GDP (000 €)						
Direct effect		739,1	973,6	188,9	<b>215,8</b>	916,3
Indirect effect		193,3	17,5	671,5	<b>608,0</b>	73,3
Induced effect		91,0	7,4	336,5	<b>183,5</b>	35,3
Total effect		1023,3	998,6	1197,0	<b>1007,3</b>	1025,0
Number of employees in terms of annual labor input						
Direct effect		0,6	0	11,7	<b>8,6</b>	6,0
Indirect effect		6,5	0,5	37,8	<b>33,3</b>	2,5
Induced effect		3,6	0,3	13,1	<b>7,2</b>	1,4
Total effect		10,7	0,7	62,7	<b>49,1</b>	9,8

Table 2. Intermediate consumption channel - effects on € 1 million value of total investments

Indicator	Power plant type	Wind farms	Solar	Biomass	Biogas	Small hydropower
GDP (000 €)						
Direct effect		130,0	238,4	217,1	<b>240,9</b>	235,9
Indirect effect		94,2	181,0	178,1	<b>212,9</b>	200,6
Induced effect		120,5	216,9	199,9	<b>220,3</b>	210,7
Total effect		344,6	636,3	595,1	<b>674,1</b>	647,3
Number of employees in terms of annual labor input						
Direct effect		6,1	8,2	9,8	<b>11,9</b>	11,6
Indirect effect		3,2	6,5	6,5	<b>6,6</b>	6,1
Induced effect		5,0	8,5	8,6	<b>9,0</b>	8,3
Total effect		14,3	23,2	24,9	<b>27,5</b>	26,0

## CONCLUSION

Our considerations - on the example of the Republic of Croatia - showed: a) That BgP have the most favorable effects on the GDP of the national economy - compared to other renewable sources - through investment, intermediate consumption and employment of domestic labor and activation of national resources. b) Important benefits for the national economy are to: reducing CO<sub>2</sub> emissions and municipal waste disposing; fewer imports of electricity, gas, and oil; significantly better economic performance in energy; balancing functioning of the national electricity system; hiring domestic companies and activating domestic resources; and Use of biogas in transport. c) European developed countries are achieving strong growth in biogas capacity building and biogas use, and especially strong growth in biogas refining capacity (biomethane production). d) States in the Pannonian area should pay special attention to investments in renewable energy sources and objectify the eco-friendly, ecological and energy effects of certain forms of renewable energy sources, and not be subject to the influence of interest lobbies without a critical approach.