

UNDP/GEF PROJECT:

„REDUCING BARRIERS TO ACCELERATE THE DEVELOPMENT OF THE BIOMASS MARKET IN SERBIA“

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KEY INFORMATION ABOUT THE PROJECT

- **Title:** Reducing Barriers to Accelerate the Development of the Biomass Market in Serbia
- **Project goal:** to increase the share of energy from renewable sources in energy mix of Serbia
- **Total value of the Project:** USD 30,475,000 as follows
 - The Global Environmental Fund (GEF): USD 2,845,000
 - United Nations Development Programme (UNDP) : USD 310,000
- **Other project participants:** USD 27,630,000 (institutions of the RS and investors)
- **Project implemented by:**
 - UNDP (4 components) and
 - The Ministry of Mining and Energy (1 component) in cooperation with the Ministry of Agriculture and Environmental Protection (NIM).
- **Project duration:** 2014 – 2018

EXPECTED PROJECT OUTCOMES

1. Improved capacity of investors to identify, develop, fund and manage bankable biomass projects for energy generation;
2. Improved institutional and legal framework for investments in biomass projects;
3. Successful operation of Biomass Support Unit (BSU) within the Ministry of Mining and Energy;
-  4. Successfully funded, constructed and operational 6 to 8 heat and power co-generation plants using biomass/biogas of total installed capacity of 4 MW;
5. At least another 12 projects supported by the BSU.

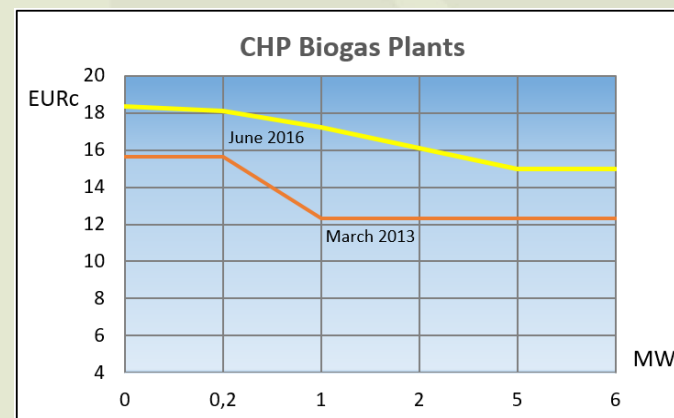
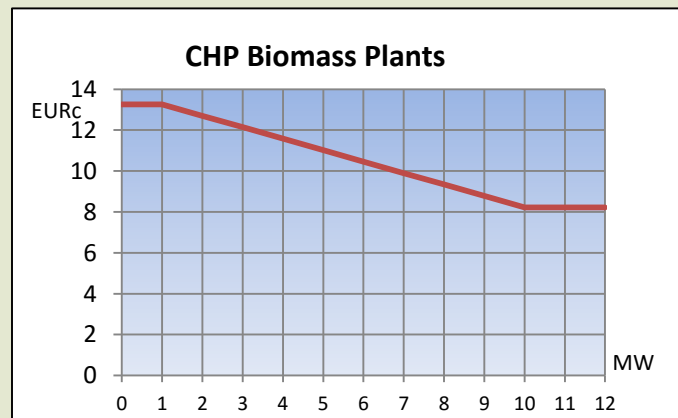
PROJECT CONTEXT

- **Availability of great volumes of biomass in Serbia:**
 - 61% of the total potential of renewable energy sources
 - **Agriculture: 1.7 Mtoe**
 - **Forestry: 1 Mtoe**
- **As a member of the Energy Community, Serbia has undertaken to harmonize its legislation with the EU, which means specifically the application of the Directive 2009/28/EC on renewable energy sources:**
 - The share of renewable energy in gross final energy consumption is to increase to 27% by 2020, compared to 21.2% in 2009.
 - In 2013 the National Action Plan for RES of the Republic of Serbia was adopted defining objectives and measures, with biomass playing an important role

PROJECT CONTEXT

- Incentives in Serbia for power producers from RES (as of 2009, revised in 2013 and 2016):

Type of plant	Installed capacity R (MW)	Incentive feed-in tariffs March 2013 (c€/kWh)	Installed capacity R (MW)	Incentive feed-in tariffs June 2016 (c€/kWh)
Biomass plants	Up to 1	13.26	Up to 1	13.26
	1 - 10	13.82 – 0.56*P	1 - 10	13.82 – 0.56*P
	Over 10	8.22	Over 10	8.22
Biogas plants	Up to 0.2	15.66	Up to 2	18.333-1.111*P
	0.2 – 1	16.498 – 4.188*R	2-5	16.85-0.370*P
	Over 1	12.31	Over 5	15



PROJECT CONTEXT

- The New Law on Energy, adopted in December 2014, introduced a number of improvements with respect to use of RES and opened new potential for investing in the free market.
- Despite the incentives for generation of power from biomass, the number of constructed plants is relatively small considering the biomass potential.
- In 2015 installed capacity of biomass/biogas CHP plants in Serbia was only 4.8 MW.
- The share of RES in gross final energy consumption did not increase (Progress report on implementation of NREAP, December 2014.).
- Biomass is mostly used in form of wood for heating (7 % of primary energy consumption).

KEY CHALLENGES

- Security of long term feedstock supply and demand: fragmented agricultural farmland (average 3 ha), stability of production, logistics, legal issues, etc.
- Unfavorable investment climate due the negative macroeconomic trends.

The biggest concerns are lasting high unemployment rate, growing public indebtedness rate, lack of liquidity of private sector and high foreign trade deficit. Recent floods (05/2014) caused sharp decline of GDP, which is why Serbia ended 2014 in recession.

- Frequent changes in institutional set up.

In average Serbia has elections every two years or major reconstruction of central government which frequently results in reshuffling the government and changing the competences of relevant ministries.

- Cumbersome and inefficient process of issuing various approvals and permits by competent authorities in course of planning, designing and constructing.

KEY CHALLENGES

- Undeveloped financial mechanisms for financing biomass projects:
 - Only financial mechanisms that are available are loans or direct financing by investors' own means.
 - High up-front costs and high perception of risk among banks make debt financing difficult for project developers.
 - Energy services as per EU Directive 32/2006/EC, such as supply contracting or energy performance contracting, are foreseen by the Law on Efficient Use of Energy but are still in very initial phase of implementation.
- Although the relevant laws and by-laws are in place the PPP is not developed in field of energy supply.
- Technology and knowledge: diversity and complexity of technologies, lack of laboratories and equipment for quality assurance and R&D.

GEF PROJECT: INVESTMENT GRANT SUPPORT MECHANISAM

- The total value of individual grants: **USD 1.6 mil USD**;
- Awarded by the MME through a public call to interested investors;
- Technologies: biogas, gasification and direct combust. (boiler+turbine);
- Focus on private investors;
- Minimum investment value per project **1.2 mil USD**
- Individual grants per project up to **15%** of investment value, or max. **266,000 USD if the investment value exceeds 1.2 mil USD**;
- Payment method: **30%** after contract signature and **70%** after plant construction and connection to the grid.

GEF PROJECT: INVESTMENT GRANT SUPPORT MECHANISAM

- **Key eligibility requirements:**

- Open to companies, cooperatives and physical persons performing the registered economic activity (entrepreneurs and agricultural estates) of predominantly private or cooperative ownership;
- Must fulfill requirements for construction and commissioning of CHP plant;
- The plant uses as primary fuel biomass as defined by the Law on Energy;
- The project is mature and ready for financing:
 - Approved loan for project funding by a bank;
 - Positive assessment by a technical consultant of a bank/financial institution that the project is viable and bankable
- The plant shall not be connected to the grid before the announcement of the public call, etc;



PUBLIC CALL FOR AWARD OF GRANTS

- **Criteria for grant award:**

1. Criterion of environmental viability **P1**;
2. Criterion of development of the region where the investment is made **P2**;
3. Criterion of how modern is the applied technology **P3**;
4. Criterion of efficiency and cost-effectiveness of the plant **P4**;
5. Criterion of full utilization of the technical potential of the plant **P5**.

The total number of points is calculated as a sum of individual points by all criteria for evaluation and equals:

$$P = P1 + P2 + P3 + P4 + P5$$

PUBLIC CALL - SEQUENCE OF ACTIVITIES

- **January 2015:** Public call to banks to participate in the project
- **8th May 2015:** Public call to investors to participate in the project
- **15 Oct 2015:** Closing of the public call



10 companies submitted applications duly!!!



- **November 2015:** **6 private companies were selected!!!**
- **13th November 2015:** Contracts between the Ministry of Energy and Mining and selected private companies signed
- **December 2015:** 30% of approved grant amount was disbursed by UNDP through the Ministry of Mining and Energy
- **2016/2017:** Commissioning of the plants and disbursement of the remaining 70% of approved grants

SELECTED BIOGAS CHP FACILITIES

	INVESTOR	INSTALLED CAPACITY	VALUE OF INVESTMENT
		MW	USD
1	Forkom doo, Beograd	0.40	1.42 mil
2	BGS gama BP doo, Bač	0.65	2.14 mil
3	BGS beta BP doo, Bač	0.65	2.14 mil
4	BGS alfa BP doo, Bač	0.65	2.14 mil
5	Biogas Energy doo, Alibunar	3.57	12.43 mil
6	Bioelektra doo, Zrenjanin	0.60	2.37 mil
	TOTAL	6.52	22.66 mil



After finalization of the selected projects the total installed capacity of biogas CHP facilities in Serbia will be increased for 130%

CONSTRUCTION SITES - ALIBUNAR

INVESTOR (COMPANY)	Biogas Energy doo, Alibunar
INSTALLED POWER CAPACITY	3.57 MWeI
INSTALLED THERMAL CAPACITY	3.20 MWth
INVESTMENT VALUE	12.43 mil USD
TOTAL EFFICIENCY	83.3 %
GRANT	275,000 USD
HEAT USE	Green houses
BIOMASS FEEDSTOCK	25.156 t/year Corn and sorghum silage, wheat straw, waste from starch plant and pig manure
MATERIAL OUTPUT	Up to 20,000 t/year, of solid fertilizer and up to 50,000 t/year of liquid fertilizer



CONSTRUCTION SITES - BAČ

INVESTORS (COMPANIES)	1. BGS Alfa BP doo, Bač 2. BGS Beta BP doo, Bač 3. BGS Gamma BP doo, Bač
INSTALLED POWER CAPACITY	3 x 0.65 MW = 1.95 MWeI
INSTALLED THERMAL CAPACITY	3 x 0.70 = 2.10 MWth
INVESTMENT VALUE	3 x 2.14 mil USD = 6.42 mil USD
TOTAL EFFICIENCY	81.6 %
GRANT	3 x 275,000 USD = 826,500 USD
HEAT USE	Agri-pelet production
BIOMASS FEEDSTOCK	23,056 t/year Sugar beat residues, sorghum silage, cattle manure, sheep manure and fruit and vegetable residues
MATERIAL OUTPUT	2,880 t/year, agri-pelet 6,000 t/year, fertilizer



CONSTRUCTION SITES - Botoš

INVESTOR (COMPANY)	Bioelektra doo, Zrenjanin
INSTALLED POWER CAPACITY	0.60 MWeI
INSTALLED THERMAL CAPACITY	0.60 MWth
INVESTMENT VALUE	2.37 mil USD
TOTAL EFFICIENCY	82 %
GRANT	275,500 USD
HEAT USE	Green houses
BIOMASS FEEDSTOCK	12,014 t/year Sugar beat cuts, sugar production waste and corn silage
MATERIAL OUTPUT	4,000 t/year, fertilizer



CONSTRUCTION SITES - Aleksinac

INVESTOR (COMPANY)	Forkom doo, Beograd (plant located in Aleksinac)
INSTALLED POWER CAPACITY	0.40 MWeI
INSTALLED THERMAL CAPACITY	0.36 MWth
INVESTMENT VALUE	1.42 mil USD
TOTAL EFFICIENCY	84 %
GRANT	222,200 USD
HEAT USE	Green houses
BIOMASS FEEDSTOCK	3,118 t/year Sorghum residues, corn residues, poultry manure and cattle manure
MATERIAL OUTPUT	2,494 t/year, fertilizer





Thank you for your attention

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