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## BANK SUPPORT FOR THE IMPLEMENTATION OF BIOGAS PLANTS BASED ON QUALITY PROJECTS

Referring to the code No 309/2009 body of law - Support of renewable resources in Slovakia - the area to commission biogas plants and other alternative forms of energy production has been opened. Banks have assessed financing of renewable resources as low risk projects due to stable cashflow that is necessary to smooth loan repayments. All this led to the creation of legal entities that run businesses in that area with 15 years state price redemption guarantee which favored bank interest due to low risk for their investments. This study shows importance of project preparation as an essential step to take before future bank financing approval. Project realization is fully dependent on bank or EU fund support since project budgets reach total value of few millions and more. Thorough project preparation from the side of future investors becomes a priority number one since detailed verification from the side of future creditor will be performed in relation to total amount of funding and comparison to other forms of financing. Bank will focus their attention on mentioned areas.

**Keywords:** renewable resources, biogas plant, financial support of the bank

### INTRODUCTION

Referring to the code No 309/2009 body of law - Support of renewable resources in Slovakia - the opportunities to commission biogas plants or other alternative forms of energy production has been opened [1, 2]. The law precisely defined the state obligation to secure certain portion of energy produced from renewable resources on total consumption of electricity in EU by 2020 and Slovakia has committed itself to participate as currently main sources of energy were produced mainly from thermal and nuclear power plants but also in minor portion from hydroelectric power plants [3]. Banks have assessed financing of renewable resources as low risk projects due to stable cashflow that is necessary to smooth loan repayments.

Market has been opened for new wave of companies doing business in biogas field as this kind of energy was considered by banks as low risk activity since the state guaranteed price redemption. This approach in banking practice is rather ex-

ceptional as only few industries offer such a high level of data related to accuracy and reliability of cash flow prediction. Guarantees of accurate prediction of yield are adjusted by the Regulatory Office for Network Industries (URSO) [4], which specifies the conditions for determining the specific purchase prices of electricity produced from renewable resources and after the publication the tariffs are guaranteed for 15 years.

## **1. BANKS WILL SUPPORT ONLY WELL PLANNTED PROJECTS**

Financing of renewable resources depends on many factors coming out of project itself but also on bank attitude. Banks are following their internal credit policy and aligning their decisions accordingly. In most of the cases banks are investigating further described parameters that may identify the weak points or risk sides of the project [5-8].

As one of the key points of bank policy is to conduct business in line with ethical and moral principles, the companies or individuals under suspicion of using of equity that may come from unethical business behaviour are not supported by banks. Among the interests of any bank is also the possibility to approve of or agree with selection of general suppliers since they provide their own funds, more precisely the funds of their creditors against whom they have commitments. Further the bank targets the lowest risk of their loan. This is connected with supplier selection of technology as well as product quality, warrant and cooperation. Let's not forget that maintenance and replacement of components will be necessary during the whole period of 15 years so selecting a reliable partner should be one of the interests of any investor rather than just taking its costs into account. The balance of quality and costs seems to be the two factors to consider.

When it comes to any type of project, whether it is a biogas or a photovoltaic one the location is a key factor to consider. In the first case it is the raw material access and its quality together with distance of generated residual heat while in the second case it is the terrain with the highest sun radiation. Both are key elements that impact directly the level of the cashflow which is fundamental for loan instal-ments. Land has to be free from any liens.



Fig. 1. A biogas plant (left) and a photovoltaic power plant (right)

The proceedings are further impacted by raw material substrate that enters the combustion process in a biogas power plant and the quality of photovoltaic collectors in case of sun power plant. A potential client should not be surprised when a bank rejects the financing in the first or second case so careful selection of technology should be the very first step to consider by clients before even addressing the bank with financial participation (support).

### 1.1. Financial and moral participation in responsibility

The bank will define conditions under which it is willing to finance (if ever) proposed project once all basic parameters are evaluated and reviewed together with all necessary approvals. Further, the bank will define the equity level (amount of the client's financial participation) which their company has to invest before drawdown of loan and that is how they will participate on project risk. Equity is not viewed only as a financial portion of the project but also as a moral participation in responsibility. The level itself is defined by each bank individually in line with their credit policy as well as with the size of the project. The equity level reaches 30% on average[5-8].

Additional requirement that may be encountered during this process is energetic audit worked out by energetic auditor as some banks will not proceed in loan approval process without this document. It combines one or more mathematic models of expected future energy production which helps the bank to make qualified judgment on the expected performance of a project. In the initial phase of energetic project era it was a highly useful tool that helped banks to evaluate prediction of revenues but today we see that there is an increasing amount of projects in this field so the comparison with qualified projects is becoming more and more available.

### 1.2. Rules to follow by clients

Each investment finance by a bank has to be insured both during the construction period as well as the whole maturity of loan. It results from the risks that may endanger the bank's assets so any insurance claims are always in favour of the bank.

Security of loan is an individual chapter which evolves during the process and depends on several factors. Numbers and forms of security reflect the risk level of investment. Lien of property, particularly land and technology, is one of the standard forms. Further lien of receivables, such as bill of exchange or notarial enrollment are also considered as a form of security.

After the loan approval the client is obliged to respect conditions outlined by the bank such as regular submission of annual reports or in case of any sales of property, there is requested ownership bank approval or/and other specific requirements related to each individual bank.

### **1.3. Responsiveness balanced by conditions**

Banks adapt to the needs of their clients allowing them to design their own payment calendar based on real or expected production levels which fluctuates across the year in line with daylight or real combustion of biomass. This protects the clients from the risk of disproportion between generated revenues and bank instalment payments. Certain banks request to keep reserves on the level of one up to six instalments available on the client's account [5-8].

Banks may as well request establishing of reserve account for maintenance that needs to be reflected in revenue projects. On the other hand, a client has a chance to pay exceptional instalment in case of overproduction or exceptional funds. However, it is necessary to verify conditions of each individual bank if this operation is free of charges.

Swap has become an additional product that banks are offering to their clients. It allows in the long run to avoid the risk of insolvency to pay back the loan. Banks fix maximum interest rate (for a reward) for a specific loan using swap as a tool to avoid in time of 10 years or more (depends on loan period) overcoming the interest rate threshold. This helps clients to eliminate the risk of reaching the interest rate levels beyond acceptable levels.

Further more, the banks allow the clients to postpone their interest payments which releases the pressure from client's shoulders especially during the initial phase when despite the fact that most of the funds has been invested, the plant is not connected to power network and thus no cash is generated. Some banks are even willing to finance part of the equity during the loan maturity if the client meets their conditions.

## **2. ECONOMIC EVALUATION OF PROJECT ENERGETIC EFFECTIVENESS**

During the economic evaluation there are several aspects considered in relation to whether the construction of biogas powerplant is a right decision for the future:

- if the investment in a new energy resource will generate incomes high enough to cover possible risks,
- if the investment itself is the most economic decision.

In general we say that an ideal investment carries no risk, generates the highest revenues and pays back in short period of time. In reality these criteria have contrary effects since high returns are normally linked with high risk. Low risk and high liquid investment brings low returns.

Criteria used for evaluation of investment are:

- a) revenues - positive difference between revenues generated during whole period of investment and one time expenses related to start up of project together including operating costs during the project lifetime,
- b) riskiness - the level of risk associated with expectation of future cash flow availability,
- c) payment period - the time of investment transformation between present expenditures and future revenues coming out in cash form during the loan period.

The most important step for economic evaluation of investment is determining the yearly cash flow. The starting point for evaluation of bank acceptance of the project is DSCR table (debt service coverage ratio), which calculates using revenues and costs of the project together with liquidity of investment to meet the obligation related to prospective loan. The DSCR level is preset to minimum 1.2, respectively the volume of cash needed to payback has to be at minimum 120% of the level of total financial costs or, in another words, the client has to operate with reserve of 1/5 of annual budget.

## 2.1. Responsiveness balanced by conditions

Principal scheme from section 2.2 represents a basic technological process the detailed composition of which needs to be consulted in line with existing technology, present status of biomaterial usage coming from livestock and crop production, mainly taking into account the amount of excrement, corn or silage and existing financial resources.

Model data consider a potential of 500 kWh electric power from biogas plant using livestock and crop substrate:

- a) expectation of number of farmed animals,
- b) expectation of land area.

## 2.2. Balance sheet, profit and loss calculation, investment planning 500 kWh BPS

Table 1. Total investment project costs in EUR

Year	2011 (1)	2012 (2)	2013 (3)	2014 (4)	2015 (5)	2016 (6)	2017 (7)	2018 (8)	2019 (9)	2020 (10)	2021 (11)
Project costs	2 820 706	0	0	0	0	0	0	0	0	0	0
Land	0										
Technological part	2 498 684	0									
Construction part	322 022	0									
Other project costs											
<b>Total project costs</b>	<b>2 820 706</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 2. Financial sources in EUR

Year	2011 (1)	2012 (2)	2013 (3)	2014 (4)	2015 (5)	2016 (6)	2017 (7)	2018 (8)	2019 (9)	2020 (10)	2021 (11)
Total financial sources	2 820 706	0	0	0	0	0	0	0	0	0	0
Equity	564 706										
Bank loan	2 256 000										
<b>Total financial sources</b>	<b>2 820 706</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>

Table 3. P&amp;L planning in EUR

Year	2011 (1)	2012 (2)	2013 (3)	2014 (4)	2015 (5)	2016 (6)	2017 (7)	2018 (8)	2019 (9)	2020 (10)	2021 (11)
<b>Operating income</b>	<b>0</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>
Revenues from electricity sale	0	663 984	663 984	663 984	663 984	663 984	663 984	663 984	663 984	663 984	663 984
Revenues from sales of heat		37 785	37 785	37 785	37 785	37 785	37 785	37 785	37 785	37 785	37 785
<b>Total revenue</b>	<b>0</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>
<b>Expences</b>	<b>2 820 706</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Cost of goods	0	218 392	218 392	218 392	218 392	218 392	218 392	218 392	218 392	218 392	218 392
Cost of material		192 326	192 326	192 326	192 326	192 326	192 326	192 326	192 326	192 326	192 326
services		26 066	26 066	26 066	26 066	26 066	26 066	26 066	26 066	26 066	26 066
repairs		22 566	22 566	22 566	22 566	22 566	22 566	22 566	22 566	22 566	22 566
Phone, mail		500	500	500	500	500	500	500	500	500	500
insurance		3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000
Personal expences	0	48 672	48 672	48 672	48 672	48 672	48 672	48 672	48 672	48 672	48 672
Salary expences		36 000	36 000	36 000	36 000	36 000	36 000	36 000	36 000	36 000	36 000
contributions		12 672	12 672	12 672	12 672	12 672	12 672	12 672	12 672	12 672	12 672
Taxes (property tax)		3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000
depreciation		178 000	178 000	178 000	178 000	178 000	178 000	178 000	178 000	178 000	178 000
<b>Operating expences</b>	<b>0</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>	<b>448 064</b>
Loan interests		130 190	116 748	103 212	89 676	76 140	62 604	49 068	35 532	21 996	8 460
<b>Financial expences</b>	<b>0</b>	<b>130 190</b>	<b>116 748</b>	<b>103 212</b>	<b>89 676</b>	<b>76 140</b>	<b>62 604</b>	<b>49 068</b>	<b>35 532</b>	<b>21 996</b>	<b>8 460</b>
<b>Total expences</b>	<b>2 820 706</b>	<b>578 254</b>	<b>564 812</b>	<b>551 276</b>	<b>537 740</b>	<b>524 204</b>	<b>510 668</b>	<b>497 132</b>	<b>483 596</b>	<b>470 060</b>	<b>456 524</b>
<b>Profit before taxes</b>	<b>-2 820 706</b>	<b>123 515</b>	<b>136 957</b>	<b>150 493</b>	<b>164 029</b>	<b>177 565</b>	<b>191 101</b>	<b>204 637</b>	<b>218 173</b>	<b>231 709</b>	<b>245 245</b>
Taxes	0	23 468	26 022	28 594	31 165	33 737	36 309	38 881	41 453	44 025	46 597
<b>Net income</b>	<b>-2 820 706</b>	<b>100 047</b>	<b>110 935</b>	<b>121 899</b>	<b>132 863</b>	<b>143 827</b>	<b>154 792</b>	<b>165 756</b>	<b>176 720</b>	<b>187 684</b>	<b>198 648</b>
<b>Net income + depreciation</b>	<b>-2 820 706</b>	<b>278 047</b>	<b>288 935</b>	<b>299 899</b>	<b>310 863</b>	<b>321 827</b>	<b>332 792</b>	<b>343 756</b>	<b>354 720</b>	<b>365 684</b>	<b>376 648</b>
Installment payments	0	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600
<b>dispo Cash flow</b>	<b>-2 820 706</b>	<b>52 447</b>	<b>63 335</b>	<b>74 299</b>	<b>85 263</b>	<b>96 227</b>	<b>107 192</b>	<b>118 156</b>	<b>129 120</b>	<b>140 084</b>	<b>151 048</b>

Table 4. Financial calculation of IRR invested capital

Year	Σ	2011 (1)	2012 (2)	2013 (3)	2014 (4)	2015 (5)	2016 (6)	2017 (7)	2018 (8)	2019 (9)	2020 (10)	2021 (11)
Total revenues from project		0	701 769	701 769	701 769	701 769	701 769	701 769	701 769	701 769	701 769	701 769
<b>Total revenues</b>	<b>7 017 688</b>	<b>0</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>	<b>701 769</b>
Total costs	3 394 266	0	400 254	386 812	373 276	359 740	346 204	332 668	319 132	305 596	292 060	278 524
Installment payments	2 256 000	0	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600
equity	564 706	564 706	0	0	0	0	0	0	0	0	0	0
	<b>6 214 972</b>	<b>564 706</b>	<b>625 854</b>	<b>612 412</b>	<b>598 876</b>	<b>585 340</b>	<b>571 804</b>	<b>558 268</b>	<b>544 732</b>	<b>531 196</b>	<b>517 660</b>	<b>504 124</b>
Dispo CF before taxes and depreciation	802 716	-564 706	75 915	89 357	102 893	116 429	129 965	143 501	157 037	170 573	184 109	197 645
Calculation IRR (FRR/C)	14,87%											
FPV/C – investment by DS 1	427 898	-537 815	68 857	77 190	84 650	91 225	96 982	101 983	106 289	109 953	113 027	115 559
Discount rate 1	1,05	1,05	1,10	1,16	1,22	1,28	1,34	1,41	1,48	1,55	1,63	1,71
B/C ratio	1,13											

<b>EBIT</b>		253 705	253 705	253 705	253 705	253 705	253 705	253 705	253 705	253 705	253 705	
<b>EBITDA</b>		431 705	431 705	431 705	431 705	431 705	431 705	431 705	431 705	431 705	431 705	
<b>installments</b>		225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	
<b>interests</b>		130 190	116 748	103 212	89 676	76 140	62 604	49 068	35 532	21 996	8 460	
<b>Debt service</b>		75 915	89 357	102 893	116 429	129 965	143 501	157 037	170 573	184 109	197 645	
<b>DSCR</b>		<b>1,21337</b>	<b>1,261011</b>	<b>1,312923</b>	<b>1,369292</b>	<b>1,430718</b>	<b>1,497914</b>	<b>1,571733</b>	<b>1,653205</b>	<b>1,743585</b>	<b>1,844419</b>	

Table 5. Loan calculation - summary

Loan	
Loan amount =	2 256 000 EUR
Interest rate =	6,0%
Drawdown from-	1.4.2011
Payment from -	1.1.2012 Mon. € 18 800
Payment period -	10 years

year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
interest	130 190	116 748	103 212	89 676	76 140	62 604	49 068	35 532	21 996	8 460
instalment	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600	225 600
Rest amount	2 049 200	1 823 600	1 598 000	1 372 400	1 146 800	921 200	695 600	470 000	244 400	18 800

Table 6. Loan calculation - in detail



2012	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	2 256000	2 237200	2 218400	2 199600	2 180800	2 162000	2 143200	2 124400	2 105600	2 086800	2 068000	2 049200	
interests	11 280	11 280	11 186	11 092	10 998	10 904	10 810	10 716	10 622	10 528	10 434	10 340	130 190
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	30 080	30 080	29 986	29 892	29 798	29 704	29 610	29 516	29 422	29 328	29 234	29 140	355 790
2013	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	2 030400	2 011600	1 992800	1 974000	1 955200	1 936400	1 917600	1 898800	1 880000	1 861200	1 842400	1 823600	
interests	10 246	10 152	10 058	9 964	9 870	9 776	9 682	9 588	9 494	9 400	9 306	9 212	116 748
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	29 046	28 952	28 858	28 764	28 670	28 576	28 482	28 388	28 294	28 200	28 106	28 012	342 348
2014	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	1 804800	1 786000	1 767200	1 748400	1 729600	1 710800	1 692000	1 673200	1 654400	1 635600	1 616800	1 598000	
interests	9 118	9 024	8 930	8 836	8 742	8 648	8 554	8 460	8 366	8 272	8 178	8 084	103 212
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	27 918	27 824	27 730	27 636	27 542	27 448	27 354	27 260	27 166	27 072	26 978	26 884	328 812
2015	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	1 579200	1 560400	1 541600	1 522800	1 504000	1 485200	1 466400	1 447600	1 428800	1 410000	1 391200	1 372400	
interests	7 990	7 896	7 802	7 708	7 614	7 520	7 426	7 332	7 238	7 144	7 050	6 956	89 676
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	26 790	26 696	26 602	26 508	26 414	26 320	26 226	26 132	26 038	25 944	25 850	25 756	315 276
2016	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	1 353600	1 334800	1 316000	1 297200	1 278400	1 259600	1 240800	1 222000	1 203200	1 184400	1 165600	1 146800	
interests	6 862	6 768	6 674	6 580	6 486	6 392	6 298	6 204	6 110	6 016	5 922	5 828	76 140
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	25 662	25 568	25 474	25 380	25 286	25 192	25 098	25 004	24 910	24 816	24 722	24 628	301 740
2017	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	1 128000	1 109200	1 090400	1 071600	1 052800	1 034000	1 015200	996 400	977 600	958 800	940 000	921 200	
interests	5 734	5 640	5 546	5 452	5 358	5 264	5 170	5 076	4 982	4 888	4 794	4 700	62 604
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	24 534	24 440	24 346	24 252	24 158	24 064	23 970	23 876	23 782	23 688	23 594	23 500	288 204
2018	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	902 400	883 600	864 800	846 000	827 200	808 400	789 600	770 800	752 000	733 200	714 400	695 600	
interests	4 606	4 512	4 418	4 324	4 230	4 136	4 042	3 948	3 854	3 760	3 666	3 572	49 068
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	23 406	23 312	23 218	23 124	23 030	22 936	22 842	22 748	22 654	22 560	22 466	22 372	274 668
2019	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	676 800	658 000	639 200	620 400	601 600	582 800	564 000	545 200	526 400	507 600	488 800	470 000	
interests	3 478	3 384	3 290	3 196	3 102	3 008	2 914	2 820	2 726	2 632	2 538	2 444	35 532
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	22 278	22 184	22 090	21 996	21 902	21 808	21 714	21 620	21 526	21 432	21 338	21 244	261 132
2020	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	451 200	432 400	413 600	394 800	376 000	357 200	338 400	319 600	300 800	282 000	263 200	244 400	
interests	2 350	2 256	2 162	2 068	1 974	1 880	1 786	1 692	1 598	1 504	1 410	1 316	21 996
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	21 150	21 056	20 962	20 868	20 774	20 680	20 586	20 492	20 398	20 304	20 210	20 116	247 596
2021	january	february	march	april	may	june	july	august	sept	oktober	nov	dec	total
<b>Loan amount</b>	225 600	206 800	188 000	169 200	150 400	131 600	112 800	94 000	75 200	56 400	37 600	18 800	0
interests	1 222	1 128	1 034	940	846	752	658	564	470	376	282	188	8 460
<b>instalment</b>	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	18 800	225 600
<b>payment</b>	20 022	19 928	19 834	19 740	19 646	19 552	19 458	19 364	19 270	19 176	19 082	18 988	234 060

Table 7. Production capacity of electricity

- daily production in kWh	12 720
- monthly production in kWh	381 600
- yearly capacity in kWh	4 579 200

Table 8. Revenues (without DPH) in EUR

- revenue from 1 kWh	0,145
- max. daily revenue	1 844
- max. monthly revenue	55 332
- max. yearly revenue	663 984

Table 9. Cost of goods (without DPH) in EUR

- costs per 1 kWh=	0,0420
- max. daily costs	534,24
- max. monthly costs	16 027
- max. yearly costs	192 326

Table 10. Recap of heat supply to customers

Sales of heat	Annual heat consumption in kWh	Regulatory performance kW /URSO methodology/	Technical reserv. Performance in kW	Annual variable price of heat in EUR	Annual fixed price of heat in EUR	Total annual price of heat in EUR
Total clients	61 000	137,08	250	29 560	8 224,80	37 784,8

## CONCLUSION

The importance of preparing a good quality project is mainly due to the high financial requirements. The projects are almost entirely dependent on financing from banks or from EU funds, as those are the projects totaling several million euros. For this reason the great emphasis that is placed on project preparation of good quality in the field of energy, since verification by future creditors (banks, the EU) will be very detailed with regard to its amount in comparison with other forms of financing.

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## **WSPARCIE BANKOWE PRZY REALIZACJI INSTALACJI BIOGAZOWYCH NA PODSTAWIE PRAWIDŁOWO SPORZĄDZONYCH PROJEKTÓW**

W oparciu o wprowadzone przepisy ustawy nr 309/2009 dotyczące finansowego wsparcia odnawialnych źródeł energii na Słowacji banki wprowadziły mechanizmy dotujące powstawanie biogazowni i innych alternatywnych form produkcji energii. Banki oceniają finansowanie odnawialnych źródeł jako projekty niskiego ryzyka. Artykuł wskazuje na znaczenie prawidłowego przygotowania projektu jako istotnego czynnika przy podejmowaniu decyzji przez bank co do przyszłego finansowania przedsięwzięcia. Realizacja projektu jest bowiem często uzależniona od wsparcia kredytowego banku lub finansowego w ramach dotacji UE. Rzetelne przygotowanie projektu przez przyszłych inwestorów staje się więc działaniem priorytetowym.

**Słowa kluczowe:** odnawialne źródła energii, instalacje biogazowe, finansowe wsparcie banków