

Non-cost barriers to renewables – *AEON* study

Bulgaria

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1 Issue 1 Administrative Procedures

1.1 Introduction

Renewable Energy is a comparatively new “issue” for Bulgaria, even though there is a high potential for the development of some technologies, like biomass installations. However, utilisation of renewables is still lagging behind the expectations and very few technologies are developed. According to some interviews, undertaken for the purpose of this study, three main technologies could be marked like being with most potential for development, i.e. *wind energy*, *solar energy* and *geothermal energy*. Regarding hydro-electric energy, some recent studies show that the potential for the development of this technology is almost depleted.¹

Biomass also has quite high potential for development (due to the fact that 60 % of the land in Bulgaria is agricultural and 30 % is covered with forests²), but, according to the respondents, there are only two plants for biomass energy at this stage in Bulgaria. Currently the two biomass Plants in Bulgaria are in Bansko and in Sofia:

- In Bansko is constructed the first heating plant in Bulgaria, using RES for central heating.³ It is with 10 000 kW and uses wood biomass. The Plant has two automatic boilers (5MW). Heating system over 5,5 km has been made by “Bul Eco Energia” LTD for this purpose. This is an initiative of the company and Bansko Municipality.

Another project, presently going on for Bansko is lead by “Pro Eco Energia” LTD⁴. They are responsible for the construction⁵ of a heating plant on wood biomass. This project is still ongoing. The plant has been already tested in the beginning of this year (January 2010) and it was foreseen that within 10 days after testing completion, the heating will reach the first consumers.⁶

- The biomass plant in Ihtiman⁷, around Sofia, is constructed by the Austrian company “WBG”. This biomass plant is foreseen to have a 3MW capacity but could be expanded to 10MW, running on 10,000 tonnes of waste wood a year.⁸ The investor

¹ Acc. to the information, obtained during an interview with the Chair of APEE and REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe; The potential of this technology is calculated on 200 – 300 MW.

² REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;

³ <http://buleco.com/index.php?lang=en>

⁴ http://ecoenergia-bg.eu/content/en/page_references

⁵ <http://ecoenergia-bg.eu/content/node/29>

⁶ http://sofiaecho.com/2009/01/22/666034_austrias-wbg-to-build-biomass-plant-in-htiman

⁷ idem

⁸ <http://www.thebioenergysite.com/news/2873/wbg-tests-biomass-plant-in-htiman>

has deployed an eight-kilometer heating distribution network and installed a cutting-edge plant room control technology.⁹

Regarding *hydro-electricity*, it was dominating among the renewables for electricity production, according to Eurostat data from 2009.¹⁰

Concerning *wind power*, at this stage it has not developed fully its potential as a technology.¹¹ However, there is a big potential for the development of geothermal and solar energy.

Regarding the national policy for renewable energy sources, there are a few initiatives, undertaken by the state, aiming at encouragement of RES production and utilisation:

1. The National long-term programme¹² for encouraging the utilisation of RES for the period 2005-2015 is one of these initiatives. This programme is elaborated in accordance with the requirements of Art.4 of the Energy Act and its annexes. It corresponds to the general concept for the development of RES in Bulgaria. The programme formulates measures and policies for encouragement the utilisation of RES, evaluating the following: RES utilisation condition and the necessity of wider involvement of RES in the next 10 years. *Unfortunately the National long-term programme is not implemented and exists mainly on paper, according to some respondents.*
2. Setting a system of preferential prices is another of these initiatives. It consists of fixed tariffs per technology for energy supply.
3. The EBRD credit line for RES is another initiative.
4. Regarding biofuels, the estimate for petrol, diesel and biofuel use was developed on the basis of lasting trends for increased consumption in the transport sector¹³. An indicative target is set on 5.75% for 2010, in compliance with the requirements of the Directive 2003/30/EC on the promotion of use of biofuels and other renewable fuels for transport. Another target set, is related to the minimum share of biofuels of 10 % for all Member States in the total use of oil and diesel fuel for transport in the EU by 2020, to be introduced in a cost-efficient way.
 - a. On October 21, 2009, the Bulgarian Council of Ministers passed a decision (to be confirmed by Parliament) which would require the petrol sector to blend 2% of biodiesel with mineral diesel for the whole transport sector by March 2010, increasing to 3% a year later.¹⁴

⁹ http://sofiaecho.com/2009/01/22/666034_austrias-wbg-to-build-biomass-plant-in-ihitman

¹⁰ REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;

¹¹ REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;

¹² National Long-term programme for Biomass utilization for the period 2008-2020. Jan. 2008

¹³ National long-term programme for encourage the use of biofuels in the transport sector, 2008-2020

¹⁴ <http://www.reshaping-res-policy.eu/> RE-SHAPING Renewable Energy Country profiles 2009.

- b. Concerning bio-ethanol, on November 18, 2009, a proposal to blend a minimum of 2% bio-ethanol component from March 1, 2011, passed the parliamentary economic committee, to be enforceable from March 1, 2011.¹⁵

Currently in Bulgaria there are only experimental and pilot facilities for bio-ethanol production¹⁶. The potential for biofuels is not yet exploited in Bulgaria.¹⁷ There are no refuelling stations with bio-ethanol or bio-ethanol mixture with gasoline in Bulgaria. However, biofuels, i.e. bio ethanol, bio diesel, etc., are regulated within the frame of the Renewable and Alternative Energy sources and Biofuels Act.¹⁸

However, there are still barriers facing the production and utilisation of renewable energy. The different barriers, RES producers meet in Bulgaria will be presented by technologies after introducing the general administrative problems.

1.2 Description of barriers & solutions

1.2.1 Detailed description of the barriers and solutions

Barrier 1.1 – Inefficient general administrative procedures (including no/insufficient specific rules for building integrated/small scale RES installations)

The **general barriers** for the RE projects in Bulgaria are as follows¹⁹:

- **Administrative issues;**

There are numerous administrative procedures that need to be implemented in order to realise an investment project for RE technologies in Bulgaria. *(These procedures are described in the figure below.)*

Some of the procedures are relevant only for specific investments. For example the evaluation of compatibility with Natura 2000 is relevant only for investments located in designated Natura 2000 sites. Water use permit is needed only in case the technology requires the use of natural water source. However, for any investment there is a need to check whether certain administrative procedure should be applied.

The figure also indicates the time needed to implement the procedures. In practice, however the time indicated could take longer, in case the documentation needs to be further elaborated or amended.

The procedures are described in various national legislative acts as the Energy Act, The Act for the Protection of the Environment, The Spatial Planning Act, The Water Act and others.

¹⁵ idem

¹⁶ <http://www.sugre.info/tools.phtml?id=661>

¹⁷ REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;

¹⁸ <http://www.mee.government.bg/eng/gzakone/gzakone/docs.html?id=212967>, complementary provisions.

¹⁹ EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

The responsible bodies for issuing permits are various – starting from the Regulator – the State Commission on Energy and Water Regulation (SCEWR); various ministries as the Ministry of Agriculture and Food (MAF), the Ministry of Regional Development and Public Works (MRDPW), the Ministry of Environment and Water (MEW), the Ministry of Health (MH); national and regional agencies as the Land Commissions, Regional Inspectorates of Environment and Water (RIEW), River Basin Directorates, Directorate for National Building Control (DNBC), Regional Inspectorates for Protection and Control on Public Health (RIPCPH) and municipalities.

Administrative procedure	Responsible body	Time
Change of land use (if needed)	Ministry of Agriculture and Food	6 months to 1 year
Design permit	MRDPW, Municipalities	Less than a month
Building permit	MRDPW, DNBC, Municipalities	Less than a month
EIA	MOEW RIEW	At least 3 months
Evaluation of the compatibility with Natura 2000 (if the project is located in Natura 2000 designated site)	RIEW	At least 2 months
Water Use permit (if needed)	River Basin Directorate	About 1 month
Opinion of the Ministry of Health	Ministry of Health, RICPPH	About 1 month
Transverse of real estate (if needed)	Municipalities	At least 1 month
Financing (if needed)	Financing institutions (banks)	3 months
Operation permit/license (in some cases)	State Commission for Energy and Water Regulation	3 months
Grid access (if needed)	Electric distribution companies	3 months

The lengths of the procedures for obtaining permits sometimes depend on the project and the local administration. The approval process could also take a long time within the frame of these procedures (for example – the case with the environmental permits, water rights, etc.). Therefore, very often, the deadlines are not strictly followed and the procedures become long and time-consuming.

In order to connect a new plant to the electric grid it is necessary that the company²⁰, constructing the plant, submit a written request for implementing the preliminary study of the conditions and the way of connecting. The obligation for connecting a producer of electric power generated from RES shall be the responsibility of the transmission company or the relevant distribution company, which is located in the closest proximity to the energy plant.

The spatial planning is also related to the area, where the line (network) connecting the producer and distribution company (or consumer) will pass. The connection is referred to the traversing of private land.

The connection issue applies also for Biomass projects. Very often, the receiving of permission for spatial planning, especially for wind energy and **biomass** projects²¹, is the longest procedure. There is not enough transparency and efficiency in this process for RE.

Regarding **Biogas**, Most of the administrative barriers refer to the large number of Institutional Bodies, involved in the process of obtaining permits and licenses, but also to the slow legislation process. The procedure is long and complicated, but since license procedures are long also in other EU countries, they cannot be considered as an obstacle for RE technologies in Bulgaria. There are no standard procedures for RE projects.

First administrative obstacle is the receipt of a permit for the use of the land, which, if it is an agricultural land or forest, it should be replaced with similar land or its status should be changed. The second step is the obtaining of a license from the State Energy and Water regulatory Commission, for an assessment of the conditions and a manner of connection to the electricity transmission network, planning commission, connection to the electrical network, etc.²²

Regarding **Hydro-Electricity**, the administrative barriers are related to permits to traverse a forest or property (the later, after paying a fee to the landowners). Concerning the permit for passing through a forest land, the procedure could take two years. The land status should be changed to a land for industrial use. Both public and private owners are required to obtain water rights.²³

Concerning **Wind Energy**, very often obtaining permission for space planning necessitates significant amount of time and this makes the procedure lengthy. The

²⁰ See Art. 49, p. 1 from the Regulation for connecting producers and users of electric energy to the transmission and distribution electric grids. The obligation for connecting a producer of electric power generated from RES shall be the responsibility of the transmission company or the relevant distribution company, which is located in the closest proximity to the energy plant. http://www.mee.government.bg/energy/energy_doc/Biomasa_i_biogaz_ENG.pdf

²¹ REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;

²² Barriers for Biogas implementation in Bulgaria, Nov. 2008, project, financed by Intelligent Energy Europe,

²³ EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

Ministry for Economy, Energy and Tourism could consider exempting wind projects from going through the agricultural to industrial land use procedure. This could be taken into account, since except for the land directly under the wind turbines and the access required for roads to the wind turbines from the main road, the land can resort back to its initial status.²⁴

The administrative barriers for **Solar energy** projects refer to the long procedures for land designation change from agricultural to industrial use. Like in the case with the other RE technologies, the procedure is time consuming and very bureaucratic.

Another common administrative barrier to all type of RE projects are: lack of experience in dealing with foreign investors and lack of ‘one desk service’ (where all projects applications can be submitted instead of running from one office to another.)

Barrier 1.2 – Competing public interests

In Bulgaria, according to some of the conducted interviews, there are no public objections towards the introduction of renewable energy source facilities. The strongest competing public interest is raised by some ecological NGOs. The major concern, raised by the NGO’s is that the RES projects will affect inevitably the habitat of many migrating, endangered species.

The environmental impact assessment affects all type of RES projects, with the least affected being the geothermal energy projects. In recent years, the public media has revealed that during the construction process some companies make paths through forest land or cut old and protected trees, in order to speed up their own projects.

Another public interest, expressed recently by the Ministry of Agriculture and Food, is the preservation of arable land. The land preservation will hinder the installation of new equipment or even new projects development, because to place new facilities or plants on agricultural land, its status must be changed from agricultural to industrial.

Regarding **Biogas**, there are no examples of social objection against, but we should outline that there are no particular studies on the acceptance of biogas in Bulgaria since there are no many biogas plants yet²⁵.

Regarding **onshore wind power installations**, the respondents we interviewed outlined that there is no competing public interest to the implementation of this technology. According to some respondents, public interest seeks low power prices. A RE technology would only contribute to this interest.

²⁴ EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

²⁵ Barriers for Biogas implementation in Bulgaria, Nov. 2008, project, financed by Intelligent Energy Europe

Barrier 1.3 – Inexistent or insufficient spatial planning

In Bulgaria spatial planning process is following a special procedure for obtaining the needed permits for construction of the new installation. This process is long and it consists of different steps, like: buying or renting the land, transforming its status from agricultural or forest land to a land with an industrial use. It should be mentioned here that sometimes it depends whether this land is a key agriculture land. In the case of the latter, permit is not issued. This is due to the fact that there is a special categorisation of the agriculture lands when there is a request for changing their status from agricultural to industrial, etc. This categorization is regulated by the Regulation²⁶ for categorization of the agricultural lands when changing their usage.²⁷ The lands are evaluated and categorized in accordance to the following factors: productiveness of the soil, climate conditions, geographic features and technological quality of the land. It could be concluded that when the land has highest score (category), according to these factors, it is not allowed to change status.

Next step after obtaining the land – bought or rented, a detailed urban plan is to be submitted. Then the status of the land should be changed. One next step till now is the issuing of a visa for design by the local municipal authorities, which according to the new legislative changes is not obligatory today.²⁸

Barrier 1.4 – Other Barriers

- **Lack of adequate legal infrastructure, which would facilitate RE projects;**

Currently, there is not enough consistent legislative base for RE.²⁹ The Renewable and Alternative Energy sources and Biofuels Act³⁰ and the rules stipulated by this Act attract and provide opportunities for investors. However the Act is unbalanced regarding the interests of all market players (investors, electric distribution companies and consumers). The Act does not address potential problems with respect to protected territories, the current state of the electric distribution networks (both middle and high voltage), etc.

The problems that the current Renewable and Alternative Energy sources and Biofuels Act create could be summarized as follows:

- The grid interconnection ordinance contradicts the Energy Act and the Renewable Energy Sources Act in some areas;
- No distribution limit of installed capacity of RE technologies by location, i.e. a cap of installed capacity per technology per geographic region. The responsible authority for this distribution is the Ministry of Economy, Energy and Tourism.

Concerning the Energy Act³¹, currently it is under an amendment procedure, in compliance with the EU requirements of the RES Directive and will be submitted to the National Parliament.

²⁶ <http://www.eco-energy-bg.eu/SPEE/Files/ViewRightsPBG.php?typerights=2&language=2>

²⁷ This regulation is adopted in 1996, last amended in 2003, State Gazette 31, 4th Oct. 2003.

²⁸ Acc. to the information, obtained during an interview with the Chair of APEE and REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;

²⁹ EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

³⁰ <http://www.mee.government.bg/eng/gzakone/gzakone/docs.html?id=212967>

³¹ <http://www.mee.government.bg/eng/gzakone/gzakone/docs.html?id=187497>

Another area where the legal base creates obstacles to project development is the spatial planning. The rules set in the spatial planning concern expropriation of land from estates, for the purpose of traversing (building) pillars from the grid network. The current rules slows down the process of traversing real estate (both private and municipal) and erecting the infrastructure, which connects the producers and consumers of renewable energy.

- **Market barriers (supply)**

Key element for a better absorption of the **biomass** potential is the existing of a well developed biomass market in the country. In this context a long-term supply of biomass will be needed, which according to a study³² is not yet achieved. The production and supply with biomass needs to exploit more the biomass potential in the country.

In regard to the electricity market, despite the liberalisation and the fact that the energy market allows choice over 30³³ electric energy traders, licensed by the State Energy and Water Regulatory Commission, there is no change at the actual status of this market.

- **Interconnection problems with Electric Distributing Companies**

Regarding **Solar Energy**, Very often, the Electric Distributing Companies might slow the process by requiring the municipality to scrutinize a simple roof-top solar installation as if a major building complex is to be built, before granting an interconnection permit.

1.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
1.1	Wind onshore*****	Is one stop-shopping possible?	*No
1.2	Wind onshore*****	Amount of money to be invested in the administrative process (including cost of work and costs like fees) (in €)	**
1.3	Wind onshore*****	Time to be spent for administrative process (duration to get the main permits) (in weeks)	Around 18-20 weeks, depends on the project***
1.4	Wind onshore*****	Estimated number of permits required (#)	8 permits****

* The procedures for the obtaining of the different permits sometimes are time consuming with many institutions involved

** This depends on the project and the respective Municipality. According to some respondents it also depends on the permits required – around 15 000 EUR costs the Building permit.

*** depends on the project

****this depends on the RE technology

*****Till now the respondents represent Wind onshore technology. Other respondents are from companies, working in the field of RES in general

³² EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

³³ Idem

1.3 Literature

- EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD);
- REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;
- Barriers for Biogas implementation in Bulgaria, Nov. 2008, project, financed by Intelligent Energy Europe;
- National Long-term programme for Biomass utilization for the period 2008-2020;
- Investment process for RES – Biomass and Biogas, Energy Efficiency Agency, http://www.mee.government.bg/energy/energy_doc/Biomasa_i_biogaz_ENG.pdf
- http://ecoenergia-bg.eu/content/en/page_references
- <http://buleco.com/index.php?lang=en>
- <http://www.thebioenergysite.com/news/2873/wbg-tests-biomass-plant-in-ihhtiman>
- http://sofiaecho.com/2009/01/22/666034_austrias-wbg-to-build-biomass-plant-in-ihhtiman
- <http://www.sugre.info/tools.phtml?id=661>
- <http://www.eco-energy-bg.eu/SPEE/Files/ViewRightsPBG.php?typerights=2&language=2>
- <http://www.reshaping-res-policy.eu/> RE-SHAPING Renewable Energy Country profiles 2009.

2 Issue 2 Technical Specifications

2.1 Introduction

Current situation of the RES Support policy in Bulgaria:

Due to the fact that this sector is new for Bulgaria and with good potential for development of RE projects, the National Support policy is still to be developed. As it was already mentioned before, the Energy Act is under amendment procedure, in compliance to the EU RES Directive. The National Strategy regarding RES is also updated in accordance to the EU requirements in the sector as well as the national potential for the development of the sector.

The main support policy for RE technologies is related to the feed-in tariff system, which levels have been adjusted in April 2009³⁴. *(The new Feed-in Tariffs for Renewable Energy in Bulgaria are to be decreased with between 5-7% for the next period, Bulgarian State Energy and Water Regulatory Commission (SEWRC) representative says. The SEWRC is to announce its final decision last week of March and prices will be in force as from April 2010.³⁵)*

On the other hand there is quite a big amount of projects, requesting permits and grid connection³⁶. Currently, a large number of requests for preliminary studies on the possibilities for grid connection, totalling 7,000 MW, mainly solar PV and wind energy, have applied for grid connections, rezoning, and environmental permitting. Even though grid access for RE technologies is prioritized, the lack of network capacity is imminent.

According to one of the interviews³⁷, very often, there are requests from some investors for permits and grid connection, who afterwards do not use the opportunity, given to them this way blocking the possibility for other investors to obtain this grid access.

One possibility for financing RES projects in Bulgaria is related to the 7FP RTD (2007-2013), SP Cooperation – theme Energy, as well as the Competitiveness and Innovation Programme (2007-2013), within the frame of Intelligent Energy Europe. Another opportunity for support of RES projects is under the EU Structural Funds, within the frame of Operational Programme Development of the Competitiveness of the Bulgarian economy (2007-2013), priority Innovation as well as within the scheme under Measure

³⁴ <http://www.reshaping-res-policy.eu/>, RE-SHAPING Renewable Energy Country profiles 2009.

³⁵ <http://www.resbulgaria.com/2010/03/expected-feed-in-tariffs-for-renewable-energy-in-bulgaria-from-april-2010/>

³⁶ <http://www.reshaping-res-policy.eu/>, RE-SHAPING Renewable Energy Country profiles 2009.

³⁷ conducted under this study with representatives from the Ministry of Economy, Energy and Tourism,

311 “Diversification of economic activities”³⁸, within the frame of the Rural Development Programme (2007-2013).

In regard to possible investments from abroad, currently the Bulgarian Investment Agency³⁹ issued a national investment support programme for foreign investors in RES in Bulgaria, assisting them in quicker permit procedure and simplified procedure for purchasing the land)⁴⁰. Another investment opportunity for RE technologies is related to the first EBRD Credit Line (BEERECL).

However, currently there is no financial support on National level under specific National programmes. Thus there are not concrete technical specifications, apart from the grid access conditions, particularly required for RES projects yet. When applying under any of the above-mentioned EU subsidized programmes, the general programme specifications are followed.

(Under the Operational Programmes in general, the technical specifications are mostly related to the eligibility of the applicants, specific requirements related to the technical and financial offers, etc.)

2.2 Description of possible barriers & solutions

2.2.1 Detailed description of the Barriers and solutions

Currently, in Bulgaria there are no specific barriers for RES projects due to the fact that there are no particular technical specifications for these particular projects.

Barrier 2.1 – Weak definitions

It is clearly stated in the Renewable and Alternative Energy Sources and Biofuels Act⁴¹ what does RES include and thus, guaranteed clear definition on this matter. However, since there are no a particular technical specifications for RES projects, this barrier is not applicable for Bulgaria at the moment.

Barrier 2.2 – no EU standards applied

According to the respondents involved in the current study, the requirements for project application are in accordance with the EU standards. EU standards are going to be incorporated within National legislation, in compliance to the EU Directive.

Barrier 2.3 – Specified locations for testing and/or certification

Since there are no particular requirements related only for RES projects, it is expected that the same refers to the certification. In the case of equipment installers and technologies – national and international standards are applied. There is not a particular requirement for RES. There are also no specialised accredited laboratories to do the testing.

³⁸ This measure covers production and selling of RE, photovoltaics, etc. – see <http://www.tonchev.org/presinfopvtermocogenerator.html>

³⁹ <http://www.investbg.government.bg/?sid=24&ssid=121&c=273>

⁴⁰ <http://www.resaping-res-policy.eu/>, RE-SHAPING Renewable Energy Country profiles 2009.

⁴¹ <http://www.mee.government.bg/eng/qzakone/qzakone/docs.html?id=212967>

Barrier 2.4 – Barrier to trade

This barrier is not relevant for Bulgaria due to the fact that there are not particular requirements and specifications to RES projects and thus there are not specific requirements related to the internal market.

2.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
2.1	Wind onshore**	Are specifications expressed in terms of European standards (including eco-labels, energy labels and other technical reference systems), though such European references exist?	Yes*

* It should be outlined that these are not technical specifications, particularly for RES projects.

**Till now the respondents represent Wind onshore technology. Other respondents are from companies, working in the field of RES in general

2.3 Literature

- <http://www.reshaping-res-policy.eu/> RE-SHAPING Renewable Energy Country profiles 2009.
- REPAP 2020, a Roadmap for RES Industry in Bulgaria, Jan. 2010, project financed by Intelligent Energy Europe;
- <http://www.investbg.government.bg/?sid=24&ssid=121&c=273>
- <http://www.mee.government.bg/eng/gzakone/gzakone/docs.html?id=212967>

3 Issue 3 Building integrated technologies

3.1 Introduction

The most popular renewable energy technology among developers, which is easy to integrate in a building, is the solar energy (either thermal or electric). Other RE building-integrated technologies are: biomass heating of residential buildings. There are few cases of thermal heating of residential blocks of houses with boilers fired with wood pellets, as building integrated technology. But these thermal heating projects, briefly described below, are just few cases of the use of such technology. Of course, there are more biomass heating projects implemented in Bulgaria, but they distribute heat through a pipe-network.

The biomass heating projects concern combustion of wood waste in heating boilers and a system for production and distribution of thermal energy. One of the biomass projects in Bulgaria is realised by “Erato Holding “Plc⁴². The project is implemented in two cities in South-East part of Bulgaria – Haskovo and Kardjali. The biomass is collected and transported to the thermal energy consumers in the two cities. The boiler facilities are built at the heat distribution units of two residential and three public buildings. The cost of thermal energy supplied will be with 30% cheaper compared to the cost of electricity used for the same purpose. The total installed thermal capacity for the residential buildings amounts to 367 MW and the installed capacity for the public buildings amounts to 269 MW. The projects` return on investment is about 3 years.

3.2 Description of barriers & solutions

3.2.1 Detailed description of the Barriers and solutions

Regarding Photovoltaic installations

The problem that arises with the integration of Photovoltaic (PV) installations in commercial hotels or residential buildings is related to the building category status assigned to Photovoltaic installations. At present, building type category 3 is assigned to this technology, which means that roof installations are scrutinized by construction and ministerial authorities, as if it were a wind energy project. Roof PV installations are typically not more than 300 kW (500 kW in some exceptional cases).

The solution is to amend the Building Act to keep photovoltaic array roof installations from becoming Category 3 and have them in category 5 or 6.

⁴² http://www.erato.bg/index_en.php and interview with Nikolay Vangelov, March 2010

Regarding Biomass installations

The following barriers are marked as relevant for biomass installations:

Lack of Biomass supply: it is currently difficult to be arranged and guaranteed a long-term stable supply of biomass.

Concerning Geothermal installations

The geothermal technologies are used for heating of hotels, different type of building or industrial production buildings. The barriers that create difficulties are related to:

obtaining permits from the Ministry of Environment and Water and to *obtaining of finance* for project realisation. The first barrier is due to the not so rich experience of the Public administration (MOEW⁴³) with such projects, and especially of the employees of the Regional Inspector for Environment and Water. Lack of understanding of a technology leads to delays in issuing permits.

A possible solution to this barrier is provision of training to the experts at the Ministry of Environment and Waters and the Regional Inspector for Environment and Water on geothermal technologies.

The second barrier is related to the high interest rates imposed by the banks.

Other barriers regarding geothermal facilities are:

Lack of adequate mapping: Bulgaria currently has inadequate geothermal resource mapping of the country. Therefore, large-scale geothermal development requires costly feasibility studies, which many developers are reluctant to undertake.

Lack of interest from local authorities: the municipal underground mineral water can be used through a concession, but the local authorities are almost uninterested in the existing underground waters and their usage. A possible explanation for the lack of interest is lobbying of other interested parties as natural gas deliverers. A possible solution to this barrier is to set a legislative requirement for the energy supply mix of local (country side) municipal /public buildings, where other energy sources are available.

Barrier 3.1 – Inefficient general administrative procedures

The administrative procedures create a barrier for the implementation of RES building integrated technologies in terms of the long-term procedures⁴⁴ for approval and obtaining permits.

In addition it should be outlined here that there is another procedure, related to the setting of criteria for public tenders for building constructions, i.e. Green Public Procurement (GPP). GPP means “*that public purchasers take into account environmental considerations in their tendering procedures when buying products, services or works.*”⁴⁵ The GPP, set by the European Commission aims at increasing demand by public authorities for eco-friendly goods and services, including lowering of CO2 emission.

⁴³ Ministry of Environment and Water

⁴⁴ Sometimes the approval procedure could take 3-4 months

⁴⁵ http://ec.europa.eu/environment/gpp/training_toolkit_en.htm

A seminar aimed at disseminating the goals of the GPP initiative was held in Sofia on the 17th of November, 2009. However, no information is available about the current state of green procurement implementation by Bulgarian authorities. The current administrative procedures, set in the Public Procurement law⁴⁶ have not resulted in a society- known implementation of RES technologies in public buildings, apart from the 'biomass heating project' mentioned earlier and some demonstrative projects (for example geothermal).

Barrier 3.2 – No/insufficient specific rules for building integrated/small scale RES installations

The current legislation, in particular the Spatial Planning Act (Art. 169, chapter nine, part 3)⁴⁷, sets requirements for design, construction and maintenance of buildings, particularly for: fire safety, noise protection, protection off the environment, energy efficiency – energy saving and heat preservation.

However, the Act does not set further requirements on what the environment protection criteria should be. In regard to energy efficiency, Regulation (№ ПД-16-296)⁴⁸ on energy characteristics of sites,⁴⁹ defines the conditions and order for determining the energy consumption and the energy parameters of buildings. However, no further requirements are outlined regarding RES technologies.

Therefore, it could be concluded that no specific rules oblige project developers of new buildings to incorporate RES technologies into the design and operation. The present Public Procurement law do not foster implementation of RES technologies in public buildings, apart from the 'biomass heating project' mentioned earlier and some demonstrative projects (for example geothermal)

Barrier 3.3 – Competing public interests

This not a relative barrier for RE technologies in Bulgaria. The public is in favour of environmental friendly technologies. The barrier is the cost (fixed and running cost) of the technology. For example, when the higher costs of new buildings, which would have RES technologies incorporated into their design and operation, are compared to the lower costs of buildings with traditional energy supply, then the preference would move to buildings with current technologies.

Barrier 3.4 – Renewables obligations insufficient

The lower obligation of integrating RES technologies in buildings is due to:

- Higher costs of technology (especially for roof top PV installations);
- Because of the above – lack of interest from most building developers to install such technology, because this will increase the project cost;
- Influence (strong lobby) of natural gas

A possible solution to this barrier is to set legislative requirements on the minimal percentage of renewable energy source heating used in new buildings.

⁴⁶ <http://www.bcnl.org/doc.php?DID=68>

⁴⁸ <http://www.econ.bg/law86419/enactments/article140078.html>, The Ordinance is Published in State Gazete 38 from 2008

⁴⁹ The term *sites*, includes buildings

Barrier 3.5 – Exemplary role of public buildings neglected

The role of public buildings is not neglected. The problem arises from the fact that the heating of such buildings was designed before 1980 and public officials are reluctant to switch to alternative (renewable energy) heating. However, there are some examples of buildings (like schools) that make use of RE technologies, but these are almost 100% private cases with no state supported demonstration projects.

Barrier 3.6 – RES deployment hindered by spatial planning matters

The spatial planning regulations, such as the Spatial Planning Act,⁵⁰ do not hinder integration of RES technologies into buildings. The obstacle results, as described in barrier 3.2, from the lack of specific rules that foster the integration of small scale RES installations into buildings.

Barrier 3.7 – Tenancy Act and ownership Act impede development of building integrated RES technologies

The present Tenancy Act and ownership Act do not create a barrier for installing RES technologies for legal entities, but this is not the case when the applicant is a physical entity. The Tenancy Act applies for longer than 10 years - period for legal entities, but only for 10 years – for physical entities.

A general barrier related to RE equipment integration into residential, commercial or administrative buildings is the often unwillingness of estate projects developers to design the buildings with new environmental technologies, but instead keep to old and cheap heating technologies.

Barrier 3.8 – Other Barriers

3.2.2 Best practice elements and indicators

No.	Technology	Benchmark	Result
3.1	***	Is this installation type in normal cases exempted from an authorization procedure (building permit)?	*No
3.2	***	Are legal-administrative requirements inadequate for this installation type?	No
3.3	***	Number of administrations that must be contacted	**

* http://www.mee.government.bg/energy/energy_doc/Geothermalna%20Energia_ENG.pdf

**It depends on the project how many institutions will be involved in the procedures. There are not many projects in Bulgaria involving RE technologies, integrated in building.

***Till now the respondents represent Wind onshore technology and companies, working in the field of RES in general. Regarding Building integrated technologies, the companies' opinion was followed, since wind technology cannot be integrated in Buildings.

⁵⁰ <http://www.mrrb.government.bg/index.php?lang=bq&do=law&type=5&page=4>

3.3 Literature

- Identification of key barriers to utilization of Geothermal of Geothermal Sources in Bulgaria”,<http://www.mee.government.bg/geoterm.html>
- http://www.mee.government.bg/energy/energy_doc/Geothermalna%20Energiya_ENG.pdf

4 Issue 4 – Promotion of energy efficient renewable energy equipment

4.1 Introduction

Currently renewable energy source technologies are promoted either through the EU Structural funds (the Rural Development Programme, The Operational Programme “Increasing the Competitiveness of the Bulgarian Economy”), the European Economic Area programmes (administrated by the Ministry of Finance) or other initiatives like the BEERECL programme of EBRD /administrated by EnCon Services Ltd⁵¹ in Bulgaria/.

Regarding the efficiency of the equipment (heat pumps and/or biomass) is not promoted – there are no tax reliefs or support for the producers of this equipment in Bulgaria.

The equipment for hydro plants, biomass boilers and Solar thermal installations, is imported from other EU countries, because of the better performance. The equipment for hydro power plants, biomass combustion and solar thermal energy is also produced in Bulgaria.

Companies that produce technologies for hydro plants are Vipom Jsc– Bulgaria and "Elprom Zem" Ltd. – Bulgaria. ERATO Holding Jsc is one of the national producers of boilers utilizing biofuels. Solar thermal installations are built from various small and medium-sized companies.

4.2 Description of barriers & solutions

4.2.1 Detailed description of the Barriers and solutions

Barrier 4.1 – Non-compliant promotion schemes

Currently, there are no national schemes that promote energy efficient renewable energy technology due to the fact that most of the equipment is imported from abroad and the lack of national schemes.

⁵¹ <http://enconservices.com/cms/index.php>

Barrier 4.2 – Lack of substitution of existing inefficient systems

From the renewable energy source technologies, only boiler facilities and some obsolete water turbines are being replaced, i.e. only shift of boilers firing heavy fuel oil to boilers using biomass or replacement of old with new and better water turbines is carried out.

Barrier 4.3 – Use of national procedures

Because most of the equipment is imported from abroad and due to the lack of national schemes, there are no national procedures in place.

Barrier 4.4 – Insufficient information

Due to the above-mentioned, there is no information about the promotion of energy efficient renewable energy technology.

Barrier 4.5 – Other Barriers

4.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
4.1	Are the requirements of Art 13 (6) of the Directive concerning the promotion of efficient bioheat and heat pumps fulfilled? (yes/no)	No

4.3 Literature

- Bulgarian Energy Efficiency and Renewable Energy Credit Line www.beerecl.com
- <http://www.eufunds.bg/docs/Obiava1.pdf>
- <http://www.mzh.government.bg/article.aspx?rmid=363&id=363&lang=1&lmid=0>
- Interviews with stakeholders

5 Issue 5 Information/awareness raising

5.1 Introduction

Information campaigns regarding RE technologies are not widely spread in Bulgaria. According to an interview, conducted for the purpose of this study with representatives of the Public Authorities⁵², there have been initiatives organised and there is enough information, published on the website of the ministry of Economy, Energy and Tourism: www.mee.government.bg

However, some of the other respondents, representatives of the private sector, claim that the information is not enough and that there is a great need of campaigns, literature, expert consultations, seminars, etc., on RE technologies, which at the current moment are new issues for Bulgaria. There is also a need for improvement in the dissemination of information regarding funding for RE projects.

5.2 Description of barriers & solutions

5.2.1 Detailed description of the Barriers and solutions

Following the above-mentioned polarised opinion regarding the information campaigns it would be useful if more information is spread, more seminars are organised, especially in the various municipalities, where there is potential for RES projects. The lack of knowledge and awareness becomes an important barrier for RES projects development.

Barrier 5.1 – Insufficient availability of information on support measures & of guidance for planners and architects

According to a study⁵³, there is a low awareness of the **biogas** potential and developed technologies. This is a key barrier for the agricultural biogas, where the farmers are not aware of the potential possibilities, biogas could provide them. There is not enough information about the experience of other EU Member States.

However, there is information on the website of the Ministry of Economy, Energy and Tourism⁵⁴, oriented towards investors in this field, presenting the whole investment process step-by-step.

⁵² Experts from the Ministry of Economy, Energy and Tourism

⁵³ Barriers for Biogas implementation in Bulgaria, Nov. 2008, project, financed by Intelligent Energy Europe,

⁵⁴ http://www.mee.government.bg/energy/energy_doc/Biomasa_i_biogaz_ENG.pdf

Concerning **waste management and supply** there is no clear and reliable picture, so far, of the waste disposal sites in Bulgaria⁵⁵. Concerning the production of biogas from waste water, currently there is no fully developed system of sewage treatment plants. The existing ones need updating.

Regarding **Hydro-electricity**, there is no sufficient hydrological data. Some small mountain rivers are not mapped. This is an obstacle for an adequate and precise estimation of the electricity generation.

In addition Bulgaria currently does not have an adequate mapping of the **geothermal resource**⁵⁶. This leads to the undertaking of costly feasibility studies. This makes geothermal projects not so attractive sometimes, bearing in mind the costly studies, undertaken in advance.

Barrier 5.2 – Insufficient funding for campaigns/programmes

According to some respondents from Public administration there were campaigns and presentations of the various RE technologies, accompanied by brochures, websites, etc. However, specific funding was not mentioned for these initiatives, undertaken by the Ministry of Economy, Energy and Tourism, which means that they are supported under the Ministry budget. Therefore we could consider this as a potential barrier, especially in a case of a world financial crisis and tightened public budget.

Barrier 5.3 – Insufficient campaign-/programme-design

The Ministry of Economy, Energy and Tourism have organised events like: presentations and discussion panels, issuing brochures and leaflets on few occasions. However, these events, even though opened to a large audience, could not manage to involve all stakeholders. Therefore some of the respondents, representatives of various companies are not aware of such events. They claim that there are not big campaigns organised on RES technologies and projects.

Relatively good information is provided on the website of the Ministry of Economy, Energy and Tourism⁵⁷, giving detailed information on the legislation⁵⁸ covering RE technologies and presenting the various steps⁵⁹, which should be followed when investing in any of these technologies.

Barrier 5.4 Other barriers

- ***Lack of awareness with the different RE technologies;***

The pace of technology development usually outruns the pace of information dissemination about its amenities and advantages. Lack of knowledge about the operation, specifics and benefits that new renewable energy technologies offer can be observed among the following group of organizations: banks, governments and local authorities. This barrier is related to the hesitation of the various banks when they need to

⁵⁵ idem

⁵⁶ EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

⁵⁷ <http://www.mee.government.bg/eng/geoterm.html>

⁵⁸ <http://www.mee.government.bg/eng/gzakone/gzakone.html>

⁵⁹ <http://www.mee.government.bg/eng/geoterm/gtoolse.html>

take decision for renewable energy projects. More information and popularisation of the latter is needed. Therefore, this barrier could be also related in general to the lack of enough information campaigns, training programmes, conferences, presenting RES.

The lack of awareness among local authorities is related to the lack of knowledge about the essence of the RE technology and its operation. This lack of awareness results in a long-term period in waiting for obtaining an approval by the chief architect of the municipality or passing the project from one department to another until it is approved. The lack of awareness is mostly related to photovoltaic installations. It is also related to the higher requirements, in terms of type of permits needed for putting the technology into operation. This particularly concerns roof type photovoltaic installations, for which a higher grade of building permit is required.

On a governmental level the problem of lack of knowledge about the RE technology resembles the problem on municipal level. Geothermal heat pumps are a particular example, which reveal that the lack of knowledge about the technology performance, results in longer times for obtaining usage permits⁶⁰.

- ***Lack of familiarity with the technology***

Regarding **Geothermal installations** the lack of familiarity with the technology by municipalities and some governmental clerks is one of the main barriers towards the technology penetration. Lack of familiarity denotes unawareness and lack of experience and knowledge regarding geothermal energy technologies, which could slow the process by delaying the granting of the permits.⁶¹

This barrier refers to all RES technologies, developed in Bulgaria at this very stage. Due to the fact that renewable energy technologies are something new to the National Energy market, there is not enough information among the local authorities and other bodies, involved in the different administrative procedures.

A non-technical barrier relevant mostly for **wind energy projects** is the uncertainty of the aims of the projects developers. There are many companies that want to develop their projects, a bigger portion of them develop the project to a certain stage with the aims of selling the project to a new owner. Hence a coherent distinction between real developers and project sellers cannot be made. This issue creates hesitation by some governmental authorities for permits issuing, because issuing a permit for project development implies reserving part of the grid/or construction of grid extension for the forthcoming installed capacity

A general non-technical barrier is the lack of adequate regulations to address the risk or the financial obligations between the RE project investor and the distribution companies in the case of required network expansion and the need for a balance between the number of RE facilities and “base” power plants, i.e., a balance to the strategic electricity

⁶⁰ Due to lack of knowledge, differentiation about the manner of heat extract from geothermal sources in not made and geothermal pumps are seen as utilizing the heat from mineral water, rather than from normal underground water. And to be able to utilize mineral water, a special permit is required.

⁶¹ EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

generation mix. These non-technical barriers influence in a certain extent the permitting process for new, for example wind energy, installations.

- ***Not enough technical expertise***

The country needs more technical expertise for utilisation of **biomass**.⁶² However, the absorption of the biomass potential depends on few key factors⁶³ like: utilisation of effective technologies for biomass burning, wider introducing and utilisation of technologies for energy production as well as existing infrastructure, allowing the utilisation of different types of biomass.

In addition, concerning *biomass* projects, there is a need of more consultants, specialised in biomass utilisation as well as in the variety of biomass types. It is difficult to get a long-term stable supply contract of biomass for projects up to 5 MW.

- ***Insufficient Lack of training***

Even though there is some information accessible via internet, brochures, etc., there is not enough training for the experts in the municipalities and public agencies and also for other potential stakeholders.

5.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
5.1	Is sufficient information on support measures available?	*No

* According to the majority of the respondents of the questionnaire, the information is not sufficient.

5.3 Literature

- Barriers for Biogas implementation in Bulgaria, Nov. 2008, project, financed by Intelligent Energy Europe
- EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)
- <http://www.mee.government.bg/eng/gzakone/gzakone/docs.html?id=212967>

⁶² EnCon Study for EBRD on Bulgarian Energy Efficiency and Renewable Energy Action Plan for Bulgaria, 2009; (Summary – the official report is not yet published by the EBRD)

⁶³ National Long-term programme for Biomass utilization for the period 2008-2020, Jan. 2008

6 Issue 6 Certification of installers

6.1 Introduction

According to the Regulation for Certification of Electricity Produced by RES (State Gazette 10, 6 February 2009) the State Commission on Energy and Water Regulation issues certificate for the sources of the produced electricity by RE. The certificates certify the producers, the quantity of the produced electricity, the period of production as well as the installed productive plant and its generation power. According to the Regulation as RE electricity can be deemed only that certified according to the regulation.

There is electronic register of the certified electricity produced by RES which is managed by the State Commission on Energy and Water Regulation. This register is available on the web-page of the commission: http://www.dker.bg/certificates/cert_orig_el.pdf

Apart from the above certification currently, there is no any other specific programme related to the certification of installers. Equipment installers can have ISO 9001 and/or OSHAS 18001 certification, but this certificates are more international and quality/safety related than specific for RE technologies. In case of technologies national and international standards are applied. However, these are not a requirement for production of RE.

Another problem is the lack of accredited technical laboratories that can test the technological equipment for production of RE and issue certificates. In relation to solar energy there is only one laboratory where various technological characteristics can be tested – The Central Laboratory on Solar Energy and New Energy Sources to the Bulgarian Academy of Science. There are some other laboratories to private producers with limited possibilities⁶⁴. There are no standard guidelines for planners of RES technologies.

The training available on RES became only recently part of the standard Universities programmes in the Technical Universities in Varna and Sofia, as well as some training courses are provided by the Technical University in Rousse “Angel Kanchev”.

⁶⁴ TRANSSOLAR project, National Report for Bulgaria, Energy Centre Sofia

6.2 Description of barriers & solutions

6.2.1 Detailed description of the Barriers and solutions

Barrier 6.1 – Lack of a Certification body

The electricity produced by RES is certified by the State Commission on Energy and Water Regulation. These certificates contain the main parameters of the produced RE, however do not certify the technology used. The later is hampered mainly by the lack of requirements, procedures and accredited laboratories that can issue technological certificates.

Barrier 6.2 - Lack of guidelines

There are no standard guidelines for planners of RES technologies. Various administrative requirements are described in the different Acts and regulations. The certification procedure is described in the Regulation for Certification of Electricity Produced by RES.

Barrier 6.3 Lack of training

In the last years the number of the training courses and seminars on various topics related to RES is increasing. These are initiatives of various parties active in the area, including state institutions as the Ministry of Economy, Energy and Tourism and Bulgarian Academy of Science. Specialties, related to RES appeared in the Technical Universities in Sofia and Varna as well as trainings are provided in the Technical University in Rousse, as it was already mentioned before.

Barrier 6.4 – Other Barriers

6.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
6.1	Are certification schemes or equivalent qualification schemes available for installers?	*Yes
6.2	Is sufficient training on RES provided during the standard education curriculum of installers?	No

* Only certification of the electricity produced by RES

6.3 Literature

1. Regulation for certification of electricity produced by RES (State Gazette 10, 6 February 2009)
2. TRANSSOLAR project, National Report for Bulgaria, Energy Centre Sofia

7 Issue 7 Infrastructure Development

7.1 Introduction

The infrastructure is different for each renewable energy technology. For biomass it refers to the supply chain of wood pellets or other biomass materials (like straw), while for wind, water and solar electric the infrastructure is related to the national electric grid system. In Bulgaria, the Transmission System Operator (TSO), the National Electric Company and Distribution System Operator (DSO) are the three companies CEZ, EVN and E-ON

In its current format the Energy Act regulates the issues related to renewable energy development, in particular:

- Makes it mandatory for the public provider and the supplier of last resort to purchase electricity produced from renewable energy sources 9, 10.
- Determines the servitudes (a right of laying overhead and underground electric power lines of above-ground and underground hydraulic engineering facilities for electricity generation, heating mains, gas pipelines, crude-oil and petroleum-product pipelines in favor of the energy company), the rights for exercising the servitude, the compensations to owners resulting from the servitude rights and where the changes of land right resulting from the servitude shall be recorded.
- Sets the rights and obligations of the energy (electric, heat, etc.) companies, including those related to the expansion, redevelopment and modernization of the transmission network in accordance with the long-term forecasts and plans for development of the electricity industry (art. 87)
- Defines the rules for distribution of electric energy (art. 88 - 90)
- Delineates the commercial rules between the parties on the energy market (including electricity producers, transmitter and distributors)
- Stipulates the network connecting producers and customers to the networks (art. 116 – 121). The procedures given in these articles describe some of the grid connection rules and complements the procedures set in Regulation 6 with respect to project grid connection.

According to section 3 of The Regulation under the Energy Act, network operators are responsible for the grid expansion and they bear the burden of the costs. However, the Regulation states that network operators “may not be included in the fee for connecting the RES plants, i.e., the wording is not conditional, not obligatory. Annually, while preparing investment and maintenance programs, the transmission or distribution company shall allocate resources for grid development to promote production of electric power from renewable and alternative energy sources. The transmission company or distribution company shall be obligated to assign priority to connecting all facilities for production of electric power from renewable and alternative energy sources, which comply to the specific conditions for connection to the grid as defined by the Regulation stipulated by Art. 116, par. 7 of the Energy Act⁶⁵.

Hence, the grid expansion depends on the available fund of the electric distribution companies and the “agreement” (cost share of the expansion) between the renewable energy supplier and the grid operator.

7.2 Description of barriers & solutions

7.2.1 Detailed description of the Barriers and solutions

Barrier 7.1 - Problems concerning connection to existing electricity networks

This barrier is related to the Bulgaria’s insufficient grid capacity in some regions in Bulgaria, like the North-Eastern part of the country, where the network is not still developed, which is a major technical barrier against increasing development of RE projects in these regions. The barrier is further developed in Issue 8⁶⁶ of the current Study.

Barrier 7.2 - Problems concerning development of electricity network infrastructures according to a long-term strategy

The problems concerning development of electricity network infrastructures arise from several issues:

There is no clear national strategy for the role of RE system electricity generation in the overall energy balance of Bulgaria or for the adequate balance of energy dispatch.

Investors often do not complete an adequate project risk assessment, i.e. investors tend to neglect issues related to: (a) network connection (expansion or reconstruction of the transmission network) and (b) easement rights. The reason for the network expansion and associated risk arises from the uncertainties in the Act, which allow for transfer of obligations for grid construction and expansion. The expansion often requires acquisition of easement rights from private land owners.

⁶⁵ (Amended, SG No. 74/2006, effective 8.09.2006) The terms and procedure for connection to the relevant network, for suspension of the connection or electricity supply, and the property boundaries between the electric facilities shall be established by an ordinance of the Minister of Economy and Energy.

⁶⁶ See Barrier 8.1 - Problems concerning grid connection, p.46.

Barrier 7.3 - Problems concerning development of a Trans-European Electricity Network

The problems concerning grid expansion processes of existing electricity networks are due to:

Competing investment projects: The Bulgarian power sector suffers from a dated and dilapidated transmission and distribution infrastructure. Electric distribution companies (EDCs) that manage the distribution network must decide between the competing priorities of operation and maintenance costs, and modernizing the network, versus administratively accommodating the new RE projects and constructing easements. Because the financial abilities are budgeted with a maximum for expenditures that must be approved by the State regulatory commission, they feel justified in requiring the developers to finance most of the cost of constructing any transit lines or substations needed for interconnection.

Traversing private estate: often land owners request a higher price for letting either the project developers or electric distribution companies.

Barrier 7.4 – Other Barriers

7.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
7.1	Wind onshore*	Presence of an efficient (in terms of capability of achieving its stated objectives) plan for the reinforcement of the interconnection capacity with neighbouring countries.	No
7.2	Wind onshore*	Presence of an efficient plan for the reinforcement of the connection capacity within the country.	No

* Till now the respondents represent Wind onshore technology. Other respondents are from companies, working in the field of RES in general

7.2.3 Other infrastructure issues

Biomass projects: At present, there is lack of good supply chain for biomass products. It is currently difficult to get a long-term stable supply of biomass. The solution should be marked based, i.e. suppliers and purchasers have to find a common agreement on the product price and terms of delivery.

7.3 Literature

- <http://www.mee.government.bg/eng/geoterm.html>;
<http://www.mee.government.bg/eng/gzakone/gzakone/docs.html?id=187497>

8 Issue 8 Power Grid Issues

8.1 Introduction

The Energy Act regulates also the grid connection. The procedure includes the following steps: in order to connect a new plant to the electric grid the company, constructing the plant, must submit a written request for a preliminary study on the technical conditions and the way of connecting. The preliminary contract⁶⁷ is done after issuing of visa for design in cases when the design visa is obligatory⁶⁸ under the regulations of the Spatial Planning Act. According to Art 50 of the Regulation, for plants with installed power up to 5 MW,⁶⁹ the written application is submitted to the distribution company, while for plants with higher installed power to the regional sub-unit of the transmission unit. The study is financed under a pricelist of the services of the related transmission unit or the distribution company. The transmission unit and related distribution company prepare and propose preliminary agreement for connection to the electric plant of the person, who has applied with a request for the connection conditions study.

The obligation for connecting a producer of electric power generated from RES shall be the responsibility of the transmission company or the relevant distribution company, which is located in the closest proximity to the energy plant. The property boundaries of the electric power facilities of the producer and the location of the commercial metering devices shall be determined according to the regulation referred to in Art.116, par. 7 and Art. 83, par. 1, item 6 of the Energy Act. In cases where the interconnection point is not located within the property boundaries of the producers' facilities, the provisions of the grid interconnection facilities are constructed by the network operator and are his property. The distribution company shall be obligated to connect to its network every producer of energy generated from renewable energy sources, which is also a household consumer of electric power. The renewable energy plant should connect to the closest connection point of the network of the transmission or distribution company. The plant is entitled to a provisional connection fee. The transmission or distribution company shall also inform the producer about the possibility to connect the facilities of other produces or consumers who have already been connected or are being connected to the same grid. The costs related to the connection of the energy plant of the producer incurred within the property boundaries of the electric facilities shall be borne by the producer. The costs pertaining to the connection of the energy site of the producer to the relevant grid outside the property boundaries of the electric facilities up to the interconnection point shall be borne by the transmission or distribution company, whereby the producer shall pay a

⁶⁷ http://www.mee.government.bg/energy/energy_doc/Biomasa_i_biogaz_ENG.pdf

⁶⁸ visa for design is not an obligation according to the changes in legislation – information obtained during interview with APEE, undertaken for the purpose of this study.

⁶⁹ idem

connection fee covering only the direct connection costs incurred by the transmission company or the relevant distribution company according to the relevant regulation referred to in Art. 36, Par. 3 of the Energy Act.⁷⁰

Priority to connection of renewable energy plants should be given. However under the Renewable Energy Act and Energy Act, traditional and renewable energy users have the same rights for grid connection and usage.

The problems with the Electrical Distribution Companies stem from two issues: inadequate grid capacity in some regions, and the requirement that the EDCs bear the costs of the higher RE preferential feed-in tariffs.

8.2 Description of the barrier

8.2.1 Detailed description of the Barriers and solutions

Barrier 8.1 - Problems concerning grid connection

Limited grid network: Bulgaria's insufficient grid capacity in the North-East part of Bulgaria is a major technical barrier against increasing development of RE projects in this region. This includes the high voltage transmission lines, low voltage distribution lines, transformer substations, and access lines.

Traversing private estate. The problem with traversing private estate can be solved through appropriate amendments in the Spatial Planning Act.

Recommended direct compensation for RE projects to electric distribution companies (EDC)s: Currently, measures are undertaken and cost-sharing arrangements regarding the higher tariffs are introduced between the actors on the market.

Barrier 8.2 - Problems concerning grid access

The procedure regarding the connection of a new plant to the electric grid has been explained in details earlier in this chapter. However, it could be concluded that the problems concerning grid access arise from the grid availability, i.e. whether there are other projects that have earlier applied for interconnection.

Barrier 8.3 (former barrier 9) - Problems concerning TSOs and DSOs

The problems under this barrier are related to the following issue:

Out of date grid-network (the old grid, does not allow an adequate capacity for connecting new projects). DSO are not quite willing to invest in grid expansion, until an exact financial responsibility of the project developer with the project implementation is established and proper distribution of the tariffs load among players. As a result DSO are unhappy with fast grid expansion to new developers.

⁷⁰ <http://www.mee.government.bg/eng/qzakone/qzakone/docs.html?id=187497>

Barrier 8.4 – Other Barriers

8.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
8.1	Wind onshore**	Are the rules on cost sharing and bearing of grid connection objective, transparent and non-discriminatory ?	Yes
8.2	Wind onshore**	Is the denial of grid connection by TSOs and DSOs a common problem, constituting an important barrier for RES development?	*Yes and No
8.3	Wind onshore**	Number of months for getting grid connection (considering also approval of grid connection)	3-6 months
8.4	Wind onshore**	Estimated connection costs in Euros (in case producer pays)	n/a

*This is a common problem, but not a key barrier.

** Till now the respondents represent Wind onshore technology. Other respondents are from companies, working in the field of RES in general

8.3 Literature

- <http://www.resaping-res-policy.eu/> RE-SHAPING Renewable Energy Country profiles 2009.
- “Investment process for Renewable Energy Sources – Biomass and Biogas”, Energy Efficiency Agency,
http://www.mee.government.bg/energy/energy_doc/Biomasa_i_biogaz_ENG.pdf

9 Issue 9 Gas Network Issues

9.1 Introduction

It should be outlined in the very beginning of this chapter that there is not a developed “gas network” in Bulgaria. There are some neighbourhoods in Sofia (the Southern part of the city), using gas heating technology, like the case in some other cities, but these are cases on local level and we cannot consider this as a relevant case for the whole country. However, there is a potential, in terms of interest from investors, to develop further this technology for the purpose of heating in Bulgaria.

Regarding biogas – there is no biogas network at the current moment in Bulgaria. Currently, there are no installations for biogas production as well as enough number of farms and livestock breeding development for this purpose. However, biogas in general is beginning to become an issue for Bulgaria. During the recent years, in Bulgaria is observed higher interest towards biogas projects⁷¹. There are also no plants for bio methane refuel.

In addition, the Renewable and Alternative Energy Sources and Biofuels Act does not include special measures concerning biogas production and usage. There are also not foreseen initiatives for promotion of biogas.⁷²

Biogas opportunities and projects in Bulgaria like renewable source are not very developed for Bulgaria. There are various barriers for biogas, which are related to several issues like⁷³: information, implementation of projects, cooperation between project parties and administrative requirement for biogas projects.

It should be also outlined that gas, produced from biogas facilities, is used for production of thermal energy. The gas, in very small percentage could be used for own needs. But it is not fed in a national grid network.

⁷¹ Biogas potential in Bulgaria, March 2009, project financed by Intelligent Energy Europe;

⁷² idem

⁷³ Barriers for Biogas implementation in Bulgaria, Nov. 2008, project, financed by Intelligent Energy Europe;

9.2 Description of barriers & solutions

9.2.1 Detailed description of the barriers and solutions

Barrier 9.1 – No encouragement for upgrading

Currently there is no information regarding this particular barrier.

Barrier 9.2 – Lack of information

There is no sufficient information regarding biogas potential among the public in Bulgaria. However, there is information on the website of the Ministry of Economy, Energy and Tourism⁷⁴, oriented towards investors in this field, presenting the whole investment process step-by-step.

Barrier 9.3 –authorisation procedures

The main administrative obstacle is the receipt of a permit for the use of the land, which, if it is an agricultural land or forest, it should be replaced with similar land or its status should be changed.

Barrier 9.4 – Lack of incentives for infrastructure owners to open to biogas

To overcome the existing barriers, facing biogas production and usage, all public institutions should be involved, as well as the society and the NGOs.

Until now, there is no information on whether there is willingness of different stakeholders to cooperate in a joint biogas project.⁷⁵ This willingness would be necessary to guarantee a successful biogas plant implementation.

Barrier 9.5 – Other Barriers

Administrative barriers

Regarding **Biogas**, Most of the administrative barriers refer to the large number of institutional bodies, involved in the process of obtaining permits and licenses, but also to the slow legislation process. The procedure is long and too complicated. There are no standard procedures for RE projects.

9.2.2 Best practice elements and indicators

No.	Benchmark	Result
9.1	If green certificates and/or subsidies for biogas are in place, do they de facto make unattractive to feed green gas into the grid due to the high level of subsidy for biogas used for electricity generation?	n/a
9.2	Are the costs of grid connection for producers of gas from renewable energy sources objective, transparent and non-discriminatory?	n/a
9.3	Do transmission and distribution tariffs discriminate against gas from renewable energy sources?	n/a

⁷⁴ http://www.mee.government.bg/energy/energy_doc/Biomasa_i_biogaz_ENG.pdf

⁷⁵ idem

No.	Benchmark	Result
9.4	Average time needed for grid connection approval (from application for grid connection to formal approval) in months (#).	n/a

9.3 Literature

- Barriers for Biogas implementation in Bulgaria, Nov. 2008, project, financed by Intelligent Energy Europe;
- Biogas Potential in Bulgaria, March 2009, project financed by Intelligent Energy Europe;
- http://www.mee.government.bg/energy/energy_doc/Biomasa_i_biogaz_ENG.pdf

10 Issue 10 District Heating

10.1 Introduction

Currently all district heating is carried out through the combustion of natural gas or coal. Only few cases, like the two projects, presented below, include the usage of biomass for district heating. Renewable energy district heating is not a practice in Bulgaria. Some private owners of chalets use biomass for heating, but these represent isolated cases. (The following two cases have been already mentioned earlier in this paper⁷⁶) Therefore, it should be concluded that there is no DH in Bulgaria, apart of the few cases with the usage of biomass, presented below.

District heating in the city of Bansko⁷⁷

The installed capacity of the Bansko biomass district heating projects is 10 MW (2x 5 MW). Wood chips or wood residues are used as fuel. The project owner has constructed over 5.4 km of distribution network in the city of Bansko and has more than 50 clients (both public and private as well as industrial). The erection of the biomass boiler plant and expansion of the grid network is a joint initiative between BulEco Energia Ltd. and the municipality of Bansko.

District heating in the city of Ihtiman⁷⁸

The facility in the city of Ihtiman has a rated capacity of 3 MW that may be expanded to 10 MW and run on 10,000 tonnes of wood waste a year. The heating boilers, is delivered by the Austrian company WBG and costs EUR 4 million. The investor has deployed an 8th kilometre heating distribution network and has installed a cutting-edge plant room control technology. The new plant is operated by local firm Bio Energy. Tariffs of thermal energy will be about 30% lower than those of Bulgaria's conventional gas-fired heating utilities.

10.2 Description of barriers & solutions

10.2.1 Detailed description of the Barriers and solutions

Barrier 10.1 – Lack of positive conditions for the increase of the share of renewables in existing DHC systems

⁷⁶ See Issue 1 Administrative procedures, p. 9

⁷⁷ <http://buleco.com/index.php?lang=en>

⁷⁸ http://news.guide-bulgaria.com/SW/Sofia/Ihtiman/Ihtiman/News.aspx?6203=Biomass_power_plant_for_EUR_4M_tested_in_Ihtiman

The reasons for lack of positive conditions for the increase of the share of renewable in existing DHC⁷⁹ systems resemble those of biomass projects, namely:

Biomass supply: it is currently difficult to get a long-term stable supply of biomass
Network construction: to deliver the heat to private, public, etc. consumers, the facility owner has to traverse private land. This necessitates obtaining permission from the land owner to construct the delivery system.

Barrier 10.2 –Lack of positive conditions for the initiation and expansion of DH systems largely based on renewables

The lack of positive conditions is due to economic and political interest. The Thermal power plants and the distribution network they operate, are not open to let other players (especially from renewable energy) to use their network.

Barrier 10.3 – Other Barriers

10.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
10.1	Are there policies to promote the increase of the RES share in existing DH networks? (yes/no)	No
10.2	Are there policies to promote the initiation / expansion of DH networks? (yes/no)	Yes
10.3	Percentage present renewable share (see ECOHEATTOOL)	N/A
10.4	Percentage CHP share (idem)	N/A

10.3 Literature and Sources

- <http://buleco.com/index.php?lang=en>
- http://news.guide-bulgaria.com/SW/Sofia/Ihtiman/Ihtiman/News.aspx?6203=Biomass_power_plant_for_EUR_4M_tested_in_Ihtiman
- <http://www.reshaping-res-policy.eu/> RE-SHAPING Renewable Energy Country profiles 2009.
- http://ecoenergia-bg.eu/content/en/page_references

⁷⁹ DHC-District Heating Company