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## **A Survey on Renewable Energy Sector in Bulgaria**

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As a member of the European Union Bulgaria is entitled to secure a net amount of at least 16% of its total energy consumption from renewable energy sources (RES) by 2020. The country shows considerable endowments in alternative energy sources, such as solar and wind, while at the same time the need for diversification of its overall energy supply becomes more evident (due to the heavy dependency of the whole economy on energy resources supply from Russia and to low carbon economy legislation on an EU level).

On the other hand, considering numerous administrative obstacles and infrastructure inadequacies, the corresponding legislative and technical apparatus for the development of the RES sector in Bulgaria is yet to be improved. However, the adoption of a coherent legislation framework is underway – The Act on Renewable Energy Sources, which, along with the National Strategy on Energy and the National Action Plan for Renewable Energy Sources, will set concrete and clear rules for the comprehensive implementation of RES projects in Bulgaria.

## **Prerequisites for successful development of PV and WP plant projects**

First general prerequisite for the successful development of PV and WP plant projects is the conduct of both a compound technical and an investment research on the foreseen project, according to the legal frame, postulated by *Regulation 14/2005 on the Technical regulations and norms for drafting, construction and exploitation of electrical energy generating, electrical energy converting and electrical energy transiting facilities and Regulation 16-27/2008*.

A compound technical research, followed by a **technical report**, will provide:

- an energy audit – provides comprehensive data on the energy intensity of the proposed landsite, as well as forecasted energy production over a certain period of time (including seasonal forecasts, etc.), etc.
- terrestrial information on the proposed landsite – geographical data for the whole region and for the concrete landsite, ground consistency, sun/wind exposure, etc.
- suggestions on the use of technology for a plant at the particular landsite, considering findings from the energy audit and other available information
- a timeline for the actual implementation of the project (stage by stage), including possible obstacles and technical bottlenecks

A compound **investment research** will provide findings on the financial feasibility of the proposed project, but also on relevant administrative procedures, that need to be

considered prior to and/or during the actual implementation of the project. By all means the investment research needs to provide data on:

- overall size of the investment, operational expenses, investment cycle
- forecasted cash flows of the project, expected internal rate of return, NPV
- possible sources of financing, incl. feed-in-tariffs
- financial ratio of income/outcome
- possible risks – financial, market, other
- cost of produced energy unit (W, kW, MW)
- applicable administrative procedures - construction admissions, environmental assessments, preliminary contractual agreement with the relevant energy network concessioner for delivery of RE from the proposed to be built plant

## **Players on the Bulgarian RES Market – developers, suppliers, strategic investors**

Key institutions on the Bulgarian RES Market are the Ministry of Economy, Energy and Tourism, the State Commission for Energy and Water Regulation and the 3 energy networks concessioners - EVN, e.ON and CEZ. These are the primary institutions, according to the proposed new Act on RES, which will engineer the development of the sector in the coming years.

Major providers of services and equipment come from Germany, Austria, Japan and the USA as these form the upper price segment of the market. Alternatively, companies from China and India provide lower cost products.

In terms of strategic investors in the PV and WP projects, along with Bulgarian companies, entities from China, Austria, Germany, Japan, Korea and the USA prove long term interest in developing scalable RE generating facilities in Bulgaria. Some of the major stakeholders in PV and WP projects in Bulgaria include the Japanese Mitsubishi, Sharp and Heavy Industries, the American AES, the Italian ENEL, the German We2, the Korean SDN etc. Allegedly, the National Energy Company – NEC, is also planning the development of large wind power facilities. A projected 56 MW power plant is to be built up until 2012 at the cost of 43 million euro.

## **Feed-in-tariff and other financial aspects with regard to strategic investors' interest**

In taking investment decisions, it is of strategic importance to consider, that a switch-in fee of 25 000 euro per MW applies for RES projects, upon signing a preliminary contract with the energy network concessioner. However, in order to support the promotion of projects in

RES in Bulgaria, certain stimulus is being offered to investors. It is a national policy that energy, produced from RES, is to be entirely bought out by the energy network concessioner, on preferential prices, for a period of 25 years for projects in PV and 15 years for projects in WP. Currently, solar energy trades for ca. 40 euro cent, which is about 10 times higher than energy, produced by hydropower plants, and 5 times higher than energy, produce by wind farms.

The sector also falls in the scope of EU funding programs in Bulgaria, including the Rural Development Program, Operational Program Competitiveness. Several financial instruments provide the opportunity of receiving up to 200 000 EUR grant for projects in renewable energy, and up to 2 000 000 EUR for projects in energy efficiency.

### **Legislation – Regulations, Directives and the new RES act in Bulgaria**

RES legislation, applied in Bulgaria is a function of a series of strategic documents of the EU, including the Europe 2020 strategy and several Directives, the most important and recent among which – *Directive 2009/28/EC from 23.04.2009 on the promotion of the use of energy from RES*. On a national level, the general framework is tailored within the *National Energy Strategy*, while the newly drafted (yet not officially adopted) *Act on RES* lists the key institutions, involved in the development of the sector and gives specific details on the implementation of investment projects in the versatile segments of RES (wind, solar, hydro, geothermal, biomass, etc.), such as administrative procedures, financial and other stimulus, applicable fees, etc. Additionally, *Regulation 14/2005* and *Regulation 16-27 from 22.01.2008* postulate the general conditions, under which the initial technical research on the landsite potential for production of renewable energy is to be conducted.

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