

# Energy strategy

Overview of the Draft of Energy  
Strategy of Bulgaria to 2020

# Introduction

The Draft Energy Strategy for Bulgaria to 2020 (the Draft) is a consultative document prepared by the Bulgarian Ministry of Economy and Energy and published in November 2008. It considers the settings approved on European Union level representing a package of integrated measures for the material establishment of a new common energy policy of Europe, aiming at redirecting the economy to an effective use of energy generated from sources with low carbon emissions.

After the successful fulfillment of the Energy Strategy of Bulgaria of 2002, aimed at resolving the middle-term problems of the transitional period towards financially stable and market oriented power production, Bulgaria has prepared a new Energy Strategy project until 2020. The Draft aims at reflecting the dynamic changes in the European energy policy at the national level due to the new Bulgaria's status as a member state of the European Union.

The structure of the Draft covers the following main points:

- Priorities and aims 2020, with an analysis of the current state and the potentials of the country
- Strategic decisions 2020
- Predictions of the development and expected results in 2020 – 2030 and vision for 2050.

# Priorities and aims

## European aims and priorities

The European energy policy is based on three main principles:

- domination of the negative changes in the climate
- limitation of the external dependence of the EU on energy sources
- encouragement of the economical growth and employment with a purpose to securing reliable and accessible energy supply.

The stable clean energy development may be achieved through:

- improvement of the energy efficiency during production and consumption
- increase of the renewable energy sources up to 20 % until 2020
- fast technological progress.

New energy legislation will be implemented at European level in the sphere of the rules for organization and functioning of the internal electrical energy market and natural gas market. The changes in the legislation will aim on resolving such problems as: (i) independence of the network operators, (ii) regulatory supervision and co-operation; (iii) transparency etc.

## Bulgaria's aims

### Current status

The production of electricity in the state completely satisfies and exceeds the internal demand. As a result of that, Bulgaria is a leading exporter of electrical energy for Southeastern Europe. However, the electricity production capacities in Bulgaria have considerably outdated. After the shut-down of Kozloduy Nuclear Power Plant's Units No. 1 - 4 the export opportunities were decreased. There is some potential for constructing new electricity generation units. The electricity production units that have already been started and those that are planned, as

well as the construction of the infrastructure for their connection to the national energy system, will serve as a guarantee for the coverage of the internal demand and will strengthen the state's positions as a net exporter of electrical energy. The overall task is to develop the competitive renewable sources.

Currently the renewable energy sources are evaluated at 9.4 % of the energy consumption.

With the approval of the Energy Act in 2003 and its amendments in 2008 Bulgaria has made its national legislation compatible with the European legislation to a large extent. The Bulgarian Renewable and Alternative Energy Sources and Biofuels Act, published on 19 June 2007, set out a frame for development of the renewable energy sources and established specific measures for some technologies with a view of reaching the national purposes in 2010 regarding the share of electrical energy and liquid biofuels in the transport sector.

As of 1 July 2007 the Bulgarian electrical energy and gas market was fully liberalised. The restructuring of the energy companies was completed within the necessary term and foreign energy companies, already operating successfully, have been attracted to the country. The Bulgarian Energy Holding, established in September 2008, is now one of the largest energy companies in the region.

As to the coal fired power plants, mostly locally mined, as of 2013 they will have to purchase emission quota under the EU Emission Trading Scheme. However, the thermal companies that produce energy in combined highly efficient manner will receive "free" emission permits; quantity of "free" permissions allocated will be progressively decreasing as of 2013.

In respect of the securing the sustainable energy development, the Bulgarian Fund for Energy Efficiency has been established and already operates. Bulgarian companies successfully participate in projects financed by the EU programme "Intelligent Energy Europe" and others.

## Future aims

Bulgaria's aim, as proposed by the European Commission, is 16 % of the total end energy consumption in the country in 2020 to be generated from renewable energy sources. The country receives the lowest additional increase (6.6 %) as compared to the rest of the EU Member States.

The state potential regarding the renewable energy sources will be used for attaining the national purpose:

- Creation of suitable systems for encouragement of the use of biomass, small hydro power plants and wind.
- The present system for encouragement will allow the utilization of 40 % of the total renewable energy potential. The additional encouragement of the development of micro and small hydro power plants and biomass as well as the preservation of the effective conditions for encouragement of the wind energy will create an opportunity for use of 80 % of the total potential of such resources.
- In addition, the biomass is a source that may have substantial impact on realizing the sector purpose for heating and ventilation by energy from renewable energy sources.

- The three renewable energy sources that will be utilized to a higher extent are wind, biomass and hydro power plants.
- The biggest technical potential (4.1 million tons of oil equivalents) at present is in the photovoltaic solar installations. The effective preferential prices do not allow for the utilization of more than 10 % of it.
- Within an average term, the water source (small and big hydro power plants) will continue to play a dominant role in the production of electrical energy of renewable energy sources.

The national transmission and trans-border energy grid is well developed. In the recent years the distribution grids in the territory of Bulgaria have been in a process of serious development and configuration change.

The new requirements for separation of the system operators of transmission networks, which are to be introduced at the general European level, will serve as additional guarantees for their independence and, respectively, for sustainable development of the transmission networks and equal access to them. This will ensure more effective functioning of the market and lower prices for the benefit of the consumers.

# Strategic decisions

The strategic decisions are grouped in two packages:

## "Overcoming the Differences" package.

The decisions included in this package are mandatory:

- Improvement of the energy efficiency at a pace faster than the European average – to achieve twice as low energy intensity of the total internal energy consumption until 2020.
- Guaranteed attainment of the national goal for 16% share of the renewable energy sources in the gross end energy consumption – achieving over 16 % share.
- Implementation of efficient tariff systems and methods for regulation of the network companies.
- Effective separation of the delivery and production activities from the management and networks operation activities.
- Organizing a national electric power exchange with a view of fulfillment of the priorities for compatibility, security and sustainable development of the whole energy market.
- Guarantee of the necessary natural gas deliveries for satisfaction of the internal consumption.
- Modernization of the management of the companies integrated in the Bulgarian Energy Holding.
- Price stability for the Bulgarian industry and population through manageable increase of the prices.
- Accessible energy for socially disadvantaged Bulgarian citizens.

## "Use of the Potential" package

The considerable potential of the country is expressed in: (i) the strategic, geopolitical and geographic location; (ii) strong position of South-Eastern Europe in the region with regard to export and transit of energy; and (iii) capacity for strengthening these positions through

development of energy projects on a large scale.

The decisions included in this package are:

- Priority development of big projects for production of non-emitting electrical energy – as at 2020; pure energy (nuclear and renewable energy sources) will have a share of over 50% in the electrical energy mix; thus the emission of carbon dioxide for production of 1 MW/h electrical energy will decrease with almost 50%.
- The diversification of the sources and the routes of natural gas through the successful execution of the already started "Nabucco" and "South Stream", as well as other new projects.
- Establishing the Bulgarian Energy Holding as a leading energy player in the South-Eastern Europe region;
- Active stand of the country on formation and conduction of common regional policy and a key role in the future expansion of the European Energy Community.
- Strengthening the position of Bulgaria as an energy centre on the Balkans.

## Strategic projects

### Coal

The future of coal industry is certain in accordance with the Draft. The rehabilitation projects for Maritsa East 2 and Maritsa East 3 TPPs, as well as the coming start of commercial operation of Maritsa East 1 TPP are a guarantee for such future. Bulgaria's ambitions are focussed to the development of Maritsa East 4 TPP with a CO2 capturing technology. The potential for such project will very much depend on the availability of financing.

Replacement capacity development based on local coal is a potential alternative and a matter of free investment decision. Given the importance of the local energy resources, the exploration activities will be further encouraged. TPP Varna needs rehabilitation.

## **Nuclear**

NPP Belene is envisaged to enter commercial operation within 2014 and to increase with 35% the production capacity of the electricity system, compared with 2007.

## **Big hydro projects**

Bulgaria will continue the development of big hydro projects. Tzankov Kamyk project will be finalized and the development of big hydro project will continue with the "Gorna Arda", "Nikopol – Turno Magurele" and "Nikopol – Kalarash" projects.

## **Extension of the electricity networks**

Among the priority projects are: completion of Energy 2 project; finalization of the 400 kV network with Macedonia; construction of second 400 kV line with Greece; considering the feasibility of construction of networks between Vidin - Serbia and Belene NPP – Romania.

## **New Combined Heat and Power (CHP) facilities**

Combined Heat and Power facilities in Bulgaria are very outdated (20-36 years old). Very limited recent investment in CHP technologies has been undertaken. Increase of the CHP production is outlined as a strategic goal.

## **Oil pipelines**

The oil pipelines "Burgas – Alexandropolis" and "Burgas – Vlor" are the strategic projects that will transmit mostly Russian oil. Bulgaria will be positioned as an important hub for oil transportation towards Western Europe.

## **Natural gas projects**

Nabucco and South Stream will be the key priorities regarding the development of gas pipelines. Bulgaria will have the aim to increase the number of natural gas storage facilities. Bulgaria will aim on construction of a regional LNG storage facility. Bulgaria is also aiming on creation of the first natural gas hub on the Balkans and increasing the transit capacities four times.

# Predictions of development

and the expected results in 2020-2030 and visions for 2050.

The energy strategy until 2020 is the basic and first substantial step in the transitional period towards low-carbon energy systems of high efficiency. Initially, at European and then national level, a political programme until 2030 and a plan until 2050 will be developed. The practical implementation of the revolutionary technological changes in the electric power engineering in order to achieve its decarbonisation, the cease of the transport dependency on oil and oil products, the wide spread of low-energy homes and intelligent electricity networks can be achieved only through a coordinated plan for research and technological development, regulation, investments and infrastructural development. This requires an intensive dialog both between the member states and on a national level - between the institutions, the academic community and the industrial experts.

The full text in Bulgarian could be downloaded from - [www.mee.government.bg/doc\\_vop/Koncepcia\\_2008.pdf](http://www.mee.government.bg/doc_vop/Koncepcia_2008.pdf)

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