FORECAST DOCUMENT IN ACCORDANCE WITH DIRECTIVE 2009/28/EC

THE DOCUMENT CONTAINS THE FOLLOWING SECTIONS:

I. SUMMARY OF NATIONAL RES POLICY
II. TECHNICAL POTENTIAL OF RES IN BULGARIA
III. FORECAST OF POTENTIAL USE OF RES IN BULGARIA BY 2020
IV. POTENTIAL FOR PARTICIPATION IN JOINT PROJECTS
V. ESTIMATED EXCESS AND DEFICIT PRODUCTION OF RENEWABLE ENERGY BY 2020

I. SUMMARY OF NATIONAL RES POLICY

Bulgaria implements a consistent national policy aimed at promoting the production of renewable energy and biofuels and at encouraging their consumption. The long-term implementation of this policy is underpinned by national legislation in a framework which translates and reflects the requirements set out in the documents of the European Parliament and Council regarding the production and consumption of energy from renewable sources.

Bulgaria's national policy in the field of energy production from renewable sources focuses on the following:

- promotion of the development and use of technologies for the production and consumption of energy obtained from renewable and alternative energy sources;
- promotion of the development and use of technologies for the production and consumption of biofuels and other renewable transport fuels;
- diversification of the energy supply;
- environmental protection;
- creation of conditions for sustainable development at local and regional level.

With an eye to their practical realisation, integrated mechanisms are being created to promote the production of renewable energy and biofuel. These incentive mechanisms are subject to annual review and are updated as required in the framework of public hearings.

II. TECHNICAL POTENTIAL OF RES IN BULGARIA

The total technical potential of energy production from renewable energy sources in Bulgaria is about 4500 ktoe annually. The contribution of different sources is uneven, the biggest share being hydropower (~ 31%) and biomass (~ 36%). Bulgaria's geographical location explains the relatively marginal role of wind energy (~ 7.5%), tidal energy and sea wave energy. However, the country has significant forestry resources and a developed agricultural sector as sources of solid biomass and raw material for biogas and liquid fuels. By 2008, Bulgaria chiefly exploited the potential of hydroelectric energy, as well as that of solid biomass, which is used primarily to heat households and public buildings. The production of electricity from wind and solar power plants is under rapid development, as is the use of solar energy for households' hot water needs.

Table 2.1. Technical potential of renewable energy sources in Bulgaria, according to an updated estimate from 2009.

Renewable source, according to Regulation 1099/2008 on energy statistics	Technically achievable potential, in ktoe
Hydropower	1290
Geothermal energy	18 (331)*
Solar energy	389
Tidal and sea wave energy	unspecified
Wind energy	315
Solid biomass	1524
Biogas	280
Liquid fuels	366
Total	4495

* Figures in parentheses reflect the potential achievable using injection technologies.

Figure 2.1. contribution of renewable sources on the basis of their technical potential in Bulgaria (in %)

Legend: (left to right)
Hydroelectric energy
Geothermal energy
Solar energy
Wind energy
Solid biomass
Biogas
Liquid fuels

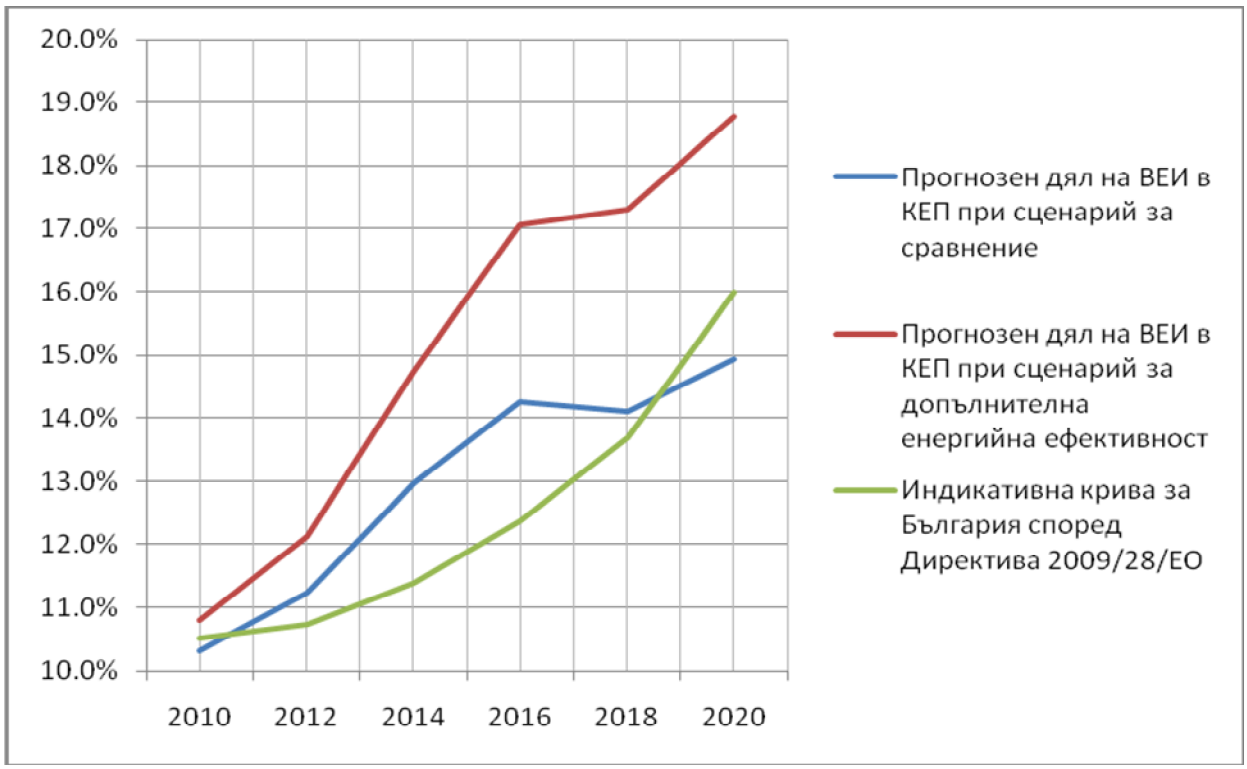
III. FORECAST OF POTENTIAL USE OF RES IN BULGARIA BY 2020

On the basis of current trends in renewable energy production in Bulgaria and the information available on projects for the construction of new facilities at different stages of completion, production is expected to rise to 1955 ktoe per annum in 2020, compared with 1097 ktoe in 2005.

Table 3.1. Bulgaria's estimated production of energy from renewable sources for 2010-2020, by sector, ktoe

Energy sector/year	2010	2012	2014	2016	2018	2020
Energy for heating and cooling	741	799	900	983	1029	1103
Electrical energy	333	374	487	581	609	648
Biofuel (transport)	26	68	133	182	155	205
Total	1100	1241	1520	1746	1793	1955

Figure 3.1. Projected share of renewable energy sources in Bulgaria's final energy consumption (FEC) until 2020, in reference scenarios, additional energy efficiency scenarios and indicative trajectory for Bulgaria, according to Directive 2009/28/EC.



Legend:

Blue: projected share of RES in FEC in reference scenario

Red: projected share of RES in FEC in additional energy efficiency scenarios

Green: indicative trajectory fpr Bulgaria according to Directive 2009/28/EC

IV. BULGARIA'S POTENTIAL FOR PARTICIPATION IN JOINT PROJECTS BY 2020

Bulgaria's potential for participation in joint projects to produce energy from renewable sources with other Member States chiefly concerns exploiting the potential of the Danube and, to a lesser extent, that of the Black Sea, where exploration and evaluation of the potential are in the early stages.

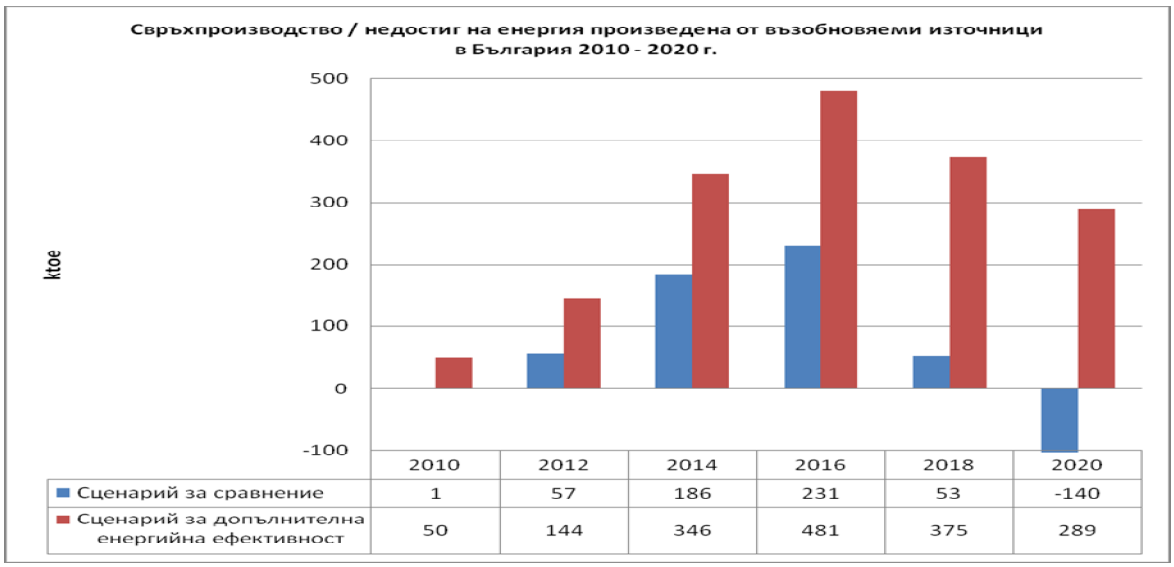
The Danube and its hydroelectric potential have been studied since the mid 20th-century. The plan to construct two hydroelectric plants on the Danube -- a joint project between Bulgaria and Romania -- dates from the 1960s. In 2008 the idea was aired at a meeting of the energy ministers of both countries. The plants' estimated capacity is 800 MW each, and feasibility studies have been carried out in selected sections of the river at Nikopol - Turnu Magurele and Silistra-Kalarash. Currently there are no specific plans to initiate an updated study and design of the envisaged hydroelectric plants, but nevertheless there is a real possibility that this work will start before 2020. The Danube also offers additional opportunities for exploiting its hydroelectric potential, and considerable efforts are being made in this direction.

The Black Sea's energy production potential has not yet been adequately studied, and this also hinders the development of specific projects. A clear signal from the governments of Bulgaria and Romania on the priority of utilising the Black Sea would foster exploration work and encourage investment.

V. ESTIMATED EXCESS PRODUCTION OF RENEWABLE ENERGY BY 2020 AND ESTIMATED DEMAND FOR ENERGY, TO BE SATISFIED BY MEANS OTHER THAN DOMESTIC PRODUCTION

Depending on the rate of increase of the energy efficiency of the Bulgarian economy and the corresponding reduction in energy intensity per unit of gross domestic product for 2012 to 2018, Bulgaria is expected to have an excess production of renewable energy, compared to the country's indicative trajectory, of up to 57 ÷ 481 ktoe annually. The estimated excess could be used for the statistical transfer of performance targets to other Member States, in accordance with Articles 8 to 11 of Directive 2009/28/EC. For 2012 to 2020 Bulgaria is expected to produce excess energy from renewable sources only if it achieves an accelerated growth of energy efficiency.

Figure 5.1. Excess / deficit production of renewable energy in Bulgaria, 2010-2020, in ktoe



Blue: reference scenario

Red: additional energy efficiency scenarios

Following the introduction of sustainability criteria for biofuels as from 1 January 2017 and 1 January 2018, with a view to meeting a binding target of 10% RES for the transport sector, Bulgaria may be able to reduce biofuel imports, which are estimated at 30-50 ktoe energy equivalent. Currently additional efforts are being made, in the form of regulatory measures and practical actions, to accelerate the use of biofuels in transport, as a result of which the need for imports may be eliminated.

Bioethanol and biodiesel production plants are currently under construction in Bulgaria, with a total energy equivalent of 382 ktoe. However, there are organisational problems, which in conjunction with the adoption of enhanced sustainability criteria for biofuels as from 2013, may prevent Bulgaria from meeting the requirements of Directive 2009/28 through domestic biofuel production. In such circumstances estimated imports may rise to 170 ktoe energy equivalent in 2020.