

Generating Electricity from Renewable Sources in CEE & SEE

Energy Industry Group

Bulgaria

Wolf Theiss

Country General Information

Capital: Sofia

Location: Bulgaria is situated in the centre of the Balkan Peninsula and is the most south-eastern country of the European Union, sharing a border with Romania to the north, Serbia to the west, Republic of North Macedonia to the southwest, Greece to the south, Turkey to the southeast and the Black Sea to the east. Bulgaria lies between latitudes 43° and 44° N and longitudes 25° and 28° E.

Surface: 110,993 km²

Population: 6,870,724

Climate: temperate and continental, with four (4) distinct seasons.

Electricity Grid: The total length of the national electricity transmission network is over 1,500 km, of which 1,446 km are interconnection lines. The electricity distribution grid is over 152,000 km in length. The electricity system is comprised of overhead power lines with a nominal voltage of 400 kV, 220 kV, 110 kV and electrical stations having a higher voltage of 400 kV, 220 kV and 110 kV.

Electricity Transmission, Distribution and Supply: Electricity transmission is a licensed activity performed by a certified Independent System Operator – Electricity System Operator EAD. The electricity distribution activity is divided into four (4) licensed territories operated by four (4) licensed distribution companies. The electricity supply is provided under regulated prices by licensed end-supply companies to low voltage household customers and under freely negotiated prices by licensed electricity traders to business customers. The electricity is traded on the Bulgarian electricity exchange platforms operated by the power exchange operator Independent Bulgarian Energy Exchange EAD (IBEX). The full liberalisation of the Bulgarian electricity market is expected to be completed by 2025.

Official Language(s): Bulgarian

EU Member: since 1 January 2007.

NATO Member: since 2004.

United Nations Member: since 1955.

Currency: Bulgarian lev (BGN). Bulgaria has a currency board with an exchange rate fixed to the euro at 1.95583 BGN/EUR.

Schengen: since 31 March 2024.

Political System, Administrative Organisation and Economy: Bulgaria is a parliamentary republic with a separation of its legislative, executive and judicial powers. The government is headed by a Prime Minister. The President of the Republic is also the head of state and supreme army head. The country is divided into twenty-eight (28) regions and 265 municipalities.

1. Defined Terms for the Main Permits required for RES-Electricity Generation Facilities

Building Permit	Administrative deed issued by the chief architect of the municipality or the region where the RES-Electricity facility will be built;
Certificate for Change of Land Designation	Administrative deed approving a conversion in the designation of a land plot from agricultural land to land for construction purposes, in accordance with the Bulgarian Act for the Preservation of Agricultural Lands;
Contracts for Compensation with Premiums	Commercial contract concluded between a RES-Electricity producer and the FSES for payment of Premiums;
Detailed Zoning Plan / Parcelling Plan	Administrative deed in the form of an order of the mayor of the municipality, or the municipal council, for approval of a plan for the regulation of streets, quarters and land plots assigned for construction or other purposes by prescribing the construction parameters of such land plots. Parcelling plans are developed for the electricity and communication connection infrastructure of a project;
Environmental Permit	Administrative deed in the form of an Ecological Assessment, Environmental Impact Assessment and/or Appropriate Assessment issued by the local Environmental Authority, or the Ministry of Environment and Waters, evidencing the compliance of the RES-Electricity facility with the environmental requirements as provided by law. For hydro power plants, a permit for water abstraction is required;
Grid Connection	Actions performed and commercial contracts concluded between a RES-Electricity generating facility owner and the respective grid operator to connect a new RES-Electricity generating capacity to the electricity transmission or distribution grid;
Guarantees for Origin	Administrative deed issued by the Sustainable Energy Development Agency to guarantee the produced electricity from a RES source from 1 MW of installed capacity;

Investment Design	Design developed for building of a RES project by eligible designer in accordance with the approved Detailed Zoning Plan or Parcelling Plan.
Forecasted Market Price	Annually calculated price by EWRC under a methodology considering the weighted average price for the previous 12-month period for electricity generated from solar, wind hydro (up to 10 MW), biomass and other RES-Electricity Producers. The FMP is used to provide a base for calculating the Premiums due to RES-Electricity Producers by FSES;
Fund Security of the Energy System (FSES)	Fund for Security of the Energy System created to cover expenses including the payment of Premiums to RES production companies with an installed capacity above 500 KW.
Licence for Production of Electricity	Administrative deed issued by EWRC, for the performance of electricity generation by production facilities with an installed capacity above 20 MW;
PPA	Power purchase agreement concluded between a producer of electricity and licensed trader, end consumer or electricity grid operator. The PPAs may be concluded at IBEX segments or OTC.
Premiums	Fixed mark-up paid by FSES under CfCPs to RES-Electricity Producers to cover the difference between the Feed-in Tariffs applicable prior to 2018 for the respective RES technology and the annually set FMP. Premiums are calculated on an annual basis by EWRC;
Protocols during Construction	Administrative deeds issued by competent authorities in the course of the construction of a RES Project under the provisions of the Spatial Development Act and the related secondary legislation;

Property Deed	Administrative deed establishing right of ownership or superficial right to build (in rem) over a land plot where a RES Project is to be built;
RES-Electricity	Electricity generated from RES sources such as: wind, solar (solar thermal and solar photovoltaic) energy, geothermal energy, energy from the environment, tidal energy, wave or other ocean energy, hydro energy, biomass, wastes gas, gas from treatment installations for sewage and biogas;
RES-Support Scheme	Support schemes provided under the AERS in the form of (i) Premiums for RES-Electricity Producers with installed capacity above 1 MW; or (ii) Feed-in Tariffs for RES-Electricity Producers with installed capacity up to 500 KW with a PPA concluded prior to 1 January 2016 or (iii) Feed-in Tariffs for rooftop or façade-mounted PV systems in urban territories or biomass with installed capacity below 30 KW;
OTC	Over the counter transactions concluded between market participants outside IBEX segments;
Statement of Opinion of Technical Conditions for Connection to the Grid	Statement of opinion issued by the grid operator providing the technical conditions and parameters under which a RES project can be connected to the respective grid;
Use Permit	Administrative final deed permitting the exploitation of each component of a RES production project issued in compliance with Chapter XI of the Bulgaria Spatial Development Act.

2. Envisaged need of investments in Bulgaria

According to the requirements of the Clean Energy Package¹, with an outlook towards 2030, Bulgaria has committed to new RES energy production targets of 27.09% (the target for 2020 was sixteen percent (16%)) and energy efficiency savings of 27.89%. Further, as a Member State, Bulgaria is actively involved in ensuring that all available planning tools for the European Green Deal are coherently deployed. In addition, Bulgaria has elaborated and committed to CEP targets with its Integrated Plan for the Energy and Climate 2021-2030 EC with particular national targets related to Decarbonisation, Energy Efficiency, Energy Security, Internal Market and Research, Innovation and Competitiveness. Therefore, it is expected that Bulgaria will transpose the required legal provisions in its legislative framework for the necessary investments to accelerate the transition to clean energy.

According to the Bulgarian Integrated Plan for Energy and Climate 2021-2030 EC, the RES national targets for energy from renewable sources with respect to gross end consumption of energy by 2030 are separated into 3 main areas-- namely (i) share of electricity from RES of gross end consumption of electricity – 30.33%; (ii) share of heat energy and energy for cooling RES – 42.60%; and (iii) share of RES of end consumption of energy in the transport sector- 14.20%:

RES Production targets the following main measures:

- Market principles of investment and sale of produced energy for new projects;
- Tenders after 2025 if necessary;
- National plan for energy from forest biomass -2018-2027;
- Development of energy communities and active consumers;
- Incentivising the production of energy for own consumption (prosumers);
- Development and modernisation of the capacity for energy storage and backup systems;

1 The Clean Energy Package is comprised of 4 Directives and 4 Regulations – 1. Governance of the energy union and climate action (EU) Regulation 2018/1999; 2. Regulation on the internal market for electricity; 3. Regulation establishing a European Union Agency for the Cooperation of Energy Regulators; 4. Regulation on risk-preparedness in the electricity sector; 5. Energy Performance of Buildings Directive 2018/844; 6. The revised Renewable Energy Directive (EU) 2018/2001; 7. The revised Energy Efficiency Directive (EU) 2018/2002; 8. Directive on common rules for the internal market for electricity.

- Support to the decentralised distribution, adaptation of transmission, increase of electricity network adequacy, and
- Usage of RES energy for carbon storage.

With regard to the Decarbonisation target, Bulgaria is committed to increasing its energy from RES in terms of gross end-consumption and to reduce greenhouse gas emissions. Further to the instruction of the EC, Bulgaria has increased the level of its target as regards the share of RES in end consumption from 25% to 27.09% thus aiming to reach the calculated target as per Annex II to Regulation EC 2018/1999. In support of this target, Bulgaria will implement additional production facilities with an emphasis on wind and PV energy. Moreover, in order to achieve target levels, it may consider opting out of tenders for additional capacities for energy from RES considering the market conditions after 2025.

The use of biomass is envisaged across all sectors: electricity energy, heating energy, cooling energy and transport. The envisaged measures for the transport sector will have a significant effect on the development of energy from RES as well as the reduction of greenhouse gas emissions. Specifically, Bulgaria will incentivise the implementation and use of EV and hybrid vehicles in mass, along with private transport, and in large cities it aims to create low emission zones.

In all sectors of energy, heat, cooling and transport, the Bulgarian integrated plan envisages EUR 2 billion of necessary investments in RES-related developments.

During the period between 2020-2030, an increase of at least 2,645 MW of net installed capacity of electricity production facilities using renewable energy is expected. This increase will be achieved by increasing the net installed capacity of PV power plants by 2 174 MW and of wind power plants by 249 MW. The anticipated increase of these types of power plants is related to the quick development of the technologies and a decrease in the investment costs for their construction. An increase is also expected with regard to biomass power plants by 222 MW.

The availability for new electricity production capacities in PV and wind should also replace the current ineffective and intensive carbon emission electricity generating facilities, which should be out of operation by 2025. This will be done in the context of achieving the objectives of energy security, competitiveness and decarbonisation of the energy sector.

Another target which Bulgaria has set in its national energy sector modernisation plan, which will enable further opportunity for RES integration, is the level of interconnectivity of the national electricity system with other Member States. Based on its geographical position and its current system connectivity, further interconnectivity for Bulgaria – both in terms of the physical grid as well as market measures like electricity day-ahead market and intraday market segments of IBEX functioning – is also expected. The achieved market coupling with Greece HEnEx, Romanian OPCOM and other European countries under the 4MMC initiative is also contributing to the integration of Bulgaria into the wider European energy market.

In terms of R&D and innovation, Bulgaria is planning to be actively involved in, among other things, the following projects:

- CROSSBOW – transboundary management of RES for energy storage that will allow for improved flexibility of the energy system as regards renewable energy; and
- FLEXITRANSTORE – integrated platform aimed at increasing the flexibility of data smart grids with facilities for renewable energy storage, which will increase the flexibility of the internal energy market system.

3. Executive Summary-RES Market Status and Development of RES-Electricity Facilities

3.1 Market Overview – Factsheets

- The Bulgarian RES-Electricity market has developed since 2007 with the adoption of the first Act for the Alternative and Renewable Energy Sources and Biofuels (“**AERSB**”) introducing the RES Support Scheme providing for Feed-in Tariffs, long-term PPAs, preferential connection to the grid and buy-out and merit order off-take;
- Further to the adoption of Directive 2009/28/EC on the promotion of the use of energy from renewable sources, Bulgaria has repealed ARAESB and has adopted the Act for Energy from Renewable Energy Sources (“**AERS**”), which transposed the main provisions of the directive that keep the RES support scheme with a fixed Feed-in tariff, mandatory buy-out, long-term PPAs, preferential connection to the grid and merit order dispatch. The AERS also provided for the issuance of guarantees of origin for the RES produced electricity;

- Based on the AERS, Bulgaria also adopted the National RES Plan 2010-2020 outlining the main measures and separation per renewable sources to be introduced in order to reach the threshold of 16% commitment under Directive 2009/28/EC;
- In 2011, AERS was amended and supplemented to reduce the duration of the mandatory buy-out period under the PPAs from 15 to 12 years for wind power plants, and from 25 to 20 years for PV and biomass RES-Electricity Producers. Nevertheless, Bulgaria has experienced a boom in the development, construction and commissioning of approximately 701 MW of wind, 1,047 MW of PV and 2,366 hydro RES projects (including those above 10 MW);
- In December 2013, under its second national RES achievement report, Bulgaria reported to the European Commission that it had achieved sixteen percent (16%) of total energy consumption from RES, which was the country target for 2020. AERS was amended in 2015, considering the Guidelines for State Aid related to environment and energy during the 2014-2020 period, and Regulation No. 251/2014 EC as of 17 June 2014, announcing some measures as compatible with the internal market. Thus, the RES support scheme incentives related to the mandatory buy-out under PPAs on a long-term basis were to be provided only for small energy objects connected to the electricity grid and constructed on facades and roof tops in urbanised areas with an installed capacity of no more than 30 KW. Nevertheless, RES-Electricity Producers with ensured PPAs continued to enjoy the 2011 RES support scheme;
- In 2016, as part of the liberalisation process, the organised electricity power exchange IBEX was introduced with its day-ahead and intraday segments, as well as centralised market on bilateral contracts;
- In 2018, 2019 and 2020, Bulgaria introduced amendments to the AERS and the Energy Act, by which it abolished the 2011 RES support scheme for projects with an installed capacity above 500 KW, and introduced a new support scheme. Under the new regime, all RES-Electricity produced by RES power plants with an installed capacity above 500 KW are subject to sale on the liberalised market through the IBEX segments. For the duration of the terminated PPAs, RES-Electricity Producers are to be compensated for the difference between the abolished Feed-in tariffs and the achieved power exchange prices via mark-ups (premiums) paid under contracts for compensation, with premiums to be concluded with the Fund for Security of the Energy System;
- Under the Integrated National Plan for Energy and Climate 2021-2030, Bulgaria has committed to achieving twenty-seven point zero nine percent (27.09%) of RES-Electricity as part of final energy consumption by 2030;

- Since November 2019, Bulgaria, Croatia, the Czech Republic, Hungary, Poland Romania and Slovenia have successfully linked intraday markets with fourteen (14) countries active in operational integrated electricity markets.
- Through several amendments to the Energy Act, Bulgaria has introduced several exemptions from the general legal framework for RES producers, namely: (i) RES-Electricity facilities (except for those with an installed capacity below 30 kW), which entered into operation after 1 January 2019, may sell the electricity they produce outside of IBEX (i.e. under OTC contracts with traders or end consumers); (ii) end consumers and traders that buy electricity under OTC contracts from RES producers (except for those with an installed capacity below 30 kW), which have power plants that entered into operation after 1 October 2019, are not required to pay the so-called “obligations towards society price” that is set annually by the energy regulator EWRC with regard to the purchase of electricity; and (iii) RES-Electricity facilities (except for those with an installed capacity below 30 kW), which entered into operation after 1 January 2021, are not required to pay the FSES a 5% fee on the revenues from the electricity they produce.

3.2 RES Market Status, Permitting, Grid Connection, Licensing of RES-Electricity facilities in Bulgaria

General Market Data

RES Targets 2020 under AERS (out of the final consumption of energy)	Sixteen percent (16%), reported achieved in 2013.
New targets under Clean Energy Package and Integrated National Plan Energy and Climate 2021- 2030	Twenty-seven point zero nine percent (27.09%)

Overall installed General Capacity including RES (overall production)	In 2022, overall energy production from the overall installed capacity in the amount of 10,592 MW was 45,3 TWh).
RES Installed capacity by technology	<ul style="list-style-type: none"> ○ Hydro including small – 1,732 ○ Biomass – 72 MW; ○ Wind power – 720 MW; ○ PV – 2,206 MW.
RES incentives	
Beneficiaries of RES Support Scheme	<p>RES-Electricity facilities with an installed capacity of up to 500 kW and connection to the grid prior to 2016 – Feed-in Tariff until the duration of the respective long term PPAs;</p> <p>RES-Electricity facilities with an installed capacity of up to 30 KW PV (rooftop or façade mounted systems in urban territories) or biomass – Feed in Tariff determined by EWRC annually.</p>
Priority dispatch under the Merit Order	RES-Electricity facilities receive priority access to the electricity grid and the injection of the amount of energy into the grid, up to the net specific generation amount of energy as set by EWRC in 2015 considering the specific technologies.
Other incentives	<ul style="list-style-type: none"> ○ RES-Electricity facilities with an installed capacity below 500 KW and connected to the grid prior to 2016 – compensation with premiums under contracts with FSES; ○ RES-Electricity facilities (except for those with an installed capacity below 30 kW), which entered into operation after 1 January 2019, may sell the electricity they produce outside of IBEX (i.e. under OTC contracts with traders or end consumers); ○ RES-Electricity facilities (except for those with an installed capacity below 30 kW), which entered into operation after 1 January 2021, are not required to pay the FSES a 5% fee on the revenues from the electricity they produce;

- Guarantees for origin of the RES produced energy- [still no market for trade though]. The issuance, transfer and repeal of the guarantees for origin is performed by ASES in conjunction with Standard CEN-EN16325;
- Creation of municipal centres for coordinated and centralised administrative services for the permitting (spatial planning), connection to the grid and issuing of construction permits for RES Electricity facilities within two (2) years as of the submission of an application.

Other conditions

- Licence for commercial exploitation above 20 MW;
- No installed capacity limit, as long as the technical capacity of the grid allows. Introduced option for temporary interconnection scheme until the capacity of the grid is extended, in order to ensure the respective capacity could be connected on a permanent basis;
- Sale of RES-Electricity only via the IBEX platforms (unless dealing with exempted RES Electricity facilities, which entered into operation after 1 January 2019);
- End customers may become a RES self-consumer that may (i) generate and store its own electricity from RES and sell its surplus renewable electricity through PPAs concluded with electricity suppliers and through trading arrangements with partners; (ii) install and operate an electricity storage facility in combination with a RES installation for self-consumption, without being obligated to pay for the use of the grid to connect facilities for the purpose of storing the electricity produced, within their property; and (iii) sell the surplus electricity produced by its installations at freely negotiated prices, as well as under RES support schemes;
- End customer may construct RES energy facilities on the roof and facade structures of buildings connected to the electricity transmission, electricity distribution or closed electricity distribution network, and on real estate adjacent to them in urbanised areas. The energy produced must be used only for self-consumption, and the total installed capacity of the energy projects may be up to twice the amount of the allocated capacity, but no more than 5 MW;

- Possibility to create RES energy communities by end customers (including household customers) without losing their rights or obligations as end customers and without being subject to unreasonable or discriminatory conditions or procedures that would prevent their participation in the renewable energy community. Where enterprises participate, their participation must not be linked to their core commercial or professional activity. Energy communities (i) may produce, consume, store and sell surplus quantities of RES energy; (ii) may share within the renewable energy community the energy produced by RES installations owned by the RES community; and (iii) enjoy non-discriminatory access to all relevant energy markets.
- The development of RES communities shall be promoted by means of: (i) removing unwarranted regulatory and administrative obstacles; (ii) applying the requirements of the Energy Act to the sale of energy and other energy services; (iii) ensuring cooperation with the relevant DSO and the heat TSO for the transmission of energy in the community; (iv) the competent authorities applying fair, proportionate and transparent administrative procedures, including registration and licensing, also by ensuring that regulated prices for network services are applied to all network users, which should contribute in an adequate, fair and balanced manner to the allocation of the total costs of the system, in accordance with a transparent cost-benefit analysis of the allocated energy resources; (v) granting non-discriminatory treatment with regard to their activities, rights and obligations as end consumers, producers, suppliers, DSOs or other market participants; (vi) granting accessibility to all customers for participation in RES communities, including low-income households or vulnerable customers; (vii) facilitating access to financing and information; (viii) providing regulatory support and capacity building assistance to public authorities in facilitating and establishing RES communities and in facilitating their direct participation; and (ix) introducing rules to ensure equal and non-discriminatory treatment of consumers participating in the RES community.

Grid connection specifics

Approvals

- Connection to the grid is subject to a reasoned statement of opinion on the connection conditions issued by the respective grid operator and depending on the installed capacity;
- Grid operator is responsible for issuing the reasoned statement of opinion and for further conclusion of preliminary and final connection contract with the applicant. RES Energy facilities with installed capacity below 1 MW, to be constructed on roof-tops and facade structures of buildings connected to the electricity distribution or closed electricity distribution network and on real estate adjacent to them in urbanised areas, the reasoned statements should be issued within shorter terms: (i) when issued to end consumers for own consumption - 15 days; (ii) with installed capacity up to 30 kW - 20 days; (iii) installed capacity of 30 kW to 1 MW – 40. The reasoned statements are valid for 3 months within which the RES producer has to apply for the conclusion of a preliminary connection agreement with the respective grid operator;
- Upon issuance of a reasoned statement, the RES Electricity Producer is required to pay a cash deposit or provide a bank guarantee to the Grid operator in the amount of EUR 25,566 for each MW of envisaged installed capacity. Failure to provide this guarantee invalidates the statement. The provided security is collateral for the fulfilment of the obligations of the RES producer in relation to their obligations under the preliminary connection agreement and the connection contract.
- TSO needs to include any new capacity in the 10-year grid development plan that is updated annually and approved by EWRC;
- DSOs need to coordinate the required connection capacity by the TSO prior to granting a positive reasoned statement of opinion on the connection conditions;
- RES Electricity Producers may be connected under a temporary scheme until the TSO/DSO extends the respective electricity grid capacity allowing the connection of the requested installed capacity.

Permitting

Timing: depending on the installed capacity and connection to the grid, an investor may obtain the necessary approvals in approximately 2 years.

- Ecological Assessment, Environmental Impact Assessment and/or Appropriate Assessment;
- Elaboration and approval of detailed zoning plan(s) for the land plots where the RES-Electricity plant will be constructed; and (ii) parcelling plans for the power and communication lines necessary for the connection of the RES-Electricity plant to the respective electricity grid;
- The detailed zoning plans and the parcelling plans must be coordinated and reflected in the master plans of the municipalities where they are located;
- Based on the zoning plan, a change of land designation of the land plots where the project is to be constructed should be obtained by the agricultural land commission;
- Elaboration of design visa and investment design are required for obtaining a building permit for civil works and connection facilities to the grid;
- Preliminary connection agreement and connection contract with the grid operator;
- RES-Electricity capacity and related connection works' testing, commissioning and entry into operation;
- Provision of access to the grid by the grid operator and conclusion of access to the grid contract.

Licensing**Procedure**

- Licence issued by EWRC for generation of electricity activity from an RES-Electricity facility, to be granted prior to construction or upon construction for projects above 20 MW.

Duration of administrative procedure

Within four months from the submission of the complete documentation.

Licence's validity

Thirty-five (35) years with a possibility for extension.

4. Key changes to the RES Support Scheme since 2015

Since 2015, the Bulgarian legal framework and the RES Support Scheme have experienced several changes via bills for amendments and supplementations of the AERS and the Energy Act as follows:

4.1 Introduction of the Net Specific Generation of Electricity threshold for mandatory buy-out

Prior to July 2015, the public provider National Electricity Company EAD (“NEK”) and the end suppliers (Energopro Sales AD, CEZ Electro AD and EVN Bulgaria Electricity distribution EAD, “ES”) were obligated to purchase the entirety of RES-Electricity generated by RES-Electricity plants (except from hydro power plants with an installed capacity above 10 MW). After July 2015, with the Bill for amendment and supplementation to the Energy Act and the AERS, the obligation for mandatory buy-out was limited to the amount of “net specific generation of electricity” (“NSGE”) set out for the specific type of power plant. The NSGE is “the average annual electric power generation by 1 KW of installed capacity”, in accordance with the EWRC decision fixing preferential prices after deduction of the RES-Electricity plant’s own needs. The NSGE for existing power plants has been set out in Decision SP-1/31.07.2015 of the EWRC and was to apply until the end of the mandatory off-take period for those power plants. Once the NSGE is reached, RES-Electricity Producers may sell the remaining amounts of generated electricity either (i) on the liberalised market at freely negotiated prices; or (ii) respectively to the incumbent National Electricity Company EAD or the licensed End Suppliers at the price for “surplus” electricity paid on the balancing market.

4.2 Change in RES Support scheme after November 2018 for RES-Electricity Producers with installed capacity above 500 kW

In 2018, the RES support scheme introduced by AERS in 2011 for mandatory a buy-out under preferential prices (Feed-in-Tariffs) was abolished and a new support scheme replaced it. Under the new support scheme, the RES-Electricity Producers sell the produced electricity at the Bulgarian power exchange operated by IBEX at free market prices.

For the difference between the abolished, long-term mandatory Feed-in Tariff and the achieved market price at IBEX, the RES-Electricity Producers are compensated by way of premiums. The premiums are paid by the Fund for Security of the Energy System (“FSES”) which substitutes for the old off-takers – the incumbent NEK and the licensed end-suppliers. FSES is not obligated to provide premiums if a RES Producer: (i) has failed to conclude contracts for any sale of electricity at IBEX at freely negotiated prices; or (ii) has not transferred the monthly guarantees for origin.

4.3 Conclusion of Contracts for Compensation with Premiums by RES Producers above 500 kW with FSES

Each RES Producer with an installed capacity above 500 kW should have signed Contracts for Compensation with Premium (CfCPs) with FSES and existing long-term PPAs with NEK and end-suppliers should be terminated upon their conclusion. The duration of the CfCPs with FSES lasts until the term of the terminated long-term PPAs, (e.g. 12 or 15 years for wind RES Producers, or 20 years for PV or biomass RES Producers).

With regard to electricity sold on the IBEX, RES Producers have the right to claim payment of an additional amount defined as a premium under the CfCPs from the FSES. The payment of premiums by FSES was conditional upon transfer of Guarantees for origin for the produced RES-Electricity issued by the Sustainable Energy Development Agency.

4.4 EWRC determines Premiums and Forecast Market Prices annually

In 2018, EWRC’s powers were extended to adopt an Ordinance for determination of annual premiums for the FSES to pay to RES producers with an installed capacity \geq 500 kW and the Methodology for the setting of forecasted market prices (“FMP”).

Premiums are a fixed amount set by EWRC each year by 30 June, and are calculated as the difference between FMPs for the respective group of RES-Electricity Producers and the applicable FiTs under the abolished 2011 RES scheme.

The FMPs are also set by the EWRC each year by 30 June, based upon its methodology as a weighted average price for the previous 12-month period for electricity generated from solar, wind hydro (up to 10 MW), biomass and other RES-Electricity Producers.

4.5 RES-Electricity Producers above 500 kW sell electricity at IBEX and conclude CfCPs with FSES

RES-Electricity Producers with an installed capacity above 500 kW have also been excluded from the 2011 RES support scheme and have concluded CfCPs with FSES, in order to be able to receive compensation with premiums for the produced electricity sold at IBEX. Accordingly, with the conclusion of CfCPs, their long-term PPAs were terminated.

4.6 Amendments seeking to promote RES without state financial support

Amendments to the energy legislation were also introduced to promote RES generation without any form of state financial support. Among others things, the amendments concern the following:

- Smaller RES-Electricity Producers (under 30 kW of installed capacity) report to the FSES only once per year instead of every month as do the rest of the RES Producers;
- RES-Electricity Producers not connected to the electricity transmission or distribution network, but using the generated electricity for own consumption, do not pay the “obligations towards society price”;
- Opportunity for the installation of smart metering devices to replace the existing commercial metering devices for clients with a capacity of 10 kW and above, aiming to incentivise consumers to invest in their own PV plants, so as to be excluded from the obligation to pay the “obligations towards society price”.

4.7 Amendments to the AERS law in 2023 transposing the RES III Directive

Amendments to the energy legislation were also introduced to transpose the provisions of Regulation 2018/1999 of the EC and Directive 2022/2018 (RES III Directive). Among other matters, the amendments concern:

- General incentives - promotion of production and consumption of electricity, heating and cooling from RESM; the production and consumption of biogas and green hydrogen and the production and consumption of RES in transport, renewable liquid and gaseous transport fuels of non-biological origin and recycled fuels in transport, by way of: (i) regulation of the rights and obligations of the authorities of the executive and local governments with regard to implementing the policy for promotion of the use of biofuels and green hydrogen; (ii) introduction of obligations for the authorities of the executive involving the initiation and implementation of related measures; (iii) introducing support schemes in relation to the development of the electricity transmission and distribution grids, including interconnectors, of intelligent networks, as well as the construction of control and storage facilities related to the safe operation of the electricity system; (iv) introducing support schemes for the construction and development of heating transmission, gas transmission, and gas distribution networks, including interconnectors, where this is economically justified; (v) introducing support schemes for the production of energy from renewable sources for own consumption; (vi) establishment of a National Information System for the potential production and consumption of energy from RES; (vii) introducing mechanisms in support of scientific research and development; and (viii) joint implementation of measures for use of energy from renewable sources and measures for the introduction of energy efficiency enhancement technologies;
- **Requirements towards authorities** – (i) The Council of Ministers *inter alia* adopts a plan for the identification of priority areas for the development of sites aimed at the production of electricity from wind energy, developed jointly by the Minister of Environment and Water, the Minister of Energy, the Minister of Regional Development and Public Works, the Minister of Transport and Communications and the Minister of Agriculture and Food, (ii) the Minister of Energy *inter alia*, within a period of no less than 5 years, will prepare an assessment of the effectiveness of support schemes for RES electricity and their impact on different groups of consumers and on investment, (iii) EWRC

inter alia will assess the regulatory and administrative obstacles to long-term RES PPAs and take measures to remove unjustified obstacles and facilitate the implementation of such agreements; (iv) the executive director of ASED *inter alia* will prepare a manual of procedures for the construction or reconstruction of RES energy projects and facilities in compliance with the requirements of the Spatial Development Act, the Energy Act, the RES Act, the Environmental Protection Act, the Biological Diversity Act and the statutory instruments of secondary legislation implementing these, and shall publish the manual on the ASED website and provide it to municipality mayors, (v) The Municipal councils and Mayors *inter alia* (a) will develop and adopt 10-year programmes promoting the use of RES in line with the Integrated Energy and Climate Plan of the Republic of Bulgaria and (b) establish administrative service centres, which, upon a request by users of administrative services, shall provide guidance and information on the procedures for the construction, reconstruction or rehabilitation of RES projects and facilities;

- **Introduction and forming of RES communities** - End customers, including household customers, may participate in a RES community without losing their rights or obligations as end customers, and without being subject to unreasonable or discriminatory conditions or procedures that would prevent their participation in such a RES community. RES communities: (i) may produce, consume, store and sell surplus quantities of RES energy as an equal participant in the energy markets under the conditions set out in the Energy Act, including through PPAs; (ii) may share within the RES community the RES energy produced by their installations; and (iii) shall have non-discriminatory access to all relevant energy markets;
- **TSO and DSO new requirements** – TSO and DSOs shall establish and maintain electronic public registers of the submitted requests for connection to the respective network, which shall contain up-to-date data on: (i) the connection applications submitted to the relevant network and the requested capacity; (ii) the requests submitted by the DSOs to the TSO for the coordination of applications for connection of RES projects to the respective distribution network and the contracts concluded accordingly between the operators; (iii) the status of the applications submitted (under a consideration procedure, statement of opinion issued, period of validity of the statement of opinion), the preliminary connection agreements and connection contracts concluded and their period of validity and the time limit for connection thereunder; (iv) the technical data for reconstruction of the network and the conditions set for the

connection under the issued statements of opinion, the concluded preliminary connection agreements and the connection contracts; and (v) the available spare capacity for connection at each point of the electricity transmission or distribution network, as reflected in a geographical information system;

- **Guarantees of Origin of RES production** – with respect to the GoOs the following new regulations were introduced *inter alia*: (i) ASED shall also issue GoOs for biogas and green hydrogen; (ii) the GoOs term of validity and possibility for transfer would expire within 18 months of their issuance or transfer to the end consumer; (iii) the GoOs may be transferred separately from the energy, but only once to an end customer; (iv) GoOs may be transferred, to the registry of another Member State or to an end customer in another Member State against payment of a fee. ASED SHALL recognise GoOs issued by a non-Member State, if the European Union has concluded an agreement with that third country for the joint recognition of GoOs issued respectively in the European Union, and by comparable systems in that third country, and only in cases of direct import or export of energy.
- Introduction of new definitions for *inter alia* (i) biogas, (ii) green hydrogen, (iii) biofuels, liquid fuels from biomass and gaseous and hard fuels with low risk of indirect impacts in land use (iv) energy from the environment, (iv) residual heat and cold, (v) PPAs (vi) Geothermal resources and their types (deep, shallow, hydro), (vii) Jointly acting renewables self-consumers (viii) residual energy mix (ix) RES community and (x) consumer of own Res production.

5. Significant and/or expected changes in 2024

5.1 New RES-Electricity share in Bulgaria's total end consumption

Bulgarian authorities will adopt further changes to the primary and secondary legislation related to the transposition of the Clean Energy Package Directives and in particular the Directive on common rules for the internal market for electricity.

5.2 National Energy Strategy 2020-2030

The Bulgarian energy strategy for 2010-2020 has expired. Thus, Bulgaria must update its strategy, considering the Clean Energy Package and the commitments under the Integrated National Plan for Energy and Climate 2021-2030.

6. Overview of the Technical Innovations in Electricity Storage and Applicability in Bulgaria of such Storage Technologies

As more RES-Electricity will be supplied to the grids, balancing the system and the flexibility of demand -supply requirements will become a greater challenge for grid operators. The use of modern technologies like smart grids, decentralised production, own production, demand response, active consumers, etc., offer practical solutions that will support grid operators. Furthermore, with the help of energy storage technologies and solutions, it is possible to address and solve many complex challenges related to generation, frequency regulation, grid balancing including secondary and tertiary reserve, optimisation of consumption profiles and portfolio, etc., related to RES-Electricity. Thus, energy storage is increasingly seen as a key cornerstone and enabler of the transition to RES-Electricity worldwide.

Bulgaria has set its goal to progressively replace the regulatory and commercial obstacles for consumers to use, store, and sell the energy produced by them to the market and to participate in the market while providing flexibility to the system via energy storage and optimisation of consumption.

By way of amendments and supplementations introduced into the Energy Act in 2023, certain requirements and regulations were added for the market participants and authorities with regard to energy storage, namely *inter alia*:

- **With regard to energy regulator EWRC** – (i) EWRC is authorised to require that TSO/DSOs carry out an assessment of the energy efficiency potential of the networks concerned, through the reduction of technological losses. This assessment must include an analysis of transmission, distribution, load management, effective network functioning and access possibilities for decentralised energy generators and electricity storage facilities; and (ii) EWRC can issue licenses to electricity storage operators unless storage facilities are separate facilities (e.g. outside an electricity production facility);

- **With regards to energy (electricity) storage facilities and their operators (ESFO) –**
 - i. ESFOs shall: (a) store their own and/or purchased electricity and enter into transactions in electricity and/or the provision of ancillary services; (b) operate, maintain and develop secure, reliable and efficient electricity storage facilities under market conditions; and (c) provide the TSO/DSOs with information to ensure that the storage of electricity is carried out in a manner compatible with the safe and efficient operation and management of the electricity transmission and/or electricity distribution network;
 - ii. Electricity storage facilities shall be granted equal access to the electricity transmission network and the electricity distribution networks, as well as equal access to the electricity market and capacity balancing mechanisms;
 - iii. ESFOs shall be obligated to conclude contracts for access with the TSO/DSO, providing for the rights and obligations of the parties in relation to dispatching and providing additional services;
 - iv. ESFOs shall owe a price, as determined by EWRC, as well as prices for transmission through and access to the respective network for producers and end customers, which shall be determined by EWRC for the difference between the amount of electricity purchased from electricity market participants and the amount of electricity fed back into the relevant network;
 - v. an ESFO may conclude transactions for the sale/purchase of electricity at freely negotiated prices in segments such as IBEX or OTC;
 - vi. ESFOs may provide ancillary services to the TSO;
 - vii. ESFOs with a provided or installed capacity over 50 kW, may request the TSO/DSO to replace the commercial metering device with one that includes remote reading of metering data by 15- min settlement period. Said replacement should be done within 30 days from receipt of the request and subsequent to payment of the value of the commercial metering device and the expenses for the replacement;

- viii. several definitions were introduced into the Energy Act in 2023, namely:
- (a) Electricity storage²,
 - (b) Electricity storage facility³ and
 - (c) Energy sites with integrated activity⁴.

Moreover, Bulgaria has planned to develop several projects for the storage of electricity, aiming to: (i) ensure balance and flexibility in the system; (ii) improve Bulgaria's status as an energy exporter; and (iii) ensure the cross-border flexibility of the system. These initiatives will facilitate further development of RES-Electricity projects and their integration into the national electricity system, considering the fluctuating production profiles of these RES sources. Therefore, Bulgaria anticipates the following projects:

- Rehabilitation of the malfunctioning turbine and further increase of the operation capacity of PAHPP Chaira, by means of the construction of the Yadenica dam, in order to optimise the structure of generation capacities;
- Investment in batteries for frequency regulation under the EC Resilience and Sustainability Plan;
- Incentivising the use of new RES Facilities in combination with local electricity storage facilities, considering the appropriate technological solution for the respective project (in total approximately 200 MW).

Accumulator-based energy storage systems are highly sought after in Europe, as they provide utility companies with load balancing services on the power grid with an extremely fast response time.

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- 2 A postponement of the ultimate use of the electricity within the electricity system until a time that is later than its generation or conversion into a form of energy that can be stored, the storage of that energy and its subsequent conversion back into electrical energy or use in another energy medium.
 - 3 A facility within the electricity system in which energy is stored, excluding energy storage facilities for the self-consumption of producers or end customers, which does not feed the stored electricity back into the electricity transmission or distribution network. The electrochemical facilities for the storage of electricity shall be movable objects within the meaning of the [Spatial Development Act](#).
 - 4 A group of energy sites comprising at least two electricity generation sites with an installed capacity exceeding 5 MW using different technologies, or at least such a site and an electricity storage/hydrogen production facility, which are not independently connected to the electricity transmission or distribution network, but form a system aimed at making optimal use of the technological capacities of the respective sites and of the transmission network provided

7. Support scheme for cogeneration

High-efficiency cogeneration of heat and power (“CHP”) systems that inject electricity into the national grid receive operating support provided that the electricity is produced from high-efficiency cogeneration, as defined in the Energy Act and the Community guidelines on state aid for environmental protection.

Bulgaria has abolished the support scheme for the promotion of high-efficiency cogeneration with an installed capacity above 500 kW, and introduced a new support scheme similar to that for RES production by way of compensation through premiums by FSES.

The high-efficiency cogeneration capacities that sell their produced electricity at IBEX receive compensation by means of premiums from FSES upon the issuance of certificates of origin issued by EWRC and transferred to FSES. The highly efficient cogeneration capacities installed in Bulgaria amount to 1,690 MW.

The support scheme for compensation with premiums under CfCPs is applicable until the period of expiry of the terminated PPAs.

The level of the bonus received by producers for each MWh generated from high efficiency cogeneration capacities and delivered into the grid is set annually by EWRC.

Authors:



Anna Rizova

Partner

E anna.rizova@wolftheiss.com

T +359 2 8613 700



Radoslav Mikov

Partner

E radoslav.mikov@wolftheiss.com

T +359 2 8613719