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INTRODUCTION

Montenegrin energy sector is predominantly composed of two core parts – domestic electricity and entirely imported oil and petroleum products. The State does not have access to the natural gas neither through the interconnecting pipelines neither based on its own resources. Hence, the structure of the overall energy needs, amounting to appx 35,000TJ is:

• Electricity: ~ 35%

Oil: ~ 38%
 Biomass: ~ 22%
 Other: ~ 5%

Electricity in Montenegro is highly dependent on the hydrological conditions, but is usually produced in the amounts that cover national needs. Major producer is incumbent power utility, Elektroprivreda Crne Gore a.d (EPCG), majorly state-owned company that operates nearly 90% of installed production capacities. The rest of the production capacities belongs to the independent power producers and is mainly put in operation in last 10 years, under the renewable energy development programmes. On the electricity demand side, Montenegro is characterised by a strong deindustrialization process accompanied by heavy migration from north to central and southern regions. Consequently, a need for substantial reorganisation of the electricity transmission and distribution networks emerged in last decade.

When it comes to the regional position, it is important to note that Montenegrin electricity system is very well connected with the neighbouring systems. The last important project in that respect was ~1bn € worth investment in high voltage submarine electricity link between Montenegro and Italy put in operation in 2020. Country is also well connected with electricity systems of Bosnia and Hercegovina, Albania, Serbia and Kosovo, while the only geographical border that is not followed by the electric border is one with Croatia.

In 2023 Montenegro is granted with EU technical assistance program to develop new high-voltage interconnection with Bosnia and Herzegovina, that will further strenghten Montenegrin position as regional electricity hub.

Lagging with the exploitation of coal in last 5 decades, when it was a mainstream development strategy whole around the world, Montenegro will evidently leave unused most of its coal reserves, reducing exploitation to the needs of the existing TPP Pljevlja and its remaining lifetime (up to two decades from now). Similarly, natural gas and oil reserves have been investigated only recently, with the latest drilling results confirming no commertial oil reserves shall be expected. While the results of the remaining prospects are being waited for, it seems more and more realistic that even if a natural gas

is found, Montenegrin energy transition will have to happen without it as a transitory solution, simply due to the time needed for the accompanying infrastructure development.

Based on the above mentioned it seems realistic that both official strategies and investors' interest in Montenegrin energy sector in the coming years will be focused on the renewable energy and smart solutions.



The map illustrates the most important segments of the Montenegrin power system. It indicates the routes of main overhead lines, as potential connection points for new projects, starting from 35kV level and above. All production facilities close to 1MW of installed power and above are illustrated, giving the opportunity to briefly identify energy potentials of different Montenegrin regions.

As it will be explained later, Montenegro has a strong comparative advantage in solar potential, but also offers several important opportunities to develop wind and large hydro projects.

ENERGY INVESTMENT FRAMEWORK IN MONTENEGRO

Energy importer

Being an overall strong importer of energy, Montenegro has been an interesting destination for energy investments. However, investment framework became sufficiently attractive for foreign investments mainly in two electricity segments:

- rid investments
- renewable energy sources investments

Ecological state

On one side, investments in conventional energy sources (coal, gas, even large hydro) in last decades have not been successful. In addition to a worldwide present strong opposition to coal exploitation, Montenegro faced several strong reactions on large hydro-power plants construction ideas (campaigns against construction of joint HPP Buk Bijela with Bosnia and Herzegovina, as well as campaign against HPPs on Morača river). The only remaining, and from general public perspective relatively accepted hydro potential are those connected to the existing HPP Piva plant – HPP Komanica and HPP Kruševo, that apparently face no significant public criticism.

However, one has to have in mind that strong involvement of NGOs (environmental, but also lot of others dealing with social issues) shall be expected in most of the medium to large scale energy projects.

Energy Community role model

Montenegro is not an EU member state, but has been promoted as a membership candidate that has opened all negotiation chapters within EU accession process. Particularly in the energy sector, Montenegro has been a role model on the Balkans in last ten years, giving the example how a diligent transposition of EU energy policies and rules can not only be good for accession process itself but can also support development. In that sense, an investor dealing with projects in any of EU member states, should not face with significantly different environment in Montenegro, especially when it comes to the Energy law and accompanying rules and practices.

However, latest developments of EU and Energy community regulations do imply risk when it comes to the electricity export (CBAM regulation). Montenegrin national guaranteees of origins registrant (COTEE) is an AIB observer member. However, Montenegrin GoOs are still not recognised within EU member states.

Electricity network investments

One of the largest single-project foreign investments in Montenegro is realised exactly in the area of electricity grids. Particularly, it is high voltage submarine cable between Italy and Montenegro. This 600MW DC link, 423km long from one coast to another, reaching the dept of about 1200m under the sea is put in operation in 2020.

Total investment of nearly 1 billion euros, proves that huge infrastructure investments in the region are both – feasible and profitable.

Electricity transmission

High voltage electricity transmission in Montenegro is a public interest activity, that can be performed by licenced companies – transmission system operators (TSOs). At the moment, there is only one electricity transmission operator, but there is no legal limit on number of operators. Licencing process is performed by a national electricity regulator (http://regagen.co.me) in a structured a clear procedure.

Licensed operators are entitled to apply for regulatory allowed income, that is determined by the regulator, based on value of assets, operational expenses and planned investments. Guaranteed income is determined in accordance to the Law an energy and accompanying methodologies.

More straight-forward opportunity for investment in electricity transmission business in Montenegro is direct acquisition of the publicly listed shares of the main TSO – Crnogorski elektroprenosni sistem a.d. (http://cges.me). CGES is majorly state owned (55%) regulated monopoly with strategic partner presence of 22% (Italian TSO Terna), and rest of the shares publicly listed on Montenegrin stock exchange (https://mnse.me).

Other than participation in licenced and regulated business of electricity transmission, one could also invest in one of the following types of projects:

- private interconnection lines

 this possibility is promoted by Montenegrin energy law and gives an opportunity to a private investor to build, own and operate its own electricity transmission line, between Montenegro and a neighbouring country. This investment option might be particularly interesting when it comes to the development of electricity production projects in the neighbouring countries' area in a relative proximity to Montenegrin border. Main advantage would be direct linking of those projects to the very stable and reliable Italian electricity market via above mentioned submarine link.
- generation connecting infrastructure according to the energy law, power plant investor is al-

lowed to construct also the necessary connection infrastructure that would be took over upon its commissioning and reimbursed by the TSO. Being the investor in production or specialised infrastructure construction company, this option brings an interesting project development option.

Electricity distribution

Local electricity distribution in Montenegro is a public interest activity, that can be performed by licenced companies – distribution system operators (DSOs). Unlike main TSO, the biggest DSO in Montenegro, Crnogorski elektrodistributivni system d.o.o. (http://cedis.me) that covers most of the territory is 100% owned by incumbent power utility and is not a publicly listed company.



However, private electricity distribution in country exists on a quite attractive basis – through the closed distribution system model (CDSO). This practice has been successfully applied in cases of two green field touristic projects, where fast development of highly reliable distribution system was required, as well as in case of one brown field industrial complex.

Main advantage of CDSO investment is being a perfect match to the green/brown field investments that always ask for parallel infrastructure development. Being private investments, CDSO infrastructure can be rapidly developed without long & exhausting public procurement procedures, gaining on private equity efficiency. Investment is tailored for the main development project, but in a mature faze can also be transformed into a public good if properly planned. That process is as simple as formal transformation of CDSO into a licenced DSO.

In legal terms, this opportunity is finetuned for Montenegrin conditions and general development strategies, through the Energy law, adapting the European practice of closed distribution systems to the Montenegrin real need for rapid development of both sea and winter tourism.

Electricity production investments

Even proclaimed as Ecological State by its Constitution, Montenegro is still heavily reliant on fossil fuels in energy sector. As already described in this paper's "Introduction", around 38% of total energy needs goes to oil and petroleum products. In addition to that, roughly about 40% of all electricity needs comes from lignite, making the country energy mix heavily pollutant – nearly 55% fossil-fuels based.

The main energy development document of the country - National Energy and Climate Plan is being drafted for about 2 years and is still not adopted by the Government. Yet it is likely that it will disclose national coal-phase-out date somewhere around 2035. In fact, Montenegro has joined the Powering Past Coal Alliance (PPCA), which promotes coal phaseout and the transition to clean energy, quietly (without any domestic public consultations) announcing it would stop using coal by 2035 at the latest.

Irrelevant to the final official date of coal plant decommissioning (TPP Pljevlja, with 220MW of installed power) it is evident that Montenegro will need somewhere between 1.5 and 2GW of new renewables production installed capacities, just to cover its own needs. If a strategic advantage of being a regional energy hub will be taken into consideration, this need could easily be increased to at least 3GW.

Supplementing above-mentioned with obvious price signals clearly present in the South-East European region during this year, as well as the power-exchange futures of the closest developed markets, it is evident that investments in energy production are attractive opportunity.

However, in Montenegro, as in most of the Europe these days only carefully developed projects with the highest level of investor's sensitivity on environmental and social issues do have proper chances to be successful.

Green field investments

Investing in green field renewable energy projects in Montenegro can be realised based on two different procedures, depending on the renewables type:

- Concession law and Law on space planning and construction for hydro-power plants
- Law on space planning and construction for wind and solar plants

In simple terms, in order to use water resources, one has to have a concession given by the state. Government is entitled to grant a concession for a period of up to 30 years, while the Parliament of Montenegro could approve concession period up to 60 years. Irrespective to the period of duration and authority that gives the concession, it has to be obtained in a transparent and competitive process.

The only exemption to the case is concession directly granted to the majorly state-owned companies. However, those companies could not share that right with other equity partners unless they are selected in a transparent and competitive procedure.

Unlike water, wind and solar resources are not treated as special resources, and can be freely used for the electricity production purposes, subject to the space planning preconditions i.e. that particular location is envisaged as solar/wind farm in relevant space planning document.

Plants of power up to 5MW are subject to the municipal planning documents, while bigger plants shall be planted in space on the national level.

Owner of the land is entitled to submit a request for construction permition for the plant and needs no other permits, except for the grid connection. In case the land is state owned, ownership or easement rights have to be acquired in a competitive procedure. Usual way to do this is through a public call for a long-term land lease.



Brown field investments, equity partnerships and acquisition

Strong support scheme for renewables initiated back in 2005, resulted in construction of around 20 small and medium size power plants owned by independent power producers (IPP) - mainly local and international private investments. Oldest of those plants dates back in 2012, and is entitled for obligatory electricity take-off by the State for 12 years (by 2024) after which date it should accommodate itself to the open market conditions. Given the fact that most of the IPPs are not energy companies, but different kinds of investors, it is likely that in the nearest future most of the plants would be available for acquisition.

At this level of development it is obvious that aggregation of several small hydro power plants would bring additional efficiency in the process. The biggest IPPs remain purely focused to the guaranteed offtake electricity prices, none of them at the moment is providing any additional service to the grid operators, but first experiences of marked based operation have been realised during 2023.

Prosumers & energy efficiency

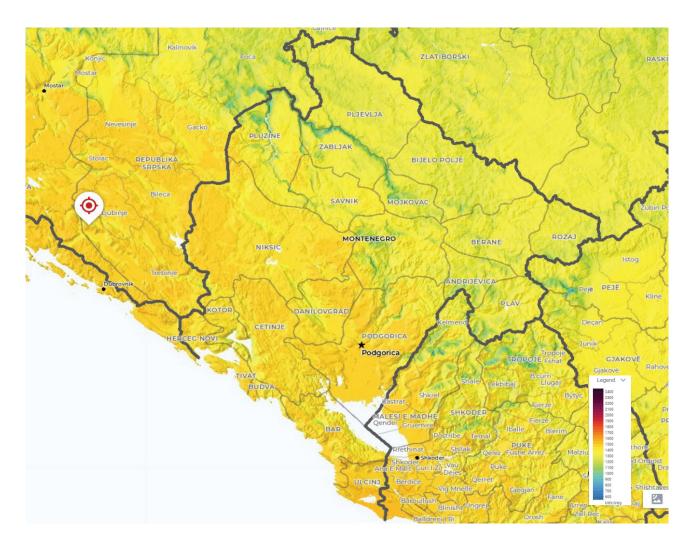
While having one of the best solar energy potentials in the region, Montenegro also has several comparative advantages for distributed micro production from PV panels, both roof-top and ground-mounted. Unlike in most of the countries in the region, electricity price for households and small industrial consumers remained unchanged during the 2022 and 2023 energy crisys. That seems to be the main reason why most of the consumers remain unmotivated to utilise all surfaces suitable for PV panels installation.



On a wider scale, advantage of producing electricity from solar energy in Montenegro, compared to a region with higher number of sunny days, is the vicinity of strong demand nodes i.e. higher electricity prices.

Legal framework guarantees to the prosumers that they can buy and sell electricity on the same connection point, or even accumulate the surplus with their supplier.

This segment opens a great number of business opportunities, connected to distributed micro-production: from PV systems installation, roof leasing, micro production aggregation, all the way to development of energy net positive residential areas, or transformation of old industrial complexes.



During 2024, roof-top solar instalatins have continued the growth from 2023. It is estimated that nearly 50MW of those has been put in operation, by the EPCG led programmes Solari (3000+, 500+ and 5000+). Operational experiences are yet to be gathered, but the program is an example potential investors should look upon.

Based on the law improvements form erly 2020, launched in 2021 the program has paved the way from the administrative and procedural point of view. Privately led and financed alternative could offer additional choice to the end consumers, gaining on efficiency, know-how and industrial relations.

INVESTMENT OPPORTUNITIES

Several projects in different maturity stages could be treated as investment opportunities. Some of them are pure green field investments, that have not been started already, while others are initiated projects that for some reason are still in early development stage. In some cases, no precise references of the projects are given, due to the confidentiality reasons, but more details could be provided upon request.

Projects are organised in two large groups. Reference to the Public-private partnership do not necessarily mean that the projects in that category are or will be realised in accordance to the PPP Law, but rather that those projects are expected to be developed in cooperation with the Government, local municipalities or state-owned companies.

Overview of expected PPP projects

Project Name	Туре	Power	Status	Description	
Various Wind ans Solar projects				On 31 August 2024, the Law on renewable energy usage (Renewable Energy Law) came into force in Montenegro. It is expected that market premiums will be awarded during 2025 through the first auctions	
Kruševo	Hydro power plant	~120MW	Conceptual design	Project is being considered for quite some time. Even preliminary studies imply high IRR, expected project leader EPCG made some efforts to warm it up to the investment ready level.	

Major private investments

Municipality	Туре	Power	Status	Description
Cetinje-Nikšić	Solar plants	cca 4GW	pending	Private investments, authorised with the design conditions (UT) in accordance to the fast lane Government's permitting procedure. Grid connection agreements signed
Budva	Wind farm	101 MW	paused	Government of Montenegro has signed a long-term land lease agreement wind farm construction back in 2020. Project of German WPD is in a moderate delay due to the space planning preconditions provision delay by the State.

GENERAL ELECTRICITY MARKET OVERVIEW AND EXPECTED PRICE TRENDS

Montenegrin electricity market is open, according to the law, and there are no public or hidden mechanisms that could force IPP to sell the electricity at the price below market ones. Physical connections with neighbouring markets are strong, and cross-border capacities are allocated in a competitive procedure on yearly, monthly and daily basis.

National power exchange is in operation since April 2023. First year of operation confirms fair liquidity, stable and reliable market signals. At the end of 2023 power-exchange had 23 registered traders. It is expected that first market coupling with neighbouring markets could happen by 2025 or 2026. This will bring additional liquidity to the local market.

Irrespective to that, long term arrangements for electricity trade could be made even now, with clear references to the closest liquid markets of Italy and/or Hungary. Being a strong transit node, Montenegrin electricity price is almost all the time within the range set by those two markets.

Importance of a strong physical connection with Italian market is even bigger if one keeps in mind possibility to have financial hedge - ten years power futures for Italian market.

Cross border capacities between Montenegro and its neighbours are very strong, so at the moment it unimagnable that all produced energy in Montenegro can not be exported to the regional market. However, a huge investment cycle in large scale solar projects during 2023, opens this potential risk.

When predicting the electricity price in Montenegro and South-East European region, or at least first neighbours of Montenegro, one shall bear in mind:

- limited development of new market based production facilities in most of the countries
- high dependency on lignite and other types of coal, and strong resistance to timely energy transition process
- already poor industrial activity in the region
- very low electricity prices imposed to most of the state-owned power utilities in the region
- strong investment activity during 2023, focused on large-scale solar projects

In other words, regional market faces limited supply side, with a high risk of its contraction in a very proximate future (old fleet, externally imposed closure of coal plants etc). In another hand, electricity consumption already mainly comes from residential usage and services, so there is no significant room for demand decrease due to the higher prices. In parallel, widely spread populist pricing policy of state-owned power utilities makes them absolutely impotent for investments serious investment

cycle. The most likely new projects are large-scale solar plants.

All those factors clearly lead to the conclusion that the region already now, but also in a foreseeable future, will not be a price maker but price taker. Hence the prices in Montenegro will definitely not go below the range between Hungarian and Italian long-term futures.

In practical terms, as of the moment of this paper preparation, it means that band electricity price will stabilise between 70 and 100€/MWh on annual level in next 10 yrs.

ENERGY INVESTMENT INCENTIVES

Investments for energy projects in Montenegro have been dominantly granted on a state level. Main support scheme was "feed-in with obligatory off-take" scheme applied from 2008 until the latest changes of Energy Law in summer 2020. Until the middle of 2024 the scheme was not applied. On 31 August 2024, the Law on renewable energy usage (Renewable Energy Law) came into force in Montenegro. Act comprehensively regulates the use of renewable energy sources and introduces market premiums, auctions, strategic partnerships, and renewable energy communities. In addition to this, the Renewable Energy Law has brought changes in regulating the status of prosumers, the issuance of guarantees of origin, the use of renewable sources in heating and cooling, and the transport sector.

Newly adopted Renewable energy Law from August 2024 is expected to result in first Auctions for new renewable energy production projects during 2025.

In addition to those incentives, smaller local-level or general-type support measures have been provided by different institutions.

Municipality-level incentives

On a municipality level, support to energy and energy-efficiency measures have usually been part of general support schemes as:

- Business zone support measures
- Communal fees reductions

This paper will not repeat general business zone support measures. Here is only important to keep in mind that almost all business zones envisage large industrial constructions, that are either to be reconstructed either built from the field. Hence, they offer significant space for implementation of energy efficiency measures, but also for gaining value added through installation of e.g. roof-top photovoltaic panels, due to previously described advantages.

Communal fees reductions are one more general support measure. They are split in two groups:

Obligatory

• Electricity production power plants are explicitly exempted from the payment of communal fee. This is important to keep in mind when primary function of the object is defined. Specially this is important for small-scale solar plants (mini and micro) where it is possible to have a multi-purpose object.

Possible reductions

- If an object is in a business zone, Municipality has rights to reduce the fee for 100%. This is a possible right, not an obligation.
- If the object has a roof-top solar collector, it is entitled for reduction of a communal fee for 100€/m2 and up to the 50% or the fee.

State-level incentives

Energy and energy-efficiency programmes in Montenegro can search for one of the following supports mechanisms on the state level.

Investment and Development Fund of Montenegro and Eco Fund programs

In this regard, IDF has two major programs, that could be of interest:

- Programme for Financing Environmental Protection, Energy Efficacy and Renewable Energy Sources Projects
- Green Business Development Support Program in Montenegro Photovoltaic Panels for Economy and Agriculture

Programs' objectives are is realization of investments that may be deemed as "implementation of national energy programs or that are supporting usage of renewable sources of energy (sun, hydro energy, biomass etc.)"

IDF programmes are not exclusive to other support programmes e.g. support granted by Eco-Fund.

The activity of the Eco Fund is financing the preparation, implementation and development of programs, projects and similar activities in the field of conservation, sustainable use, protection and improvement of the environment, energy efficiency and use of renewable sources and energy at the state and local level.

Eco Fund regularly publishes calls that could be interesting for the energy sector. Subsidies for use of renewable energy sources - for production of electricity for own needs in on-grid or off-grid mode,

subsidies for energy efitiency as well as for procurement of electric and hybrid vehicles, are regular subject of the calls.

As an example of what could be expected in this respect, here are the terms of one of previous calls:

- The total amount for the distribution of funds for this Public Tender is € 190,000.00, of which € 150,000.00 is intended for on-grid systems, while € 40,000.00 is intended for off-grid systems.
- On-grid system: The maximum amount of support that the user can earn for the purchase and installation of photovoltaic systems is 40% of eligible costs, or a maximum of € 25,000.00, which amount must include VAT.
- Off-grid system: The maximum amount of support that the user can earn for the purchase and installation of photovoltaic systems is 40% of eligible costs, or a maximum of € 5,000.00, which amount must include VAT.

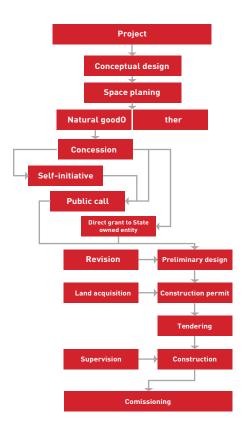
Generally, the call indicated that eligible costs are costs of procurement and installation of new equipment comprising photovoltaic system in accordance with market prices including photovoltaic panels, prefabricated substructure for the installation of photovoltaic panels, inverters, cables for connecting and operating photovoltaic system, protective equipment, photovoltaic system monitoring / monitoring system, lightning protection, connection... Eligibility is also envisaged for cost related to preparation of project and technical documentation: for systems up to 10 kW costs of drafting the conceptual design, and for on-grid systems over 10 kW costs of drafting the revised main design, as well as costs of expert supervision for systems over 10kW.

The allocated funds in this particular call was rather small, but it is expected that similar calls will be frequently repeated, while the funds allocated should rise in time.

PROJECT AUTHORISATION PROCEDURE

Project authorisation in montenegrin energy sector has been an issue for some time in the recent past. It looks like the main obstacles have been removed, however, and the last several projects have passed the process quite smoothly. However, the last changes of the Law on spatial planning and construction (from the first half of 2022) have introduced a fast lane for authorisation of the energy projects of national interest.

Here the general path for project authorisaton in electricity production and grid infractructure will be presented.



Depending on the project details, procedure might slightly vary. Anyhow, diagram above represents the most commont steps, envisaged by the relevant laws: Concession Law, Law on space planing and construction, Energy law and Public procurement Law or PPP Law where applicable.

The above mentioned last changes of the construction law, do however authorise a private investor to submit the request for technical design conditions (or "urban-technical conditions") directly to the government. Upon the issuance of the conditions, the investor can proceed directly to the main design phase, meaning construction permit.

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