Ministry of Mining and Energy

Amendments to the Development Plan Guidelines for Energy Infrastructure and Energy Efficiency Measures for the Period until 2028 with Projections until 2030

TABLE OF CONTENT

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1. Objectives of the Amendments to the Development Plan Guidelines for Energy Infrastructure and Energy Efficiency Measures for the Period until 2028 with Projections until 2030

Secure, reliable, and high-quality energy supply is a prerequisite for economic and social development. The overall energy import dependency of the Republic of Serbia is not high compared to most European countries, but it is very pronounced in the oil, oil derivatives, and natural gas sector.

The Energy Law ("Official Gazette of RS", Nos. 145/14, 95/18 – other law, 40/21, 35/23 – other law, 62/2023, and 94/2024) defines the Energy Strategy as the **fundamental document that establishes energy policy and plans development in the energy sector.** The Strategy defines:

1) long-term objectives for the development of production capacities aimed at ensuring security of supply, taking into account technological, economic, and environmental protection criteria;
1a) energy development projections and long-term energy balances;
2) directions for the development of the electricity transmission and distribution system;
3) directions for the development of the natural gas transmission and distribution system and underground natural gas storage;
4) directions for the development of the electricity and natural gas market;
5) directions for the development of the district heating system.
6) sources and methods for securing the necessary quantities of energy and energy sources;
7) directions for the development of the use of energy from renewable and new sources, and the improvement of energy efficiency;
8) directions for the development of unused electricity generation potential, efficient management of power systems that can be achieved through the introduction of distributed electricity storage and production capacities, implementation of demand-side

management in line with electricity market trends, and the introduction of the smart grid concept by optimally managing power flows in the transmission and distribution system;

9) other elements relevant for achieving the objectives of energy policy.

The Energy Development Strategy of the Republic of Serbia until 2040, with projections until 2050, was adopted by the National Assembly at the proposal of the Government of the Republic of Serbia in November 2024. It is aligned with documents related to the economic development of the Republic of Serbia, as well as with the strategic and planning documents of the Republic of Serbia, and includes an analysis of the achievement of the objectives set by the Strategy for the previous period.

In the process of drafting the Amendments to the Development Plan Guidelines for Energy Infrastructure and Energy Efficiency Measures for the Period until 2028 with Projections until 2030 (hereinafter: Development Plan Guidelines), special attention was given to:

- understanding the level of implementation of the projects envisaged by the Energy Development Strategy of the Republic of Serbia until 2040, with projections until 2050 ("Official Gazette of RS", No. 94 of November 28, 2024);
- identifying new projects aimed at achieving sustainable development goals; and
- consumption projections until 2040, with projections extending to 2050.

The objective of the Development Plan Guidelines is to define the main directions of strategic development in line with the commitments undertaken in the Memorandum on Economic and Financial Policies and the Energy Development Strategy of the Republic of Serbia. The development plan, i.e., the investment cycle planned for the upcoming strategic period, represents the backbone of the Energy Development Strategy and serves as a basis for further assessments and projections of the targeted energy mix by 2030 and 2050, in accordance with international obligations undertaken within the EU accession process and the Energy Community during the observed period..

In addition to the rational use of energy and ensuring adequate reserves of oil and natural gas, as well as diversification of supply routes and sources of these energy carriers, it is necessary to proceed with the construction of new electricity generation capacities in the upcoming strategic period.

In this context, the general objective of the Development Plan Guidelines was to, based on the defined goals and assumptions, analyze the project portfolio of all energy entities and, on that basis:

- determine whether there are deficiencies in the overall electricity production capacity and propose appropriate project activities if necessary;
- determine whether the necessary infrastructure exists to enable efficient import and distribution of natural gas, oil, and oil derivatives, and propose appropriate project activities;
- consider options for ensuring stable base-load electricity production while complying with prescribed environmental protection measures, without creating import dependency for the country;
- assess the condition of the transmission and distribution networks, their connection to the project portfolio of EPS and other electricity producers, and consider key projects needed to improve transmission network interconnectivity and reduce losses in the distribution network.

Building upon this general objective, **key objectives** have been defined for all areas of the energy sector.

In the field of electricity generation, the primary goal is to ensure energy independence of the power sector, which in the target scenario implies independence from electricity imports. In the long term, this goal means basing the electricity generation portfolio predominantly on sources whose raw materials can be secured without creating import dependency for the Republic of Serbia.

In the context of achieving this objective, the projected sub-objective is for "Elektroprivreda Srbije"JSC to maintain its position as the dominant producer and supplier of electricity, while this will also be considered in the context of the expected commencement of the application of provisions of the Energy Law regulating the guaranteed supplier system.

An important prerequisite for the effective realization of the planned goal lies in defining the methods of implementing key investment projects, both in terms of financing and the model/manner of their implementation, which is also the primary task of this plan.

One of the important measures that has a direct and indirect impact on the success of achieving goals in the field of electricity generation relates to the coal sector. Consequently, this sub-area was recognized in the preparation of the Development Plan Guidelines as a separate domain within which a specific goal has been defined — secure and reliable supply of coal-fired power generation capacities.

The current situation requires taking necessary steps to maintain coal extraction from the existing Kolubara and Kostolac mining basins at a level sufficient to ensure proper coal supply to

thermal power plants, as well as to timely secure replacement capacities due to the projected end of the operational life of certain mines, and consequently the necessary quantities of coal for the operation of thermal power plants that will continue to operate beyond 2030.

Regarding the transmission network, the key goal is to create conditions for maximum system flexibility, which will be achieved by increasing interconnection capacities. The implementation of projects identified in this plan, especially those defined as priorities, will enable the realization of another important goal: the potential integration of greater installed capacity and electricity from renewable sources.

The transmission systems of the Western Balkan countries are less interconnected compared to other ENTSO-E regions. Based on the need to prepare and implement an investment plan for the construction of new production capacities predominantly related to renewable energy sources (RES), including the reconstruction of existing production facilities with an increase in their installed capacity, the development of the transmission network aims to increase supply security, support the integration of renewable energy sources, connect electricity markets in the region, as well as strengthen interconnection links between transmission systems and increase available transmission capacities.

In the area of the distribution network, the primary goal is to reduce losses in the distribution network to 8% by 2030 from the current 11 to 13% annually, noting that in some parts of the country these losses exceed 25%.

The achievement of this goal will significantly contribute to the realization of another defined objective, namely the modernization and stability of the distribution network.

In the gas sector, the primary goal of project implementation is the gasification of key regions in the Republic of Serbia by 2030, as well as the construction of gas interconnectors to enable diversification of supply sources.

In the oil sector, the key objective remains undertaking project activities aimed at ensuring proper supply of the market with oil and oil derivatives.

Considering the ownership structure of the largest oil company in the Republic of Serbia, one of the most important activities is the active monitoring of external factors that may potentially impact the uninterrupted operation of the Pančevo

Refinery, as well as the proper supply of the domestic market with oil and oil derivatives.

In the field of energy efficiency, the measures and activities foreseen by this document are expected to achieve savings of approximately 3-4 TWh annually, with the greatest savings realized in the domain of thermal energy. Compared to 2020, savings by 2030 achieved through the implementation of energy efficiency measures are expected to amount to about 1.5% in households, industry, and other sectors. The projected share of electric vehicles in new vehicle sales by 2030 is estimated to be 15%.

A summary overview of the previously stated short-term and medium-term development goals until 2030, by sectors, as established by this plan, is presented in Table 1.

Table 1: Development Goals of the Energy Sectors until 2030

Electricity sector	Generation	- Ensuring energy independence in the electricity sector (EPS maintains its position as the dominant electricity producer and supplier)
	Transmission	- Increasing interconnection capacities (ensuring system flexibility) - Integration of greater capacity and electricity production from renewable energy sources
	Distribution	- Reduction of losses in the distribution network to 8% - Modernization and stability of the distribution network - Optimization of activities and management
Coal sector		- Secure and reliable supply of electricity to thermal power generation capacities
Natural gas sector		- Gasification of key regions in the Republic of Serbia - Reform of the gas sector
Oil sector		- Proper supply of the market with oil and oil derivatives
Energy efficiency		- Improvement of energy efficiency in all consumption sectors

The stated objectives are in line with the general objectives of the energy policy of the Republic of Serbia as outlined in the Energy Law ("Official Gazette of RS", Nos. 145/2014, 95/2018 – other law, 40/2021, 35/2023 – other law, 62/2023, and 94/2024) and the established energy policy and development planned in the Energy Development Strategy of the Republic of Serbia until 2040

with projections until 2050 ("Official Gazette of RS", No. 94/2024).

Within these Development Plan Guidelines, projects are categorized into priority and other projects. Priority projects are distinguished mainly by their high investment value, the fact that their implementation has already begun, as well as their significant contribution to the energy stability and security of the Republic of Serbia. Their implementation directly ensures the stability of the energy system, and they are additionally recognized as the most important through a scoring list, where they occupy the highest positions within their sector. Due to their specificity, energy efficiency projects are not scored and are not categorized as either priority or other projects.

These Development Plan Guidelines contain certain changes in investment values, the number of priority projects, and the availability of financial analyses.

The total planned value of all investments in the updated Development Plan Guidelines amounts to approximately EUR 16.1 billion, while the value of all priority projects is about EUR 9.9 billion. The value of other projects accounts for approximately EUR 6.2 billion.

A total investment of approximately EUR 2.93 billion is planned for renewable energy generation capacities (with an estimated EUR 1.9 billion representing the value of priority projects); about EUR 4.6 billion for the hydro sector (EUR 4.07 billion of which are estimated priority project values); around EUR 3 billion for the maintenance of existing thermal capacities and mining facilities, along with the construction of gas power plants (EUR 1.79 billion representing the estimated value of priority projects); about EUR 1 billion for the transmission network (EUR 487.6 million estimated for priority projects); EUR 2.01 billion for the distribution network (EUR 975 million representing estimated priority projects); approximately EUR 1.6 billion for the gas and oil sector (EUR 640.2 million estimated for priority projects); while in the energy efficiency sector, planned investments amount to approximately EUR 557.63 million.

1.1. Impact of Internationally Undertaken Obligations

Achieving the stated objectives will also ensure, to the greatest possible extent, the fulfillment of the obligations that the Republic of Serbia has based on its membership in the Energy Community in accordance with Energy Community Decision No. 2022/02/MC-EnC, namely:

- Achieving a share of renewable energy sources (RES) in gross final consumption of 33.6% by 2030; and
- Reducing greenhouse gas emissions by 40.3% (47.82 MtCO2 eq.) compared to 1990 levels.

Additionally, by ratifying the EBRD loan for EPS liquidity, the Republic of Serbia committed to ensuring a 45% share of renewable energy sources (RES) in the energy mix for electricity production by 2030.

To achieve all the aforementioned goals, the adoption of the Development Plan Guidelines, which is also part of the obligations undertaken under the IMF stand-by arrangement, represents the first important step in identifying all project activities necessary to enable their fulfillment. The Plan serves as the basis for the implementation of the Energy Development Strategy of the Republic of Serbia and the Integrated National Energy and Climate Plan.

Given the primary task of this plan — prioritizing the investment plan for the energy sector with projects that can be implemented to improve energy security, as well as the significant impact that energy projects have on enhancing environmental protection — this plan recognizes the need for additional analyses of potential projects in the upcoming period, primarily within the framework of the Energy Development Strategy. These analyses will contribute at a general level to fulfilling the goal defined by Energy Community Decision No. 2022/02/MC regarding the reduction of greenhouse gas emissions by 40.3% (47.82 MtCO2 eq.) compared to 1990 levels.

In this regard, it is particularly emphasized that the goal of the Republic of Serbia is to achieve the aforementioned percentage reduction in harmful gas emissions at the level of the overall energy mix. Based on this fact, the burden of fulfilling this goal must not and cannot rest solely on the electricity generation sector.

Oil companies in the Republic of Serbia have committed to so-called *net zero goals*. Considering that the Pančevo Refinery is one of the largest emitters of waste gases, particulate matter, and other pollutants, it is necessary to develop a detailed strategy and identify opportunities for implementing projects that can significantly reduce their emissions and contribute to meeting the goals defined at the level of the Republic of Serbia. For example, worldwide increasing attention is being given to projects such as carbon capture, which have been analyzed by NIS, but only at a preliminary level. Finally, there is a recognized need to analyze potential strategic partnerships aimed at utilizing depleted gas fields, which could very easily become functional for the construction of wind or solar power plants.

2. Assumptions for the Implementation of the Development Plan Guidelines for Energy Infrastructure and Energy Efficiency Measures for the Period up to 2028 with Projections to 2030

Changed circumstances in the global energy sector caused by geopolitical and economic factors are also reflected in the development of national energy systems.

Under altered conditions marked by price uncertainties and issues in the availability of energy sources, partly supplied through imports, as well as the fundamental goal to ensure secure supply to end consumers and reduce the negative impact of energy production, transformation, and consumption on the environment, this plan is based on assumptions designed to enable both straightforward verification of the success of involved entities in implementing project activities and continuous monitoring of the fulfillment of the set parameters within the used assumptions.

Basic Development Assumptions

Energy development is both a companion and a driver of overall economic and social development. Therefore, projections of energy development are fundamentally based on historical trends and projections of changes in macroeconomic and demographic indicators.

For the purposes of drafting this plan, the basic assumptions included, in addition to the standard assumption related to GDP growth projection, the expected increase in total consumption of electricity and natural gas, as well as a detailed analysis of energy sector projects, their maturity, and an estimate of possible completion years for their implementation, in order to determine their contribution to fulfilling consumption assumptions as well as achieving strategic goals.

2.1. Gross Domestic Product (GDP)

Serbia's GDP growth in the first two decades of the 21st century averaged 3.0%, which is close to the average global growth rate of 3.4%. In the first decade, Serbia recorded a growth rate of 4.6%, while in the second decade it slowed to 1.3%. The slower

average economic growth rate during the second decade was a consequence of the change from an unsustainable development model based on increased private consumption, which necessitated fiscal consolidation during the period 2014–2018. Concurrently, the economy was rebalanced towards strengthening export and investment activities.

The state of the economy and global economic trends in 2021, despite the ongoing COVID-19 crisis, were significantly more favorable compared to 2020 due to the consolidation of much of the economy amid the pandemic. The global growth rate was slightly above average, which was expected following the previous recession. This applied to higher growth rates of national economies as well as better prospects for the coming years, anticipated based on the normalization of business conditions for much of the economy, especially the services sector, as well as adaptation to pandemic conditions, i.e., new technological solutions driven by remote work experiences and innovations in communication and energy sectors.

However, the promising prospects for post-pandemic recovery were confronted at the beginning of 2022 with global challenges:

- a general increase in prices of raw materials, energy, and food on the global market, and the return of inflation as a global phenomenon, with further consequences for the crisis of leading world currencies;
- a pronounced rise in natural gas and electricity prices, especially on the European market;
- threatening geopolitical and military-strategic escalation of tensions globally, culminating in the conflict in Ukraine at the end of February 2022.

The escalation of international economic and political tensions, accompanied by a sharp rise in energy prices and the resulting decline in global trade and external demand, spilled over into the domestic economy, slowing growth to 2.6% in 2022. However, the decline in energy prices, recovery of external demand, and intensified infrastructure works led to an acceleration of growth to 3.8% in 2023. In 2024, GDP growth is projected to accelerate to 3.9%, driven entirely by domestic demand.

Despite global challenges, the world economy demonstrated significant resilience during the period of slowing inflation. This was supported by expansive fiscal policies and the recovery of private consumption, backed by accumulated savings during the pandemic, increased employment and incomes, as well as greater labor force participation in the job market. According to the IMF's October estimates, the global economy is expected to continue growing at a rate of 3.2% in both 2024 and 2025, unchanged from previous forecasts.

Adhering to previous trends and relatively optimistic assumptions of peaceful development, a baseline assumption of an average annual growth rate of 3.3% has been adopted for defining energy development scenarios for the upcoming period (until 2050). It is assumed that growth will be somewhat more intensive (annual growth rates of 3.5% - 4% until 2035), after which GDP growth would slow down somewhat. Medium-term GDP growth projections are estimated to range between 4% and 5%, taking into account the implementation of investments planned under the "Leap into the Future – Serbia Expo 2027" program.* The average projected GDP growth rates are presented in Table 2.

Table 2: Average Projected Growth Rates

	2025	2030	2035	2040	2045	2050
Average Projected Growth Rates	4,2%*	4%	3,5%	3,2%	2,8%	2,4%

*Source: Ministry of Finance

*In April 2025, the IMF revised its growth projection for the Republic of Serbia to 3.5% for 2025.

According to the medium-term macroeconomic projection from the revised Fiscal Strategy of the Republic of Serbia for 2025, with projections for 2026 and 2027, the Serbian economy is expected to grow at an average annual rate of 4.4%, primarily driven by domestic demand, with a slightly negative contribution from net exports.

However, many of the aforementioned global threats could reduce the prospects for the projected growth rates. Simply put, the COVID crisis, along with accompanying energy and food price crises and geopolitical issues, must be taken into account when projecting growth for the global and Serbian economies in the coming decade. Therefore, considerable downward adjustments of average growth rates (up to 0.3 percentage points during the current five-year period) should be expected.

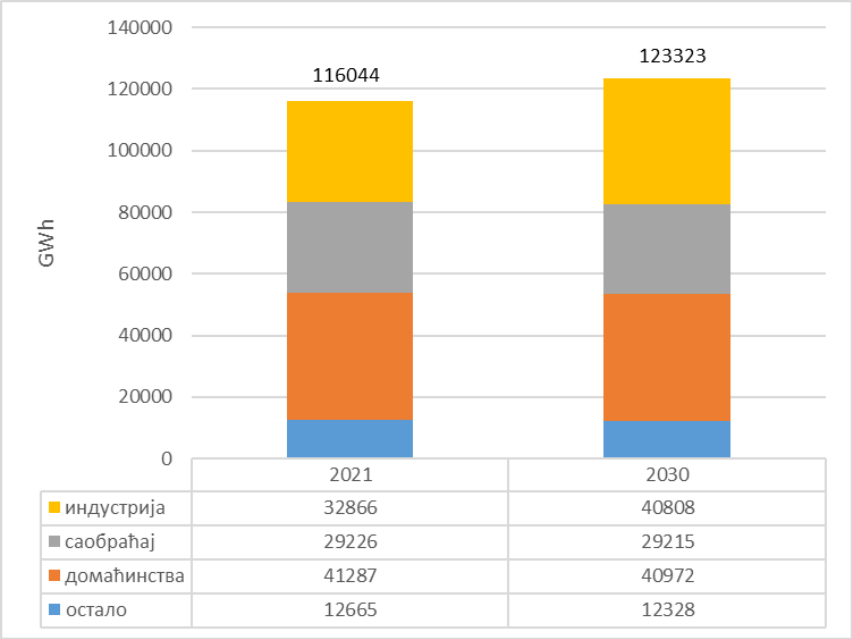
The population size, age structure, and education level influence the economic structure as well as its future development.

Additionally, the total population, the average number of people per household, and the growth in residential building area are some of the main factors influencing energy consumption in households. Demographic projections necessary for assessing future expected consumption rely on the results of the 2022 Population Census and projections of population changes. The

adopted projection of population change is based on an assumed medium fertility rate.

2.2. Final Energy Consumption – Energy Demand of End Users

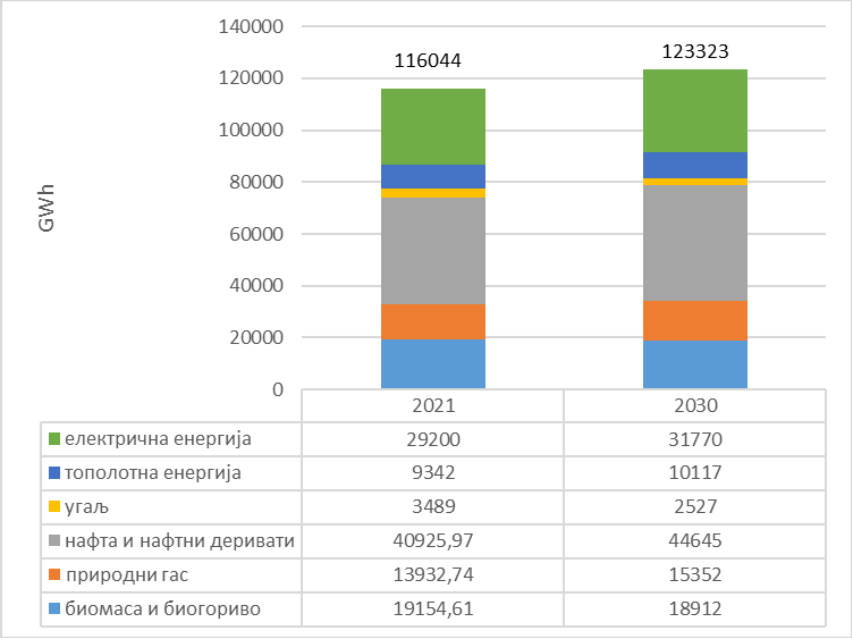
The demand of end consumers are expressed through final energy consumption. The sector of total final energy consumption shows the consumption of energy for non-energy purposes and final energy consumption for energy purposes. Final consumption for energy purposes is the part of total final energy consumption delivered to consumers outside the energy sector (households, industry, transport, public and commercial sector, agriculture). Projections of total final energy consumption by consumption sectors are shown in Figure 1, and the structure of consumption by energy sources is shown in Figure 2.



	2021	2030
индустрија	32866	40808
саобраћај	29226	29215
домаћинства	41287	40972
остало	12665	12328

Figure 1: Structure of Final Energy Consumption by Sectors

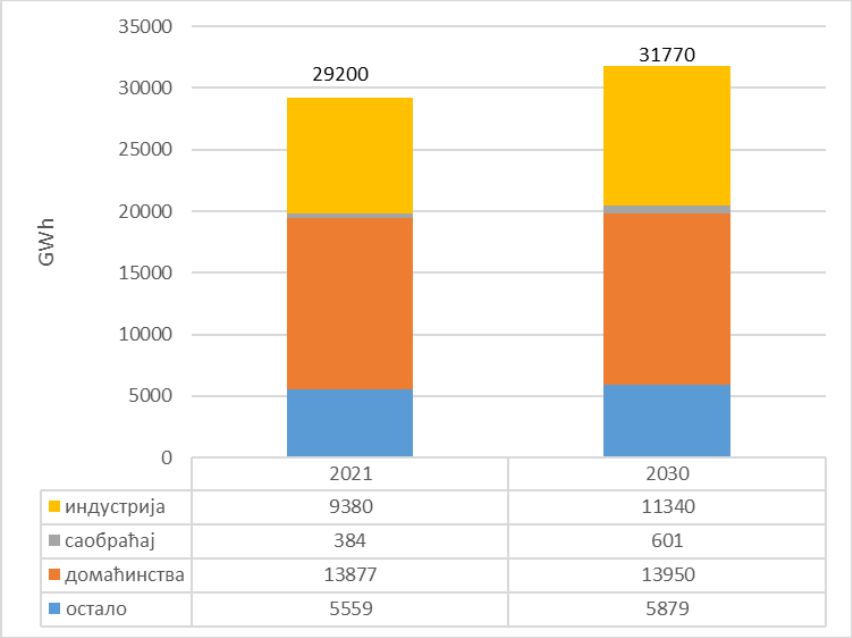
Final energy consumption is expected to increase from 116,044 GWh in 2021 to 123,323 GWh in 2030. Sector-wise, the highest consumption during the analyzed period is in households (35% in 2021, 33.2% in 2030), transport (25.2% in 2021, 23.7% in 2030), and industry (28.3% in 2021, 33.09% in 2030).



	2021	2030
електрична енергија	29200	31770
тополотна енергија	9342	10117
угаљ	3489	2527
нафта и нафтни деривати	40925,97	44645
природни гас	13932,74	15352
биомаса и биогориво	19154,61	18912

Figure 2: Projection of Final Energy Consumption by Energy Sources

In meeting the energy demand of end consumers, the largest share of final energy consumption will be oil derivatives, with a share of about 31.5%, increasing to 32.4% by 2030. This is followed by electrical energy, whose share is expected to change from 27.1% in 2021 to 28% in 2030. During the period under consideration, the share of biomass and biofuels will decrease from 17.9% in 2021 to 16.5% in 2030. In absolute terms, the largest increase is expected in the consumption of oil and oil derivatives. The projection of final electricity consumption by sectors is shown in Figure 3.



	2021	2030
индустрија	9380	11340
саобраћај	384	601
домаћинства	13877	13950
остало	5559	5879

Figure 3: Projection of Final Electricity Consumption

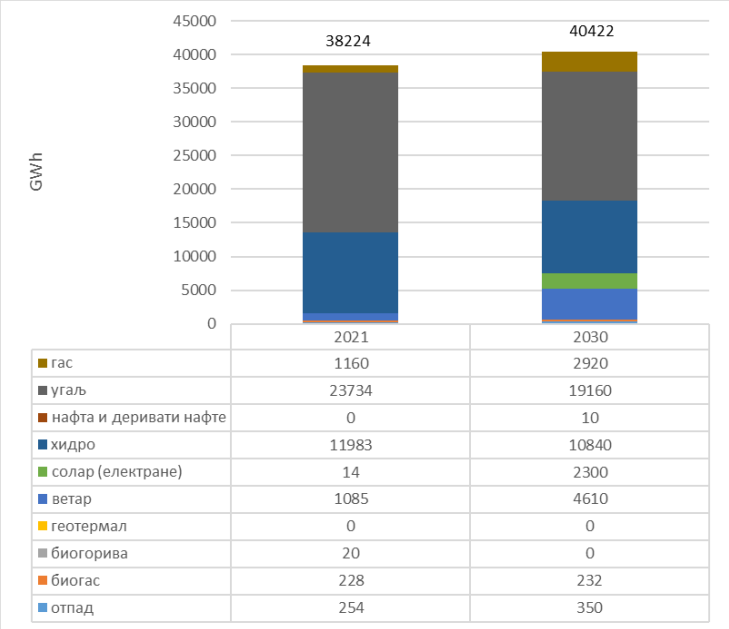
Source – National Energy and Climate Plan

During the observed period, final electricity consumption is expected to increase from 29,200 GWh to 31,770 GWh by 2030. Growth in consumption is anticipated across all sectors except the household sector, while the largest absolute increase in consumption is expected in the industrial sector. In percentage terms, the highest growth of 56.5% is expected in the transport sector (due to intensified public transport—railway, metro, introduction of electric vehicles, etc.).

Electricity Generation

The projected increase in electricity consumption, shown in Figure 3, also leads to an increase in electricity production (Figure 4).

It is projected that electricity production will grow from 38,224 GWh in 2021 to 40,190 GWh by 2030. The amount of energy produced from coal will decrease from 23,734 GWh in 2021 to 19,160 GWh in 2030, reducing coal's share from 59.1% to 48.8% during the observed period. The share of natural gas will rise from 2.9% to 7.3%, wind energy from 2.8% to 11.5%, and solar energy from 0.04% to 5.7%.



	2021	2030
гас	1160	2920
угаљ	23734	19160
нафта и деривати нафте	0	10
хидро	11983	10840
солар (електране)	14	2300
ветар	1085	4610
геотермал	0	0
биогорива	20	0
биогас	228	232
отпад	254	350

Figure 4: Projection of Electricity Generation Structure

In the period up to 2030, an increase in the use of renewable energy sources is projected across all sectors of energy production and consumption, particularly in electricity generation. Compared to 13,075 GWh of electricity generated from renewable sources in 2021, production of around 17,750 GWh can be expected in 2030 (Figure 5).

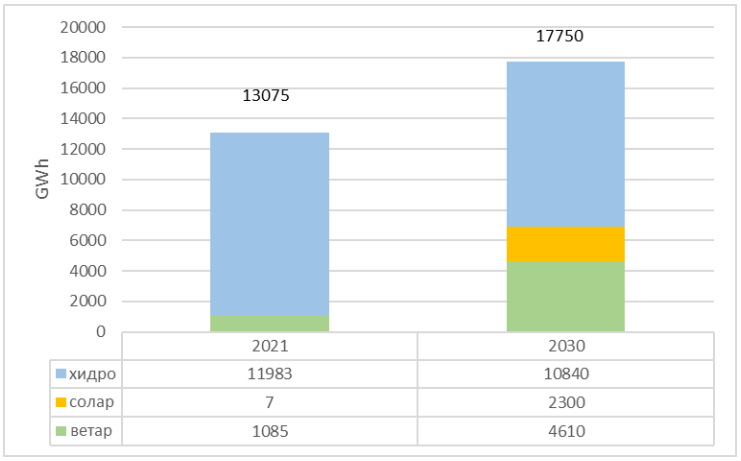


Figure 5: Projection of Electricity Generation from Renewable Energy Sources (RES)

Natural Gas Consumption

During the observed period, total natural gas consumption is expected to increase from 3.008 billion m³ in 2021 to 3.624 billion m³ in 2030. This growth is driven by the introduction of a new gas-fired thermal power plant for electricity production, as well as by industrial expansion. Final consumption is projected to increase from 1.505 billion m³ in 2021 to 1.658 billion m³ in 2030.

The projection of final natural gas consumption by sector is shown in Figure 6.

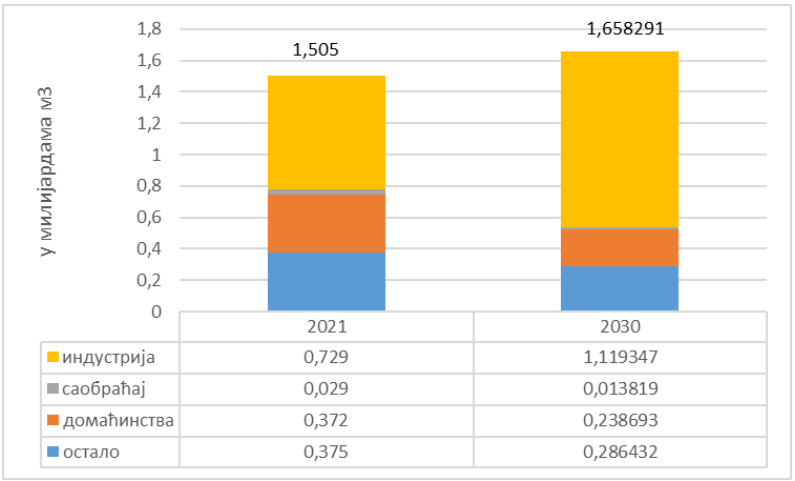


Figure 6: Projection of Final Natural Gas Consumption

3. Project Analysis by Sector

3.1. Electricity Generation

The most significant changes anticipated in the upcoming period concern the future methods of electricity generation and the transformation of the production capacity structure. Decarbonization is closely linked to the gradual phasing out of electricity production using fossil fuels, which are the largest emitters of CO_2.

Plans include the construction of several large-scale renewable (intermittent) energy production capacities, aiming to enable a targeted share of renewables in total electricity production by 2030. A significant contribution to achieving this goal is also expected from the private sector, primarily through a system of auctions.

The state can no longer administratively determine guaranteed purchase prices of electricity that apply independently of the market, as was the case with the so-called feed-in tariffs, which led to excessive burdens on end consumers. Now, producers must first compete by offering the lowest possible price at auctions in order to gain priority in quota allocation, which will result in lower market prices. The latest amendments to the Law on the Use of Renewable Energy Sources foresee that starting from January 1, 2024, in addition to the offered price, the percentage of the power plant’s capacity offered to the guaranteed supplier or direct buyer will also be taken into account at auctions. It is expected that the majority of electricity produced in this way will remain within the Republic of Serbia..

Additionally, new pumped-storage hydroelectric power plants are being introduced, along with the revitalization of existing ones, which includes extending their operational lifespan, increasing efficiency, and often, increasing installed capacity. Besides pumped-storage hydroelectric plants, the construction of gas-steam power plants is also planned, whose dominant role, alongside the production of thermal energy through cogeneration, will be balancing the electrical power system.

The implementation of necessary investments in primary and secondary environmental protection measures is planned to ensure the sustainable use of thermal capacities within the power generation capacity mix, with the aim of preserving base load energy that does not create the country's import dependence.

3.1.1. Thermal Power Plant Projects

The analyzed project portfolio of EPS predominantly includes projects related to investments in systems aimed at reducing emissions of harmful gases and negative environmental impacts, as well as capital repairs and adaptations to increase the efficiency and reliability of existing units.

The energy security of the Republic of Serbia cannot be considered in isolation from the region in which it is located, nor from the broader international community. However, through the process of replacing base load energy, the intention is to ensure that this process does not at any moment jeopardize the stability of electricity supply. Through strategic planning and adaptation of existing thermal units, it will be possible to ensure a sufficiently long period for a controlled transition and construction of new replacement base load facilities.

A detailed analysis of the generation capacities and an assessment of their production relative to the projected growth in total electricity consumption required an analysis and determination regarding the mechanism for the displacement of thermal capacities. In this regard, the Basic Guidelines for the Development Plan foresee the application of measures established by the negotiating position of the Republic of Serbia with the EU under Chapter 27 – Environment, as well as the National Plan for the Reduction of Emissions of Major Pollutants from Old Large Combustion Plants ("Official Gazette of RS", No. 10/20, hereinafter: NERP). This entails additional investments in enhanced capital maintenance of the thermal units TENT A1 and A2 and TEKO A, including potential investments in primary and secondary reduction of SO2, NOx, particulate matter emissions, desulfurization, and wastewater treatment related to these units. It is also important to emphasize that the Government adopted the Specific Implementation Plan of Directive 2010/75/EU on industrial emissions, which provides for the possibility of issuing an integrated permit for the units TENT A1 and A2 by 2032 and TEKO A by 2030.

This is particularly significant considering that it allows for the implementation of potential projects during this period on these units, which will enable pollution reduction in accordance with the prescribed emission limits for SO2, NOx, and particulate matter.

An important project for the more efficient operation of the "Nikola Tesla" thermal power plants, which needs to be defined technically and financially in the upcoming period, is the "Homogenization – long-term blending of domestic coal with higher-quality external coal in EPS JSC" project.

In the upcoming period, within five to seven years, it is necessary to develop alternative methods of supplying thermal energy with local governments as a replacement for EPS's coal-based plants currently used to provide thermal energy for district heating systems.

Due to the policy of banking institutions not to finance coal energy, EPS has very limited access to credit funds. Therefore, investments in thermal capacities are planned to be funded from own resources in accordance with available financial capabilities. For legal reasons and because revitalizations and adaptations are often designed without feasibility studies—since these investments mainly aim to maintain existing facilities—this type of project does not have available financial indicators such as IRR (Internal Rate of Return) and NPV (Net Present Value).

Table 3 provides an overview of priority projects in the thermal power plant sector, whose implementation is crucial for maintaining the projected level of electricity production to achieve the established targets, while Table 4 presents an overview of other projects within the same sector.

Table 3: List of Priority Projects in the Thermal Power Plant Sector

Thermal Power Plant Kostolac - TEKO A1 – Adaptation of A1 block								
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
	Long-term retention in operation of block A1 with a capacity of 100 MW applying the highest environmental standards.	2034	45,5	no	Own funds	n/a	n/a	Feasibility study and conceptual design for lifetime extension and capacity increase of A1 Block Kostolac completed.
Description	The adaptation would ensure the system's operational reliability with the aim of securing the capacity necessary to support the security of supply in the Republic of Serbia, as well as the uninterrupted delivery of thermal energy during the winter season for district heating in the city of Požarevac. The scope of investment maintenance will be applied depending on the condition of parts of the production unit and the availability of financial resources, given that the project is financed from EPS's own funds. Alternatively, depending on available funds, a revitalization of A1 Block may be planned instead of adaptation.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial planning documentation		n/a							
Conceptual design and location permit		n/a							
Environmental impact assessment study		n/a							
Resolution of property-legal affairs		n/a							
Preliminary design and feasibility study	EPS JSC	x							
Design for construction permit and construction permit		n/a							
Preparation of tender documentation	EPS JSC					x			
Detailed design / Execution design	EPS JSC						x		
Construction	EPS JSC						x	x	x

Thermal Power Plant Kostolac - TEKO A2 – Adaptation of A2 block								
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
	Long-term retention in operation of block A2 with a capacity of 210 MW applying the highest environmental standards.	2034	54,3	no	Own funds	n/a	n/a	Feasibility study and conceptual design for lifetime extension and capacity increase of A2 Block Kostolac completed.
Description	The adaptation would ensure the system's operational reliability with the aim of securing the capacity necessary to support the security of supply in the Republic of Serbia, as well as the uninterrupted delivery of thermal energy during the winter period for the district heating system of the city of Požarevac. The scope of investment maintenance will be applied depending on the condition of parts of the production unit and the availability of financial resources, given that the project is financed from EPS's own funds. Alternatively, depending on the available resources, revitalization of Unit A2 may be planned instead of adaptation.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial planning documentation		n/a							
Conceptual design and location permit		n/a							
Environmental impact assessment study		n/a							

Resolution of property-legal affairs		n/a							
Preliminary design and feasibility study	EPS JSC	x							
Design for construction permit and construction permit		n/a							
Preparation of tender documentation	EPS JSC						x		
Detailed design / Execution design	EPS JSC							x	
Construction	EPS JSC							x	x

Thermal Power Plant Nikola Tesla – TENT A - Reconstruction of turbines A3–A6 for the purpose of heating Belgrade

	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
	Provision of thermal energy for the City of Belgrade from TENT A	2028	9,10	yes	loan / own funds	n/a	n/a	The spatial documentation has been approved. The complete technical documentation has not been prepared.
Description	The project in question includes the design, equipment supply, and dismantling-installation activities related to adapting the turbines of A3-A6 Blocks for the purpose of providing heating to the city of Belgrade.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial planning documentation	EPS JSC and Belgrade Power Plants	x							
Conceptual design and location permit	EPS JSC	x							
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection affairs	x							
Resolution of property-legal affairs	EPS JSC	x							
Preliminary design and feasibility study	EPS JSC		x						
Energy permit	The ministry responsible for mining and energy affairs		x						
Design for construction permit and construction permit		n/a*							
Preparation of tender documentation	EPS JSC	x							
Detailed design	EPS JSC			x	x				
Construction	EPS JSC		x	x	x	x	x		

* The project is being implemented based on the Decision on the Work Execution Permit and is part of a larger district heating pipeline construction project.

Thermal Power Plant Nikola Tesla – TENT A - replacement of the ash, slag, and gypsum conveying system								
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
	Reduction of egative Eenvironmental impact (water, air, soil); xtension of availability of TENT A blocks	2028	158,00	partially	Own funds	n/a	n/a	The spatial documentation has been approved. The complete technical documentation has not been prepared.
Description	The project involves the implementation of a lean slurry ash and slag conveying technology, which reduces soil and groundwater pollution. The joint disposal of slag, ash, and gypsum enables the recirculation of the total amount of wastewater extracted from the disposal sites, which will be reused for the preparation and transport of dense slurry to the landfill,							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial planning documentation	EPS JSC	x							
Conceptual design and location permit	EPS JSC			x					
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection affairs			x					
Resolution of property-legal affairs	EPS JSC			x					
Preliminary design and feasibility study	EPS JSC				x				
Energy permit	The ministry responsible for mining and energy affairs			x					
Design for construction permit and construction permit	EPS JSC				x				
Preparation of tender documentation	EPS JSC	x							
Detailed design	EPS JSC				x				
Construction	EPS JSC				x	x	x		

Table 4 presents an overview of other thermal power plant projects whose implementation is important by 2028 or by 2030.

Table 4: the list of other thermal power plant projects

Project	Expected completion year	Project description	Value (in million EUR)	Secured funds
TENT A6 major overhaul and primary measures for nitrogen oxides reduction	2025	The project includes design, equipment supply, engineering supervision over the dismantling and installation activities related to the overhaul of existing boiler heating surfaces, implementation of primary measures to reduce nitrogen oxide emissions, optimization, and trial operation with guaranteed compliance with the required parameters.	51,90	yes
TENT B2 major overhaul (second phase of revitalization)	2026	The project includes design, equipment supply, engineering supervision over the dismantling and installation activities related to the overhaul of existing boiler heating surfaces, implementation of primary measures to reduce nitrogen oxide emissions, optimization, and trial operation with guaranteed compliance with the required parameters.	140,00	yes
Project for the construction of a flue gas desulfurization (FGD) plant for TENT B	2025	Reduction of sulfur dioxide emission	198,94	yes
Project for the construction of a port facility for TENT B	2029	The project involves the construction of a cargo port facility to enable river transport of coal for the needs of the thermal power plant, transport of limestone for desulfurization, as well as the commercial distribution of ash and gypsum.	50,00	no
TEKO B2 – nitrogen oxide reduction facility / delivery and installation of tanks with pumps for selective non-catalytic reduction	2025	The second part of the project for the implementation of secondary measures includes the procurement and installation of a storage tank for reagent with a tank wagon, pumps, and other accompanying equipment; an unloading ramp for transferring reagent from tanker trucks to the	1,19	yes

Project	Expected completion year	Project description	Value (in million EUR)	Secured funds
		storage tank equipped with pumps for unloading and related equipment; as well as other devices and equipment in this zone, including pumps for demineralized water. The reagent storage tank with the tank wagon and the unloading ramp for transferring reagent from tanker trucks with accompanying equipment represents a shared part of the facility for blocks B1 and B2. The pumps for sending reagent from the storage tank, together with associated pipelines and equipment, as well as pumps for demineralized water sent to the block, form a part of the facility used for the operation of B2 block.		
Construction of cassette 4 of the TENT A ash dump	2025	The project involves the construction of cassette 4, which is necessary for the operation of TENT A.	47,08	yes
TENT A1 – Adaptation of A1 block with the introduction of primary and secondary NOx reduction systems	2026	The adaptation would ensure the reliability of the system's operation with the goal of securing capacity to support the supply security in the Republic of Serbia, as well as the uninterrupted delivery of thermal energy during the winter period for the district heating system of the city of Obrenovac. The scope of investment maintenance will be applied depending on the condition of the production capacity components and the availability of financial resources, taking into account that the project financing will be carried out from EPS's own funds.	30,00	no
Alternatively, depending on available funds, the revitalization of A2 block can be planned instead of adaptation.	2030	*The revitalization of the TENT A1 unit involves:* *- Replacement of turbines and generators* *- Boiler membrane replacement including heating surfaces and chambers* *- Replacement of condenser tubes, heat exchangers (high-pressure and low-pressure heaters)* *- Replacement of associated steam pipelines at the boiler plant and auxiliary drainage and venting pipelines* *- Introduction of a combustion system with reduced nitrogen oxide emissions – Low NOx burners* *- Revitalization of the mill plant, grate bars, aerosol mixture channels, flue gas, and fresh air systems* *- Replacement of fittings and reduction stations with a new bypass system for high-pressure and low-pressure, replacement of safety valves, injection systems...* *- Replacement of the unit transformer and auxiliary power transformers* *- Replacement of generator circuit breaker and other electrical equipment at 0.4 kV and 6 kV* *- Replacement/adaptation of the DCS system (Distributed Control System) for unit control.*	*134,84*	

Project	Expected completion year	Project description	Value (in million EUR)	Secured funds
TENT A2 – Adaptation of A2 block with the introduction of primary and secondary Nox reduction systems	2030	The adaptation would ensure the reliability of the system's operation with the aim of securing capacity to support supply security in the Republic of Serbia, as well as the uninterrupted delivery of thermal energy during the winter period for the district heating system of the city of Obrenovac. The scope of investment maintenance will be applied depending on the condition of the production capacity components and the availability of financial resources, considering that the project is financed from EPS's own funds.	30,00	
Alternatively, depending on available funds, the revitalization of A2 block can be planned instead of adaptation.	2026	*Revitalization of the TENT A2 unit includes:* - *Replacement of turbines and generators* - *Boiler membrane replacement with new heating surfaces and chambers* - *Replacement of condenser tubes and heat exchangers (high-pressure and low-pressure heaters)* - *Replacement of associated steam pipelines at the boiler plant and accompanying drainage and venting pipelines* - *Implementation of a combustion system with reduced nitrogen oxide emissions – Low NOx burners* - *Revitalization of the mill plant, ducts, air mixture channels, flue gas, and fresh air systems* - *Replacement of fittings and reduction stations with a new bypass system for high-pressure and low-pressure, replacement of safety valves, injection systems, etc.* - *Replacement of the unit transformer and auxiliary power transformers* - *Replacement of the generator circuit breaker and other electrical equipment at 0.4 kV and 6 kV* - *Replacement and adaptation of the DCS system (Distributed Control System for unit management)*	132,73	no
TEKO A1 and A2 – Introduction of primary and secondary Nox reduction systems, construction of desulfurization facilities, and wastewater treatment plant	2032	Environmental project aimed at introducing primary and secondary NOx reduction systems, reducing sulfur dioxide emissions to approximately 150 mg/Nm³, and particulate matter emissions to less than 20 mg/Nm³. The project also targets the reduction of HCl and HF gas emissions. It will cover A1 and A2 blocks, with capacities of 100 MW and 210 MW respectively.	201,25	no
Construction of desulfurization plant for TENT A1-A2 blocks with connection to the ash, slag, and gypsum conveying system	2032	Environmental project aimed at reducing sulfur dioxide emissions to approximately 150 mg/Nm³, as well as particulate matter emissions to less than 20 mg/Nm³. The project also targets the reduction of HCl and HF gas emissions. It will cover A1 and A2 blocks, each with a capacity of 210 MW. The proposed technology involves wet limestone flue gas desulfurization with gypsum as a by-product. Additionally, it is necessary to connect TENT A1 and A2 blocks to the ash, slag, and gypsum conveying system of TENT A3-A6 blocks.	110,00	no

3.1.2. Coil sector

In the territory of the Republic of Serbia, deposits of brown coal, hard coal, and lignite are present. The total balance reserves of coal in the Republic of Serbia amount to 3,280,000,000 tons.

The most significant coal deposits are represented by lignite (soft brown coal), which serves as the main raw material for electricity generation and holds primary economic importance.

Lignite has by far the largest balance reserves (over 3 billion tons), as well as the largest off-balance reserves (1.42 billion tons) and potential resources (1.6 billion tons), making it the most important for exploitation. Consequently, it also possesses the highest total energy value of 513.68 million tons of oil equivalent (Mtoe), despite its lower heating value ranging from 4,000 kJ/kg to 10,000 kJ/kg.

Coal deposits of brown lignite and brown coal have a moderate economic significance due to their complex tectonic conditions. The total reserves of brown coal amount to 60 million tons, while the potential resources are significantly higher at 155 million tons. All brown coal deposits are characterized by good quality, with an average lower heating value of 17,575 kJ/kg. This results in a total energy value of 25.27 million tons of oil equivalent (Mtoe). Brown lignite coal has balance reserves of 195 million tons and potential resources of 50 million tons. With a lower heating value of 12,671 kJ/kg, it achieves a total energy value of 58.86 Mtoe.

Hard coals in the Republic of Serbia, in terms of rank, belong to coals with a high content of volatile matter and, together with anthracite, have a tertiary economic significance. They are present in the smallest total quantities, with 9.2 million tons of balance reserves and 6 million tons of potential resources, which indicates their lower exploitation importance compared to other types of coal. Although they have the highest lower heating value (21,944 kJ/kg), due to the small amount of total reserves, they have the lowest total energy value—4.82 million tons of oil equivalent (Mtoe).

In almost all lignite coal basins, the existence of several coal seams has been confirmed—most often 2 to 3 (in one part of the Kolubara Basin, even up to 15 relatively thin coal seams). An exception is the Kosovo and Metohia Basin, where the presence of a single, structurally complex coal seam (intensively interlayered with waste rock) has been proven. Most importantly, the largest quantities of balance coal reserves have been identified within a single coal seam, indicating a high concentration of coal reserves. From this perspective, these basins and seams are favorable for large-scale coal production, particularly for combustion in thermal power plants..

Total coal reserves and resources by method of production and coal quality are presented in Tables 5, 6, and 7.

Table 5: Lignite reserves and resources for surface and underground mining

Basin	Balance reserves	Out-of-balance reserves	Potential resources (C_2)
Kolubara	1.996.216.210	755.502.596	434.431.960
Kostolac	751.020.196	619.135.317	569.194.365
Kovin	269.165.551	47.533.290	612.353.068
Total	***3.016.401.957***	***1.422.171.203***	***1.615.979.393***

Table 6: Reserves and resources of sub-bituminous, brown, and hard coal for underground exploitation

Basin	Balance reserves	Out-of-balance reserves	Potential resources (C_2)
Lubnica	9.844.455	4.565.562	-
Sjenica	184.690.943	7.423.432	50.000.000
Total sub-bituminous coal	***194.535.398***	***11.988.994***	***50.000.000***
Resavska Morava	7.017.655	581.590	15.000.000
Bogovina Jasenovac and Sokobanja	53.185.026	4.679.743	140.000.000
Total brown coal	***60.202.681***	***5.261.333***	***155.000.000***
Vrška Čuka	2.263.213	350.000	6.041.600
Ibar	1.318.238	1.321.580	-
Jarma	5.675.600	-	-
Total hard coal	***9.257.051***	***1.671.580***	***6.041.600***

Total Coal reserves of the Republic of Serbia are presented in Table 7.

Table 7: Coal reserves and resources, (t)

Coal type	Balance reserves	Out-of-balance reserves	Potential resources (C_2)
Hard	9.257.051	1.671.580	6.041.600
Brown	60.202.681	5.261.333	155.000.000
Sub-bituminous	194.535.398	11.988.994	50.000.000
Lignite	3.016.401.957	1.422.171.203	1.615.979.393

Table 8 shows the energy value of balance coal reserves.

Table 8: Energy value of balance coal reserves (million t)

Coal type	Balance reserves (million t)	LHV (kJ/kg)	Energy (Mtoe)
Hard	9,20	21.944	4,82
Brown	60,20	17.575	25,27
Sub-bituminous	194,50	12.671	58,86
Hard	3.016,40	7,13	513,68
Total			602,63

Coal in the Republic of Serbia represents a significant energy potential within the structure of primary energy production. Its exploitation is carried out through open-pit, underground, and underwater mining across four regions: the Kolubara coal basin, the Kostolac-Kovin basin, the eastern part of Serbia (Jasenovac, Rembas, Soko, Bogovina, Lubnica, Vrška Čuka), and the southwestern region (Štavalj and the Ibar mines).

The total balance reserves of coal clearly indicate its significant energy potential. The existing electricity production from coal can be maintained and, if necessary, increased based on the available reserves.

In the previous period, coal production in the Republic of Serbia amounted to 32–34 million tons of lignite from surface mining, around 350,000 tons of coal from underground mining, and 200,000 tons of coal from underwater mining (Kovin). Lignite is currently extracted through surface mining within two lignite basins (Kolubara and Kostolac) at five open-pit mines (Field E, Field G, Tamnava West Field, and Radljevo in the Kolubara Basin, and Drmno in the Kostolac Basin). Coal processing includes the production of approximately 400,000 tons of dried coal. Some of the open-pit mines (Drmno, Tamnava West Field) are in full exploitation phase, but the planned investments (procurement of equipment – excavators and self-propelled conveyors, construction of dewatering facilities, etc.) have not yet been implemented.

Due to increasingly complex deposit conditions at surface coal mines, which affect coal quality and require selective operation

because of the growing number of interlayers of overburden, the procurement and construction of primary and auxiliary equipment is necessary.

Some of the coal mines are currently in the investment construction phase—replacement capacities (Field E, Radljevo)—with only a portion of the planned investments realized so far. The primary equipment has not yet been procured, nor have all planned infrastructure works and facilities been completed. Depending on the adopted exploitation scenario and the new limitation for the Drmno surface mine, it is possible to open a replacement surface mine—Western Kostolac—to replace the capacity of the Drmno mine, improve coal quality, and supplement capacity for TENT. The surface mine Field G is in the final phase of exploitation, and its reserves are expected to be depleted by the end of 2026.

Currently, the electricity supply of the Republic of Serbia largely depends on the secure supply of coal. Upon completion of the ongoing investment cycle, all prerequisites will be in place for the long-term secure supply of thermal power facilities. With relatively modest investments, it will also be possible to increase capacity and supply new thermal energy facilities. The issue of low coal quality in parts of the Kolubara Basin will be addressed through selective mining, homogenization, and the implementation of an integrated coal quality management system

Coal reserves in the Republic of Serbia are significant. The existing reserves in the Kolubara and Kostolac basins (including West Kostolac) could ensure the operation of thermal energy facilities until 2050. Additionally, the Kovin basin contains considerable reserves of the highest-quality coal, which is extracted through underwater mining. Given that the energy transition process entails a certain degree of uncertainty, particularly due to the intermittency and stochastic availability of some renewable energy sources, the remaining coal reserves should be assigned strategic importance. It is necessary to secure funding for the preventive overburden removal, slope stabilization, and coal exposure. The uncovered coal could serve as a strategic reserve, enabling rapid activation of production in times of crisis. In this regard, special attention should be given to exploring long-term strategic cooperation opportunities with the holder of exploitation rights for underwater coal mining in Kovin.

Based on the conclusions defined in section 3.2.1 of this Plan, an analysis was conducted regarding the necessary quantities of coal required for the operation of thermal capacities that will remain in service, as well as the impact of mining project implementation on ensuring those quantities. The analysis of mining projects showed that these projects will begin delivering results, in terms of stabilizing production and securing additional coal quantities, only from 2027 onwards.

An additional analysis was carried out to calculate the available and required coal quantities during the transitional stabilization period

until 2027. This analysis indicated that, depending on the total annual production within the Kolubara and Kostolac mining basins, as well as the efficiency rate applied, there will be a need to import high-quality coal (with a calorific value of 10,000 to 12,000 kJ/kg) in the range of 1 to 3.6 million tons annually in order to meet the base load production requirements. Depending on the coal quality, this need is expected to gradually decline and eventually cease after the stabilization period—once the investment projects in new mining equipment begin to yield results in terms of increasing overburden removal and coal extraction at the existing mining sites.

Priority projects in the coal sector include the procurement, construction, and modernization of primary mining equipment for overburden removal at the existing open-pit mines Field E and Radljevo, as well as the development of the new replacement open-pit mine Western Kostolac. These projects are crucial for ensuring the required level of coal exploitation in the upcoming period, thereby directly impacting the stability of Serbia's energy system. Their total value amounts to approximately EUR 703.7 million.

Procurement of primary mining equipment – two BTO systems for the Radljevo open-pit mine and two BTO systems for the Polje E open-pit mine – were not considered as separate projects but are included within the corresponding feasibility studies for the exploitation of the respective deposits. According to these studies, the project for the Radljevo open-pit mine has an internal rate of return (IRR) of 27.45% and a net present value (NPV) of RSD 59 billion, while the project for the Polje E open-pit mine has an IRR of 15.29% and an NPV of RSD 52.2 billion.

The Replacement Open-Pit Mine Western Kostolac project has an internal rate of return (IRR) of 11.4% and a net present value (NPV) of 516.8 million euros, indicating its economic viability and significance for the energy sector.

In addition to the aforementioned priority projects, the Project for the Relocation of the Peštan River for the needs of the Field E mine, valued at EUR 45.5 million, is also significant to ensure optimal conditions for coal exploitation in the Polje E area. This project was not considered separately but is included in the Feasibility Study for the exploitation of the Field E deposit, which has an internal rate of return (IRR) of 15.29% and a net present value (NPV) of RSD 52.2 billion.

The coal-related projects are financed from the own funds of EPS JSC.

In Table 9, a list of priority projects in the coal sector is presented, while Table 10 provides an overview of other projects.

Table 9: Priority projects in the coal sector

Procurement of basic mining equipment – 2 BTO systems for Radljevo open-pit mine								
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
	7 million tons of coal annually	2026	190,70	yes	Own funds	n/a (look at the introduction)	n/a	yes
Description	The implementation of this project will enable the excavation of the planned volume of overburden at the "Radljevo North" open-pit mine, amounting to 7 million tons annually. Currently, overburden excavation is performed using a replacement BTO system relocated from the eastern part of the basin. The project includes the procurement and construction of two systems for overburden excavation, transport, and disposal. The first BTO system includes a bucket-wheel excavator for overburden excavation, a belt conveyor system for transporting overburden to the disposal site, and the procurement of a stacker for depositing the excavated and transported overburden. The second BTO system includes the construction of a used excavator and stacker after inspection and repair of transferred used equipment from the Schöningen open-pit mine in Germany. For the continuous BTO system to function as a complete unit, it is necessary to build a belt conveyor system consisting of drive and return stations as well as sections to be constructed by OC Kolubara Metal.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Feasibility Study of Exploitation	EPS JSC	x							
Main Mining Project	EPS JSC	x							
Supplementary Mining Project	EPS JSC	x							
Tender Documentation	EPS JSC	x							
Start of Operation of Mining Equipment	EPS JSC				x				

New replacement open-pit mine "Western Kostolac"								
Description	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
	Provision of up to 8 million tons of coal annually.	2035	235,00	no		516,8	11,4	no
	Ensuring the conditions for the opening of a replacement open-pit mine, due to the expected end of exploitation at the Drmno mine by 2036. The opening of the replacement open-pit mine “Western Kostolac” would secure the necessary coal quantities for the uninterrupted operation of TPP Kostolac B. Confirmed coal reserves: 432,910,020 tons as of December 31, 2022.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial planning documentation	EPS JSC			x					
Requirements of other authorities and organizations	Serbian Water Management Company, Directorate for Water, Institute for the Protection of Cultural Monuments, etc.				x				
Feasibility study for exploitation	EPS JSC			x					
Approval for the exploitation field	The ministry responsible for mining and energy				x				
Consent to the Environmental Impact Assessment Study	The ministry responsible for environmental protection				x				
Resolution of property-legal relations	EPS JSC				x	x	x	x	x
Approvals from other authorities for the project documentation	Serbian Water Management Company, Directorate for Water, Institute for the Protection of Cultural Monuments, etc.				x				

Main Mining Project	EPS JSC				x				
Approval for the construction of mining facilities and/or execution of mining works	EPS JSC					x			
Decision on the formation of a technical inspection commission	The ministry responsible for mining and energy						x	x	x
Usage permit decision	EPS JSC						x	x	x

Procurement of 2 BTO systems for the Field E open-pit mine

	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
	Exploitation of 12 million tons of coal annually	2026	278,00	partially	Own funds	n/a	n/a (look at the introduction)	yes
Description	The project involves the procurement of two rotary excavators for overburden removal, a system of belt conveyors for transporting the overburden to the dumping site, and the acquisition of two dumpers for depositing the excavated overburden. Its strategic significance lies in substantially increasing the capacity for overburden removal at the Field E open-pit mine, aiming to ensure conditions for achieving the projected coal exploitation capacity of 12 million tons per year.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Feasibility Study for Exploitation	EPS JSC	x							
Main Mining Project	EPS JSC	x							
Supplementary Mining Project	EPS JSC	x							
Tender Documentation	EPS JSC	x							
Start of Operation of Mining Equipment	EPS JSC				x				

Table 10: Other projects in the coal sector

Project	Expected completion year	Project description	Value (in million EUR)	Secured funds
Relocation of the Peštan River for the needs of the Field E	2027	For reliable and secure operation of the excavation machinery at the surface mine, the Peštan River Regulation Project and floodwater drainage control are of exceptional importance. According to the adopted concept, the second phase of the Peštan River regulation and floodwater drainage control includes the following structures: the Kruševica dam and retention basin on the Peštan River, the Rudovci dam and retention basin on the Peštan River, the Bistrica dam and retention basin on the Bistrica River, the Trbušnica dam and retention basin on the Trbušnica River, the Darosavica dam and retention basin on the Darosavica River, and the South perimeter canal of the Peštan River around the southern border of the Field E open-pit mine.	45,5	yes
Procurement of main mining equipment for the Drmno open-pit mine to increase capacity from 9 to 12 million tons of coal per year	2028	The procurement of missing equipment (drive stations, return stations, trestle bridges, conveyors with associated equipment, transformer station, self-propelled conveyor, transfer carts, F belt, loading carts, etc.) aims to achieve an annual coal production capacity of 12 million tons and guarantees the stability of supply to the thermal power plants in Kostolac, including the new capacity.	196,0	partially
Construction of an impermeable screen at the Drmno opne-pit mine	2029	The project aims to build an impermeable screen, 3,959 meters long, to prevent the influence of underground waters on the Drmno open-pit mine.	53,5	no
Construction of drainage wells at the Drmno open-pit mine	2031	The project also includes the construction of a drainage well, 31.153 meters deep, to prevent the influence of underground waters on the Drmno open-pit mine.	111,5	yes
Relocation of the village Vreoci	2027	Regarding the relocation of the village Vreoci, the acquired obligations and initiated activities are financed from the Field E open-pit mine budget, according to the adopted Third General Plan for land acquisition.	14,47	yes
Additional coal storage capacities		The project relates to the realization of additional coal storage capacities according to the technical possibilities of locations where coal-fired electricity production capacities exist.		
Coal homogenization project and replacement of the flat coal conveyor system from the Dry Separation Unit to the Wet Separation Unit		The project foresees the replacement of railway transport from the "Dry Separation" plant to the "Wet Separation" plant with belt conveyors.		

3.1.3 Hydropower Capacity Projects

The total hydropower potential in the Republic of Serbia amounts to approximately 27 TWh annually. Out of this, the current average annual production (average over the previous 5 years from 2020 to 2024) is about 10.6 TWh, while the technically exploitable potential is 18 TWh (4,736 MW). The expected annual production from hydropower plants in the broader sense is a variable component. For example, in 2023, the produced electric energy was 12,659.3 GWh, while in the following year it was 10,245.4 GWh, which is 19.1% less. In the previous year, production amounted to 8,963.5 GWh, which is 29.2% less.

The majority of the hydropower potential (over 70%) is concentrated in only a few rivers with a potential exceeding 1,000 GWh/year: the Danube, Drina, Velika Morava, Lim, and Ibar. On the other hand, the hydropower potential of many other rivers in the Republic of Serbia can only be partially utilized due to the priority of water management uses, as some rivers are planned as sources for regional water supply systems: Toplica, Crni Timok, Rasina, Studenica, Veliki Rzav, Mlava, Lepenac, etc.

Hydropower on the Drina River

The Drina River represents the most significant unused potential in the region. On the Drina, the Bajina Bašta HPP and PSP, Višegrad HPP, and Zvornik HPP have been constructed, utilizing about 130 meters of head, or just under 40%.

The undeveloped potential on the Drina can be divided into:

- The Upper Drina (the part of the unused potential upstream of the Višegrad HPP to the confluence of the Piva and Tara rivers, i.e., the border with Montenegro), which belongs to the Republika Srpska, i.e., Bosnia and Herzegovina,
- The Middle Drina (the potential between the Bajina Bašta HPP and the Zvornik HPP), and
- The Lower Drina (the potential downstream of the Zvornik HPP, all the way to the confluence of the Drina into the Sava River).

The Middle Drina area, due to its energy potential, is designated in the spatial planning documents of the Republic of Serbia and Republika Srpska (Bosnia and Herzegovina) for the construction of hydroelectric power plants, taking into account the existing upstream reservoirs in the Drina basin as well as planned reservoirs on the Lim and Upper Drina rivers in the near future. In this context, through cross-border cooperation, the implementation of the Buk Bijela HPP construction project has commenced.

The concept for utilizing the energy potential of the lower Drina River is based on the construction of reservoir hydroelectric power

plants arranged in a cascade. The hydroenergy potential of the lower Drina River would also be divided equally, 50:50, between the Republic of Serbia and Republika Srpska. The concept for the energy utilization of the Lower Drina includes the construction of four reservoir hydroelectric plants with a total installed capacity of 365 MW, producing an average of 1,588.6 GWh per year. The Republic of Serbia could build plants with a total installed capacity of 182.5 MW, with an average annual production of 794.3 GWh.

The total hydropower of the Drina River that the Republic of Serbia could utilize through the construction of hydroelectric plants is 343.2 MW, with a production of 1,392.8 GWh per year.

Hydropower on the Ibar River

The potential for utilizing the hydroelectric capacity of the Ibar River from Raška to Kraljevo has been identified. Feasibility studies for the use of this river's hydro potential have analyzed the construction of ten reservoir hydroelectric power plants with a total installed capacity of 120 MW, with an average annual production of 455 GWh.

Hydropower on the Lim River

The hydropower of the Lim River has already been largely utilized. A significant portion of the unused potential lies within protected areas. Potentially, two more hydroelectric power plants with a total installed capacity of up to 56 MW could be constructed in the Brodarevo area.

Table 11: Summary overview of river potentials in the Republic of Serbia

River	Potential installed capacity (MW)	Potential annual production (GWh)
Drina	343,2	1.392,8
Ibar	120	455
Lim	56	224*
Total	**519,2**	**2.071,8**

*estimated potential annual production for HPP operations of 4000 hours/year

Table 12: Summary overview of potential pump-sporage hydroelectric plants in the Republic of Serbia

Pumped Storage Hydroelectric Plant (PSH)	Potential installed capacity (MW)	Potential annual production (GWh)
Đerdap 3	1.800	-
Bistrica	661	-
Total	2.461	-

The remaining technical hydropower potential and the possibility of its utilization will be determined in accordance with non-energy criteria related to the multipurpose use of water and environmental protection issues, as well as based on agreements on the division of hydropower potential with neighboring countries.

For the entire hydropower sector, it is necessary to consider the impact of climate change on the availability of watercourses for electricity production. This is important both for assessing the expected electricity generation from existing hydropower plants and for the potential of hydropower for the construction of new hydroelectric facilities.

The implementation of the planned Bistrica HPP (Hydroelectric Power Plant) will increase the available capacities for securing reserves and balancing production capacities in the electric power sector until 2032, which would positively impact the security of the existing system and create conditions for the construction of new renewable energy capacities (RES).

A similar role, but with even greater capacities, is played by the Đerdap 3 HPP construction project; however, its realization requires a thorough Preliminary Feasibility Study along with a General Project to determine whether and in how many phases this project should be carried out.

Table 13 presents the priority projects, while Table 14 lists the other projects in the field of hydro capacities.

Table 13: Priority Projects in the Field of Hydro Capacities

Pump-torage Hyhdroelectric power plant Bistrica								
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
Description	Four units with a total installed capacity of 661 MW are planned to be installed. The expected annual production amounts to 1600 GWh.	2032	962,5	no	Budget funds or a loan from other financial institutions (e.g., UK Finance) 30%, and a loan 70% (JICA).	701,964	IRR: 9,92%	A Preliminary Feasibility Study along with the General Design has been completed. The preparation of the Conceptual Design with the Feasibility Study is nearing completion. An Environmental Impact Assessment (EIA) has been conducted and will be updated following the official issuance of its scope and content by the Ministry of Environmental Protection, in accordance with JICA requirements. A grid connection study has also been completed. The project documentation for the construction permit, as well as the project for the relocation of state roads necessary for the construction of the pump-storage hydroelectric power plant (HPP), is currently under development.
	The pump-storage hydroelectric power plant Bistrica is a multipurpose energy facility equipped with pump-turbine units. With its energy characteristics and its location within the Uvac river basin, HPP Bistrica together with the Klak reservoir introduces a new quality in the utilization of all hydroelectric plants on the Uvac and Lim rivers (HPP Uvac, HPP Kokin Brod, HPP Bistrica, HPP Potpeć), creating conditions for their more energy-efficient and economically favorable operation. The construction of HPP Bistrica is planned on the Uvac and Lim rivers.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	The ministry responsible for mining and energy	x							
Preliminary feasibility study with general design	EPS JS	x							
Conceptual design and location permit	The ministry responsible for mining and energy			x					
Approval of the Environmental Impact Assessment study	The ministry responsible for environmental protection				x				
Resolution of property-legal matters	The ministry responsible for mining and energy, EPS JSC.				x				
Conceptual project and feasibility study	The ministry responsible for mining and energy			x					
Energy permit	The ministry responsible for mining and energy			x					
Construction design and construction permit	The ministry responsible for mining and energy				x				
Preparation of tender documentation	The ministry responsible for mining and energy				x				
Execution project	The ministry responsible for mining and energy					x			
Construction	The ministry responsible for mining and energy					x	x	x	x

Pump-storage ydroelectric Popwer plant Đerdap 3

	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
Description	MW. 6 units with a total capacity of 1,800 MW are planned to be installed.	2036	2.632,00	no	Loan and RS budget (EUR 35 million)	464	4,9%	A Preliminary Feasibility Study has been completed.
	The construction of a pump-storage hydroelectric power plant with an installed capacity of 1,800 MW and the Pesača reservoir is under consideration. Scenarios with 1,200 MW, 1,800 MW, and 2,400 MW capacities have been proposed. The preliminary study has shown that, based on all current assessments and analyses, it is currently feasible to implement one phase with a smaller reservoir, with a maximum capacity of 1,800 MW. The final scenario—i.e., the final capacity and reservoir size—will be determined upon completion of the feasibility study.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial planning documentation	The ministry responsible for mining and energy				x				
Preliminary feasibility study with a general design	The ministry responsible for mining and energy			x					
Conceptual design and location conditions	The ministry responsible for mining and energy				x				
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection						x		
Resolution of property-legal affairs	The ministry responsible for mining and energy, EPS JSC						x	x	x
Conceptual project and feasibility study	The ministry responsible for mining and energy						x		
Energy permit	The ministry responsible for mining and energy						x		
Construction design and construction permit	The ministry responsible for mining and energy							x	
Preparation of tender documentation	The ministry responsible for mining and energy				x				
Execution design	The ministry responsible for mining and energy							x	
Construction	The ministry responsible for mining and energy								x

Construction of the hydroelectric power plants "Buk Bijela," "Foča," and "Paunci" on the Drina River

	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
Description	The planned capacity of the Upper Drina Hydroelectric Power System is set to reach 212 MW (HE Buk Bijela 114.4 MW, HE Foča 53.6 MW, and HE Paunci 43.2 MW), with an average annual production of approximately 705 GWh.	2032 for HPP “Buk Bijela	for HPP “Buk Bijela 247,3	no	Loan and up to 5% of own funds	157,08	7,91 %	yes
	The project involves the construction of a system of three hydroelectric power plants on the upper course of the Drina River: HPP Buk Bijela, HPP Foča, and HPP Paunci. The power plants are planned as run-of-the-river facilities with concrete dams and Kaplan turbines. According to the adopted technical solution, the location of the "Buk Bijela" dam is approximately 11.6 km upstream from the town of Foča and about 11.5 km downstream from the confluence of the Piva and Tara rivers in Šćepan Polje (on the border with Montenegro). The planned location of the "Foča" dam is about 1.6 km upstream from the town of Foča and around 10 km downstream from the "Buk Bijela" dam. HPP Paunci is designed as a downstream facility in relation to the unified hydroelectric system formed by HPP Buk Bijela and HPP Foča. HPP Paunci is located 10 km downstream from the town of Foča. HPP Buk Bijela is a diversion-storage hydropower plant that partially regulates the flow using its own reservoir and the upstream accumulation.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	EPS JSC	x							
Preliminary design and location permit	EPS JSC	x							
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection of the Republic of Srpska			x					
Resolution of property-legal issues	EPS JSC	x							
Conceptual design and feasibility study	EPS JSC	x							
Design for construction permit and construction permit	EPS JSC				x				
Preparation of tender documentation	EPS JSC	x							
Execution project	EPS JSC				x				
Construction	EPS JSC					x	x	x	x

Revitalization and capacity increase of HPP Đerdap 2

	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
Description	The revitalized units (turbines and generators) will have increased capacity and efficiency, from the current 270 MW to 320 MW.	2038	230	no	Loan and own funds	1.395,964	18,50%	During 2025, an update of the location conditions and the conceptual design is expected, as well as the preparation of tender documentation.
	Based on the technical documentation prepared so far (Preliminary Design with Feasibility Study), the project foresees a partial replacement of the mechanical and electrical equipment of the Đerdap 2 hydropower plant units with new ones, while the parts that are retained will undergo repairs. The revitalization is carried out due to the expiration of the equipment's service life (obsolescence, wear, inability to repair or purchase new parts of the existing equipment on the market). The revitalized units (turbines and generators) will have increased power output and efficiency.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	EPS JSC	x							
Previous feasibility study with general design	EPS JSC	x							
Conceptual solution and location permit	EPS JSC			x					
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection			x					
Resolution of property-legal issues	EPS JSC			x	x				
Preliminary design and feasibility study	EPS JSC			x					
Energy permit	The ministry responsible for mining and energy				x				
Preparation of tender documentation	EPS JSC			x					
Execution project	EPS JSC					x			
Implementation of revitalization works	EPS JSC					x	x	x	x

Table 14: Other Projects in the Field of Hydro Capacity

Project	Expected completion year	Project description	Value (in mill. EUR))	Secured funds
Revitalization and power increase of Vlasina	2029	Based on the approved technical documentation (Preliminary Design and Feasibility Study), the project foresees the replacement of the complete mechanical and electrical equipment of the units at the Vlasina Hydropower Plants (HE Vrla 1 to HE Vrla 4), as well as the associated auxiliary systems of the plants, due to the expiration of the equipment's service life (obsolescence, wear, inability to repair or purchase new parts of the existing equipment on the market). The new unit equipment (turbines and generators) will be of modern design, with increased power output and efficiency. Financial indicators are NPV: EUR 103.1 million and IRR: 9.33%.	82,50	yes
Construction of the 4th unit and revitalization of existing units at HE "Potpeć"	2031	The project also foresees the construction of a new (fourth) unit and the revitalization of existing units. For the existing units, the project includes replacement of the complete mechanical and electrical equipment as well as the associated auxiliary systems, due to the expiration of the equipment's service life (obsolescence, wear, inability to repair or purchase new parts of the existing equipment on the market). The new unit equipment (turbines and generators) will be of modern design, with increased power output and efficiency. Financial indicators are NPV: EUR 213.2 million and IRR: 31.42%.	84,5	yes
Adaptation and investment maintenance of HE "Bistrica"	2029	Considering that the equipment of the hydropower plants is over 60 years old, it means that its lifecycle has ended and replacement is necessary. The project scope includes rehabilitation (adaptation and investment maintenance) of the hydromechanical, mechanical, and electrical equipment. Financial indicators are NPV: EUR 386.5 million and IRR: 48.47%.	53,38	yes
Project for the construction of a hydroelectric power plant system on the Ibar River	2032	The project involves the construction of a system of ten run-of-river small-drop hydropower plants along the section of the river between Raška and Kraljevo, over approximately 55 km, with a total capacity of about 120 MW, while the expected average annual electricity production is approximately 450 GWh. The construction of these hydropower plants will increase the stability of the operation of the electric power system and the security of electricity supply to consumers in the Republic of Serbia and beyond.	350,00	no

3.1.4 Renewable Energy Sources

One of the objectives of this plan is to present realistic possibilities, as well as to consider all additional measures that can be undertaken for the Republic of Serbia to fulfill its international legal obligations regarding the participation of renewable energy sources (RES) in the total electricity production.

Increasing energy production from RES is important for reducing import dependency, raising the level of energy security, and protecting the environment. The use of RES, especially wind and solar energy, for electricity generation is a fundamental prerequisite for the energy transition. Therefore, in the upcoming period, the focus should be on intensifying electricity production from these sources. Together with the utilization of hydroenergy potential, this forms the basis for a gradual decarbonization of the electricity sector without compromising energy security.

The Republic of Serbia possesses significant potential in renewable energy sources for the production of electric and thermal energy, as well as for use in transportation.

Wind energy in the Republic of Serbia, despite some progress in the last five years, still represents an underutilized energy potential. The technically available potential for wind power plant construction in Serbia is approximately 10.75 GW, which could collectively produce about 30 TWh of electricity annually. The greatest wind energy potential is found in the regions of Banat and Bačka, but significant potentials also exist in the eastern part of Serbia. The capacity factor of wind power plants ranges from 0.20 to 0.38, while the average value for the total capacity is about 0.32, which corresponds to approximately 2,800 equivalent full-load hours per year.

Solar energy represents an energy potential of the Republic of Serbia that can be used for the production of thermal or electrical energy. In most parts of the territory of the Republic of Serbia, the number of sunshine hours is significantly higher than in many European countries (between 1,500 and 2,200 hours annually). The average solar radiation intensity across Serbia ranges from 1.1 kWh/m²/day in the north to 1.7 kWh/m²/day in the south during January, and from 5.9 to 6.6 kWh/m²/day during July. On an annual basis, the average solar radiation energy value ranges from 1,200 kWh/m²/year in northwestern Serbia to 1,550 kWh/m²/year in southeastern Serbia, while in the central part it is about 1,400 kWh/m²/year.

The advantage of building solar power plants over all other renewable electricity sources is that this resource is available at every

location and its spatial variability is significantly less than that of wind energy.

The main limiting factor regarding the installation of photovoltaic systems is the relatively low specific power per unit area, which requires occupation of large areas. From a technological standpoint, systems with solar trackers and systems with fixed structures are currently being developed. Solar tracker systems require relatively flat terrain with a slope of less than 10º, while fixed structures can be installed on terrain with more complex topography.

Regarding electricity production from variable sources, the fundamental technical limitation is the power system's ability to safely integrate it into the grid. In this context, it is particularly important to introduce a legal obligation for power plants using variable renewable energy sources to provide battery energy storage, in case the transmission system operator's adequacy analysis determines that there is no reserve capacity available to balance the system.

The technically exploitable potential of wind and solar energy for electricity production is a variable quantity that will depend on the pace at which the transmission and distribution networks of the Republic of Serbia's power system develop. The construction of new conventional power generation capacities (natural gas, large hydropower plants), and especially pumped-storage hydropower plants (PSHP Bistrica and/or Đerdap 3), will significantly enhance the integration of these intermittent sources due to the expanded capabilities for power balancing within the system.

The most important production project of EPS from intermittent sources is the project for the construction of self-balancing solar power plants with an installed capacity of 1 GW and battery energy storage systems in the Republic of Serbia, which is being developed through a strategic partnership institute. Besides this project, the most advanced in development and implementation are the Kostolac Wind Park and the Kolubara and Morava solar power plants, which will therefore be treated as priority projects in the upcoming period. Other EPS projects in this field, which are not among the priorities but have good potential for development, include the solar power plants at Srednje Kostolačko Island and Klenovnik. On the other hand, among other projects is the construction of a wind power plant, which is defined flexibly both in terms of capacity and implementation method, with options for EPS either to develop the wind power plant project independently or to acquire an existing project on the market. The number of RES projects in these baseline plans is smaller compared to previous baseline plans, but it is more realistic and better optimized, taking into account the entire investment portfolio of EPS across all sectors, which requires significant financial investments and borrowing. Therefore, it would not be realistic to anticipate a larger number of high-value projects that cannot be financed or physically realized within a reasonable timeframe.

It is also taken into account that a large number of private projects are being developed in this field through auction systems—mostly wind power plants—so EPS projects primarily focus on solar power plants to create a balanced ratio of wind and solar power plants in the system, while the EPS wind power plant project remains a backup option if additional capacity proves necessary.

Table 15 lists the priority projects, while Table 16 lists other projects in the field of renewable energy sources.

Table 15: Priority Projects in the Field of Renewable Energy Sources

Construction of self-balancing solar power plants									
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status	
Description	An additional 1 GW of renewable energy sources with an expected annual production of 1.7 TWh. Battery storage system up to 400 MWh.	2028	1.698	No, but negotiations are ongoing	loan	133,6	3,2%*	Missing planning and technical documentation	
	The project is being implemented through the strategic partner selection institute in accordance with the Law on the Use of Renewable Energy Sources, based on the Decision of the Government of the Republic of Serbia. The partner is obliged to develop, construct, and deliver to EPS ownership at least 5 high-capacity solar power plants, as well as a battery energy storage system with a capacity of at least 200 MW on a turnkey basis. *Economic benefits of the project have not been calculated, although they are significant for EPS and the Republic of Serbia. *The feasibility study should demonstrate the NPV and IRR.								

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	The selected strategic partner and the ministry responsible for mining and energy			x					
Conceptual design and location requirements	The selected strategic partner and the ministry responsible for mining and energy			x					
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection			x	x				
Resolution of property-legal issues	The ministry responsible for mining and energy, EPS JSC			x	x	x			
Preliminary design and feasibility study	The selected strategic partner and the ministry responsible for mining and energy			x	x				
Construction permit design and construction permit	The selected strategic partner and the ministry responsible for mining and energy				x				
Preparation of tender documentation	The ministry responsible for mining and energy	x							
Execution project	The selected strategic partner and the ministry responsible for mining and energy				x				
Construction	The selected strategic partner and the ministry responsible for mining and energy				x	x	x		

Construction project of Morava solar power plant									
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status	
Description	31,8 MW, annual production of 56 GWh	2029	29.9	Non-refundable funds provided by the EU for project development	loan	34,39	12,76%	Missing planning and technical documentation	
	The solar power plant is located in the territory of the municipality of Svilajnac and covers the ash disposal area and other accessible zones of the Morava thermal power plant. The investment value includes the costs of landfill reclamation, amounting to EUR 5,100,000.00.								

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	EPS JSC			x					
Preliminary investigations	EPS JSC		x						
Conceptual design and location requirements	EPS JSC			x					
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection			x					
Resolution of property-legal issues	EPS JSC			x	x				
Preliminary design and feasibility study	EPS JSC			x					
Energy permit	EPS JSC			x					
Construction permit design and construction permit	EPS JSC			x	x				
Preparation of tender documentation	EPS JSC				x				
Execution project	EPS JSC					x			
Construction	EPS JSC					x	x	x	

Construction project of Kolubara solar power plant

	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status
Description	78,6 MW annual production 116 GWh	2029	63,5	Non-refundable funds provided by the EU for project development	loan	77,89	13,63%	Missing planning and technical documentation
	The Kolubara A solar power plant is planned to extend over the ash landfill, coal landfill, and other available areas of the Kolubara A Thermal Power Plant. The location is situated in central Serbia, in the settlement of Veliki Crljeni, approximately 40 kilometers southeast of Belgrade. The project value includes reclamation costs in the amount of EUR 12,467,000.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	EPS JSC			x					
Preliminary investigations	EPS JSC		x						
Conceptual design and location requirements	EPS JSC			x					
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection			x					
Resolution of property-legal issues	EPS JSC			x	x				
Preliminary design and feasibility study	EPS JSC			x					
Energy permit	EPS JSC			x					
Construction permit design and construction permit	EPS JSC			x	x				
Preparation of tender documentation	EPS JSC				x				
Execution project	EPS JSC					x			
Construction	EPS JSC					x	x	x	

Construction of the Kostolac wind farm									
	Technical effect	Expected completion year	Value (in million EUR)	Secured funds	Sources of financing	NPV (in mill. EUR)	IRR	Planning and technical documentation - status	
Description	New 66 MW of production capacity, annual production of 167 GWh	2025	144,00	yes	Loan and grant 20,8%	83,13	8,89%	yes	
	The Kostolac wind farm project includes the construction of 20 generators with a total capacity of 66 MW and will span the locations of Drmno, Petka, Ćirikovac, and Klenovnik, on the area of closed open-pit mines and landfills belonging to the "TE-KO Kostolac" branch.								

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	EPS JSC	x							
Conceptual design and location permit	EPS JSC	x							
Approval of the Environmental Impact Assessment Study	The ministry responsible for environmental protection	x							
Resolution of property-legal issues	EPS JSC	x							
Preliminary design and feasibility study	EPS JSC	x							
Energy permit	The ministry responsible for mining and energy	x							
Construction permit design and construction permit	EPS JSC	x							
Preparation of tender documentation	EPS JSC	x							
Execution project	EPS JSC	x							
Construction	EPS JSC	x	x	x					

Table 16: Other Projects in the Field of Renewable Energy Sources

Project	Expected completion year	Project description	Value (in mill. EUR)	Secured funds
SPP Klenovnik	2032	The project involves the construction of a solar power plant on an old landfill site, covering an area of 400 hectares (a large portion of this location cannot be used for panel installation due to overlap with the Kostolac wind farm). The estimated capacity of the power plant is 109 MW.	Cca 90	no
SPP Middle Kostolac Island	2032	The project for the construction of the solar power plant on the Middle Kostolac Island (SPP MKI) foresees that after the completion of ash and slag disposal, and following the conservation of the cassettes, a solar power plant with a capacity of 97 MW will be built, with a possible annual production of 115 GWh.	105	no
Construction of a wind farm with a total installed capacity of up to 500 MW	The exact year will be determined at a later stage	This project may include either in-house project development or the acquisition of a project from third-party market participants.	Up to 800	no

3.1.5 Gas and steam plant projects

Natural gas-steam turbine plants are generating plants that do not require large financial investments and are characterized by rapid construction. They also have very high thermodynamic efficiency compared to other power plants.

In the division of thermal energy generating plants according to the method of energy transformation, the following are distinguished: a cogeneration steam plant for the generation of electricity and thermal energy, gas turbine cogeneration with a boiler for thermal energy obtained from waste treatment or after energy use of waste, a combined gas-steam turbine (combi) plant and a cogeneration combined gas-steam plant. In the territory of the Republic of Serbia, a combined gas-steam turbine plant with its main parts, namely a gas turbine and a generator, a boiler for thermal energy obtained from waste treatment or after energy use of waste, a gas turbine (utilizer), and steam turbines and a generator connected to them, have been successfully operating since 2022. Such a system has one input of energy-generating products (to the gas turbine) and two electrical energy outputs (from the gas turbine generator and the steam turbine generator).

Auxiliary facilities are defined as an accompanying part of a gas-steam turbine plant and consist of a cooling system with cooling towers and a pumping station, a main natural gas metering and regulating station, a transformer unit and a high-voltage power distribution plant, medium and low voltage plants, an administrative building, a control room for managing equipment operations, a chemical laboratory for performing analyses, and other facilities.

Combustion of natural gas produces fewer pollutants such as NOx, Sox, compared to coal and oil. A positive factor in the use of gas power plants is the minimal content of harmful substances in emissions. The low content of harmful emissions during the operation of gas turbines achieves significant savings in the construction of chimneys and the purchase of catalysts.

With previous analyses of the necessary prerequisites for the construction of such plants, it was concluded that they ensure system balancing and energy stability of electricity consumption, they enter operation at high speed with the flexible possibility of changing the load, they contribute, as additional capacity, to the stabilization of the transmission network operation and provide the necessary reactive power, increase thermal energy consumption for heating and increase the possibility of consuming technological steam.

The European Commission has included natural gas in the supplementary delegated act on the taxonomy of climate-sustainable activities. In this regard, natural gas-fired power plants are considered "green" if they do not emit more than 270 grams of carbon dioxide per

kilowatt of energy produced. This also applies if they do not exceed certain values over a 20-year period.

Gas-fired power plants are also important from the perspective of balancing the electricity system in relation to the needs of the system, which will receive a significant volume of electricity generation from RES into the grid in the coming years.

In this sense, there is a need to consider the possibility that through revitalization, the future gas-fired power plant in Novi Sad, in addition to ensuring thermal energy consumption, will gain the status of a strategic reserve that will be used when there is an urgent need for balancing in relation to intermittent sources or when there is no more available capacity or electricity prices reach a certain level.

The construction of a gas-fired power plant near Niš envisages a more stable supply and greater production of electricity for the southern region of Serbia, as well as for balancing the electricity system.

The above also implies certain normative activities in the domain of choosing the model of the so-called "capacitive mechanisms". Given the need to implement a delayed "opt-out" mechanism that foresees that significant thermal units operate exclusively in the winter period (October-April), the possibility/risk is anticipated that in the remaining months of the year, especially in peak periods, there will be a lack of capacity to cover total consumption. In that case, the so-called "strategic reserve" is proposed as a model of the capacitive mechanism, whereby the new gas power plant in Novi Sad could play this role.

Table 17 shows priority projects for gas and steam plants at the locations of Niš and Novi Sad.

Table 17: Priority projects of gas and steam plants

Gas-fired power plant in Niš 350 MW of electricity and 150 MW of thermal energy								
	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
Description	350 MW of electricity and 150 MW of thermal energy	2030	500.00	no	Not defined	n/a	n/a	Not drafted
	The project includes the construction of a gas-fired power plant in Niš with a capacity of 350 MW of electricity and 150 MW of thermal energy. The role of this power plant for the Niš district is to provide a flexible baseload energy source and to help integrate renewable energy sources, as it is able to provide auxiliary services to the electricity transmission system. A proposal for amending the GUP of the city of Niš was submitted on 4th March 2025 in order to determine the location of the power plant.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	ministry responsible for mining and energy affairs				x				
Pre-feasibility study with general design	ministry responsible for mining and energy affairs				x				
Conceptual design and feasibility study	ministry responsible for mining and energy affairs				x				
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental affairs					x			
Resolving property and legal matters	ministry responsible for mining and energy affairs.					x			
Preliminary design and feasibility study	ministry responsible for mining and energy affairs					x			
Energy permit	ministry responsible for mining and energy affairs				x				
Construction permit design and construction permit	ministry responsible for mining and energy affairs						x		
Preparation of tender documentation	ministry responsible for mining and energy affairs						x		
Construction Design	ministry responsible for mining and energy affairs						x		
Construction	ministry responsible for mining and energy affairs						x	x	x

Gas-fired power plant in Novi Sad 270 MW of electricity and 100 MW of thermal energy

	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	270 MW of electricity and 100 MW of thermal energy	2029	320.00	no	Loan/own funds	n/a	13.6%	Not drafted
	The project includes the construction of a gas-fired power plant in Novi Sad with an installed capacity of 270 MW of electricity and 100 MW of thermal energy. The plant's designed efficiency is 50% and the construction of a 400 kV connection and distribution switchgear (CDS) is planned. There is a possibility of using the existing gas pipeline, water treatment plant, the expansion of the supply of thermal energy and the possibility of connection to the transmission line. A memorandum of understanding has been signed with EPS and a draft PPA (power purchase agreement) has been obtained.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	ministry responsible for mining and energy affairs				x				
Pre-feasibility study with general design	ministry responsible for mining and energy affairs				x				
Conceptual design and feasibility study	ministry responsible for mining and energy affairs				x				
Consent to the Environmental Impact Assessment Study	Provincial Secretariat for Environmental Protection					x			
Resolving property and legal matters	ministry responsible for mining and energy affairs					x			
Preliminary design and feasibility study	ministry responsible for mining and energy affairs					x			
Energy permit	ministry responsible for mining and energy affairs				x				
Construction permit design and construction permit	ministry responsible for mining and energy affairs						x		
Preparation of tender documentation	ministry responsible for mining and energy affairs						x		
Construction Design	ministry responsible for mining and energy affairs						x		
Construction	ministry responsible for mining and energy affairs						x	x	x

3.1.6. Scoring of EPS projects

Starting from the fact that during the development of this plan, more than 200 projects of all energy entities were analysed, it was considered rational and expedient to score projects according to areas (electricity, mining, transmission network, distribution network, gas and oil).

In order to have a harmonized approach to scoring, but also to the ranking of strategic infrastructure projects in the field of energy, the methodological approach from the Regulation on establishing the Programme for the implementation of the Energy Development Strategy of the Republic of Serbia until 2025 with projections until 2030 was used when developing the Plan. It is important to point out here that during the process of determining priorities according to this methodology, it was established that some strategic parameters were underestimated in the system for assessing the relevance of projects in the field of energy.

In this sense, the system of ranking and parameters for ranking, as well as the weighting factors of individual rankings, have been redefined in order to adequately assess the impact of projects on the implementation of the goals defined in this plan. The new ratings are set in the range of 1–5, and the weighting factors in the range of 1–3.

Also, considering that significant projects are planned in the period until 2030 in the field of construction of production capacities, as well as transmission and distribution networks, which should enable greater integration of renewable energy sources into the electricity system of the Republic of Serbia, the "System balancing" criterion was used as an additional scoring criterion.

Additionally, based on one of the most important goals of this plan, "Security of supply or system stabilization" was used as a criterion.

Finally, in addition to applying the aforementioned methodological approach from the Regulation, supplemented by the two aforementioned criteria, the criteria for assessing project readiness prescribed by the Regulation on capital project management were additionally used.

Table 18: Scoring of EPS projects

Weight factor				3	1	2	2	2	2	1	2	2	1	2	1	3
No.	Project	value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing dependence on imports or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and improvement of competition	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfilment of international obligations	Financing secured
1	Reversible hydropower plant Bistrica	962.5	9.92%	5	5	5	5	5	5	5	4	1	3	1	0	0
2.	Construction of self-balancing solar power plants	1,698	3.2%	4	4	3	4	5	5	5	2	2	3	1	2	1
3.	Construction of a wind farm with a total installed capacity of 500 MW	800.00	-	4	2	2	5	5	3	0	1	3	1	0	2	0
4.	Construction of gas-fired steam power plant Niš	500.00	-	5	3	4	3	3	3	3	1	3	3	0	1	1
5.	Construction of gas-fired steam power plant Novi Sad	320.00	13.6%	4	3	4	3	3	3	3	1	3	3	1	1	0
6.	Reversible hydropower plant Đerdap 3	2,632.00	4.9%	4	5	5	4	5	5	5	4	1	0	0	1	0
7.	SPP Kolubara A	63.5	13.63%	4	1	2	3	5	5	5	1	4	3	0	2	0
8.	SPP Morava	29.9	12.76%	4	1	2	3	5	5	5	1	4	3	0	2	0
9.	Solar power plant Klenovnik construction project	around 90.00	-	4	1	1	2	5	5	5	1	3	3	0	1	0
10	Solar power plant Srednje kostolačko ostrvo construction project	105.00	-	4	1	1	2	5	5	5	1	3	3	0	1	0
11	Construction of the Kostolac wind farm	144.00	8.89%	4	2	2	3	5	5	1	1	1	3	4	3	4
12.	TPP NT A1 – Adaptation of unit A1 with the	30.00	-	5	3	1	3	0	0	2	0	3	3	1	1	0

	introduction of primary and secondary Nox reduction systems															
13.	TPP NT A2 – Adaptation of unit A2 with the introduction of primary and secondary Nox reduction systems	30.00	-	5	3	1	3	0	0	2	0	3	3	1	1	0
14	TPP KO A1 – Adaptation of unit A1	45.5	-	5	5	2	5	0	0	3	0	3	5	2	1	1
15.	TPP KO A2 – Adaptation of unit A2	54.3	-	5	5	2	5	0	0	3	0	3	5	2	1	1
16.	Construction of hydropower plants “Buk Bijela”, “Foča” and “Paunci” on the Drina River	247.3	7.91%	2	3	2	3	5	5	4	1	0	1	1	5	2
17	Project for the construction of a hydropower plant system on the Ibar River	350.00	-	1	1	1	2	5	3	1	0	0	0	0	1	0
18.	Revitalization and increase in power of HPP Đerdap 2	230.00	18.50%	3	5	1	3	5	5	4	1	0	0	0	5	0
19.	Revitalization and increase in power of Vlasinske	82.50	9.33%	3	5	1	3	5	4	3	1	1	0	3	3	4
20.	Construction of the 4th unit and Revitalization of the existing ones at HPP „Potpeć“	84.5	31.42%.	3	5	1	3	5	4	3	1	0	0	1	3	2
21	Adaptation and investment maintenance of HPP “Bistrica”	53.38	48.47%	2	5	0	3	5	5	3	0	0	0	2	3	2
22.	Replacement of the ash, slag and gypsum transport system of TPP NT A		-	2	0	1	2	1	0	5	2	5	3	3	5	3

23.	Construction of ash landfill cassette 4 at TPP NT A	47.08	-	3	0	1	2	0	0	2	0	3	3	4	5	5
24.	Reconstruction of turbines A3-A6 for the heating needs of Belgrade	9.10	-	2	3	0	3	4	2	4	3	1	2	1	5	2
25.	TPP NT A6 capital overhaul and primary measures to reduce nitrogen oxides	51.90	-	4	3	0	3	0	0	3	3	3	1	0	3	3
26.	TPP NT B2 capital overhaul (second phase of revitalization)	140.00	-	4	5	2	5	0	0	5	3	2	2	4	1	4
27.	Construction of a desulphurization plant for TPP NT units A1-A2 with connection to the ash, slag and gypsum transport system	158.00		2	1	0	1	0	0	0	1	4	2	0	4	0
28.	TPP KO A1 and A2 – Introduction of primary and secondary Nox reduction systems, construction of desulphurization and wastewater treatment plants	201.25	-	2	1	0	1	0	0	1	1	4	2	0	4	0
29	Project for the construction of a desulphurization plant for TPP NT B	50.00	-	3	2	1	1	0	0	0	3	5	2	5	5	5
30.	TPP KO B2-Plant for the reduction of nitrogen oxides/Delivery and installation of tanks with pumps for selective non-catalytic reduction	1.19	-	0	0	5	5	0	0	1	0	5	0	5	0	5

31.	New replacement surface mine Zapadni Kostolac	235.00	11.4	5	1	4	5	0	3	4	1	0	2	1	1	0
32.	Procurement of primary mining equipment - BTO system B-2000 for Radljevo open-pit mine	190.70	-	5	2	2	3	0	2	3	0	0	3	3	2	3
34.	Relocation of the Peštan River for the needs of Field E	45.5	-	2	0	0	5	0	0	2	0	5	5	2	3	3
35.	Procurement of primary mining equipment – BTO system for Field E opencast mine	278.00	-	5	2	2	3	0	2	3	0	0	3	3	2	3
35	Procurement of primary mining equipment for the Drmno coal mine to increase capacity from 9 to 12 million tons of coal per year	-	196.00	5	0	1	5	0	5	0	0	1	0	5	0	5
36.	Construction of a waterproof screen at the Drmno open-pit mine	111.5	-	5	0	1	5	0	5	0	0	1	0	1	0	0
37	Construction of a drainage well at the Drmno open-pit mine	111.5	-	5	0	1	5	0	5	0	0	1	0	5	0	5
38	Relocation of the village of Vreoci	14.47	-	5	0	3	0	0	0	0	0	5	0	5	0	5
39	Project for coal homogenization and replacement of the run-of-mine coal transport system from the Suva separacija Unit to the Mokra Separacija Unit	n/a	-	3	0	1	3	0	2	1	1	0	1	1	0	0
40.	Cargo port construction project TPP NT B	50.00	-	4	2	1	0	0	1	1	1	0	2	1	0	0
41.	Additional coal storage capacities	n/a	-	5	2	2	1	0	1	0	0	0	2	1	0	0

Table 18a- Ranking list based on available IRR

Rank	Project	IRR
1.	Adaptation and investment maintenance of HPP “Bistrica”	48.47%
2.	Construction of the 4th unit and Revitalization of the existing ones at HPP “Potpeć”	31.42%.
3.	Revitalization and increase in power of HPP Đerdap 2	18.50%
4.	SPP Kolubara A	13.63%
5.	Construction of gas-fired steam power plant Novi Sad	13.6%
6.	SPP Morava	12.76%
7.	Reversible hydropower plant Bistrica	9.92%
8.	Revitalization and increase in power of Vlasinske	9.33%
9.	Construction of the Kostolac wind farm	8.89%
10.	Construction of hydropower plants “Buk Bijela”, “Foča” and “Paunci” on the Drina River	7.91%
11.	New replacement surface mine Zapadni Kostolac	11.4
12.	Reversible hydropower plant Đerdap 3	4.9%
13.	Construction of self-balancing solar power plants	3.2% *The feasibility study should show NPV and IRR

Table 18b- Ranking list based on investment value of projects

Rank	Project	Investment value in millions of euros
1	Reversible hydropower plant Đerdap 3	2,632.00
2	Construction of self-balancing solar power plants	1,698.00
3	Reversible hydropower plant Bistrica	962.50
4	Construction of a wind farm with a total installed capacity of 500 MW	800.00
5	Construction of gas-fired steam power plants Niš	500.00
6	Project for the construction of a hydropower plant system on the Ibar River	350.00
7	Construction of gas-fired steam power plants Novi Sad	320.00
8	Procurement of primary mining equipment - BTO system B-200 for Field E opencast mine	278.00
9	Construction of hydropower plants “Buk Bijela”, “Foča” and “Paunci” on the Drina River	247.30
10	New replacement surface mine Zapadni Kostolac	235.00
11	Revitalization and increase in power of HPP Đerdap 2	230.00
12	TPP KO A1 and A2 – Introduction of primary and secondary Nox reduction systems, construction of desulphurization and wastewater treatment plants	201.25
13	Project for the construction of a desulphurization plant for TPP NT B	198.94
14.	Procurement of primary mining equipment for the Drmno coal mine to increase capacity from 9 to 12 million tons of coal per year	196.00
15	Procurement of primary mining equipment - BTO system B-2000 for Radljevo open-pit mine	190.70
16	Replacement of the ash, slag and gypsum transport system of TPP NT A	158.00

17	Construction of the Kostolac wind farm	144.00
18	TPP NT B2 capital overhaul (second phase of revitalization)	140.00
19	Construction of a drainage well at the Drmno open-pit mine	111.50
20.	Construction of a desulphurization plant for TPP NT units A1-A2 with connection to the ash, slag and gypsum transport system	110.00
21	Solar power plant Srednje kostolačko ostrvo construction project	105.00
22	Solar power plant Klenovnik construction project	90.00
23	Construction of the 4th unit and Revitalization of the existing ones at HPP „Potpeć“	84.50
24	Revitalization and increase in power of Vlasinske	82.50
25	SPP Kolubara A	63.50
26	TPP KO A2 – Adaptation of unit A2	54.30
27	Construction of a waterproof screen at the Drmno open-pit mine	53.50
28	Adaptation and investment maintenance of HPP “Bistrica”	53.38
29	TPP NT A6 capital overhaul and primary measures to reduce nitrogen oxides	51.90
30	Cargo port construction project TPP NT B	50.00
31	Construction of ash landfill cassette 4 at TPP NT A	47.08
32	TPP KO A1 – Adaptation of unit A1	45.50
33	Relocation of the Peštan River for the needs of Field E	45.50
34	TPP NT A1 – Adaptation of unit A1 with the introduction of primary and secondary Nox reduction systems	30.00
35	TPP NT A2 – Adaptation of unit A2 with the introduction of primary and secondary Nox reduction systems	30.00
36	SPP Morava	29.90
37	Relocation of the village of Vreoci	14.47
38	Reconstruction of turbines A3-A6 for the heating needs of Belgrade	9.10
39	TPP KO B2-Plant for the reduction of nitrogen oxides/Delivery and installation of tanks with pumps for selective non-catalytic reduction	1.19
40	Additional coal storage capacities	n/a
41	Project for coal homogenization and replacement of the run-of-mine coal transport system from the Dry Separation Unit to the Wet Separation Unit	n/a

3.1.7. Ranking of EPS projects -

The ranking of the EPS project portfolio was carried out using the methodological approach described in section 3.2.6 and is given in Table 15. Taking into account the requirements defined by the IMF, for each individual project it is indicated which group of projects defined by the IMF it belongs to.

Table 19: Ranking of EPS projects

Rank	Project	IMF category	Number of points
1.	Reversible hydropower plant Bistrica	increasing energy security by storing surplus energy	80
2.	Construction of the Kostolac wind farm	increasing energy security through the construction of RES	75

Rank	Project	IMF category	Number of points
3.	Construction of self-balancing solar power plants	increasing energy security through the construction of RES	73
4.	Reversible hydropower plant Đerdap 3	ensuring energy security by storing surplus energy	71
5.	TPP NT B2 capital overhaul (second phase of revitalization)	Stabilization of energy generation	69
6.	Revitalization and increase in power of Vlasinske	Stabilization of energy generation	68
7.	Procurement of primary mining equipment for the Drmno coal mine to increase capacity from 9 to 12 million tons of coal per year	Stabilization of energy generation	64
8.	Construction of a drainage well at the Drmno open-pit mine	Stabilization of energy generation	64
9.	SPP Kolubara A	increasing energy security through the construction of RES	63
10.	SPP Morava	increasing energy security through the construction of RES	63
11.	Project for the construction of a desulphurization plant for TPP NT B	Other projects – Environmental protection	63
12.	Construction of gas-fired steam power plants Niš	increasing energy security	62
13.	Construction of hydropower plants “Buk Bijela”, “Foča” and “Paunci” on the Drina River	increasing energy security	59
14.	Construction of gas-fired steam power plants Novi Sad	increasing energy security	58
15.	Construction of the 4th unit and Revitalization of the existing ones at HPP „Potpeć“	Stabilization of energy generation and increasing energy security	56
16.	Solar power plant Klenovnik construction project	increasing energy security through the construction of RES	56
17.	Solar power plant Srednje kostolačko ostrvo construction project	increasing energy security through the construction of RES	56
18.	Replacement of the ash, slag and gypsum transport system of TPP NT A	Stabilization of energy generation и Environmental protection	56
19.	TPP KO A1 – Adaptation of unit A1	Stabilization of energy generation	56
20.	TPP KO A2 – Adaptation of unit A2	Stabilization of energy generation	56
21.	TPP KO B2-Plant for the reduction of nitrogen oxides/Delivery and installation of tanks with pumps for selective non-catalytic reduction	Other projects – Environmental protection	56
22.	Relocation of the village of Vreoci	Other projects	56
23.	Construction of a wind farm with a total installed capacity of 500 MW	increasing energy security through the construction of RES	55
24.	Procurement of primary mining equipment - BTO system B-2000 for Radljevo open-pit mine	Stabilization of energy generation	54
25.	Procurement of primary mining equipment – BTO system B-200 for Field E opencast mine	Stabilization of energy generation	54
26.	Reconstruction of turbines A3-A6 for the heating needs of Belgrade	Other projects	54
27.	Construction of ash landfill cassette 4 at TPP NT A	Environmental protection	54
28.	Revitalization and increase in power of HPP Đerdap 2	Stabilization of energy generation	53
29.	Adaptation and investment maintenance of HPP “Bistrica”	Stabilization of energy generation	53
30.	New replacement surface mine Zapadni Kostolac	Stabilization of energy generation	51
31.	TPP NT A6 capital overhaul and primary measures to reduce nitrogen oxides	stabilization of energy generation and environmental protection	49
32.	Relocation of the Peštan River for the needs of Field E	stabilization of energy generation	49
33.	Construction of a waterproof screen at the Drmno open-pit mine	stabilization of energy generation	41
34.	TPP NT A1 – Adaptation of unit A1 with the introduction of primary and secondary Nox reduction systems	stabilization of energy generation and environmental protection	40

Rank	Project	IMF category	Number of points
35.	TPP NT A2 – Adaptation of unit A2 with the introduction of primary and secondary Nox reduction systems	stabilization of energy generation and environmental protection	40
36.	Additional coal storage capacities	increasing energy security	29
37.	Project for the construction of a hydropower plant system on the Ibar River	increasing energy security	28
38.	Project for coal homogenization and replacement of the run-of-mine coal transport system from the Dry Separation Unit to the Wet Separation Unit	stabilization of energy generation	27
39.	Cargo port construction project TPP NT B	increasing energy security	25
40.	TPP KO A1 and A2 – Introduction of primary and secondary Nox reduction systems, construction of desulfurization and wastewater treatment plants	Other projects - Environmental protection	26
41.	Construction of a desulphurization plant for TPP NT units A1-A2 with connection to the ash, slag and gypsum transport system	Other projects - Environmental protection	25

3.2. Transmission network

The transmission system will require significant redesigns, taking into account changes in the structure of sources, expected changes in energy hubs, new requirements regarding the mass connection of RES, and significant electrification of transport.

For the proper operation and development of the transmission system in the coming years, the transmission system operator will continue to implement activities that should enable increased reliability and security of supply to electricity customers.

The development of transmission capacities includes the revitalization of existing and the construction of new transmission capacities, in order to achieve balanced, sustainable and timely development of the transmission system, with the aim of connecting new conventional and renewable sources of electricity.

At the 110 kV voltage level, in addition to projects for the internal 110 kV network and solutions for radially supplied 110/H kV distribution transformer stations, JSC EMS also plans and implements, in a transparent and non-discriminatory manner, projects for the connection of transmission and distribution systems, as well as projects for the connection of facilities to the transmission system of the Republic of Serbia, which enables the sale of all quantities of generated electricity and its reliable and efficient transmission to customers, i.e. end consumers.

The long-term strategy for the development of the transmission system envisages the gradual replacement of the 220 kV network as the service life of the transmission lines at this voltage level expires. The routes of the 220 kV transmission lines will, to the extent possible, be used for future 400 kV and 110 kV transmission lines. The 220 kV network will remain to the extent and in those places where another solution is not techno-economically justified and possible.

The key segment of the strategic development of the transmission system in the next ten-year period remains the introduction of the 400 kV network in the region of Western and Central Serbia, which, along with the strengthening of interconnections with neighbours, primarily Romania, Montenegro, Bosnia and Herzegovina, Hungary, Bulgaria and Croatia, ensures a high level of security of power supply to consumers throughout the territory of the Republic of Serbia in the observed period. Namely, the transmission system of the Republic of Serbia, thanks to its geographical location, represents a link between all power systems in the region of Southeast Europe. The transmission system of the Republic of Serbia is connected to the transmission systems of eight

neighbouring countries. The aim of this group of projects is to strengthen both internal transmission capacities and replace the dilapidated 220 kV voltage level network in the region of Western Serbia, as well as to strengthen the transmission capacity of one of the most congested corridors in the region of South-Eastern Europe (taking into account the planned submarine connections between, primarily, the Republic of Italy and Montenegro, and potentially the Republic of Italy and the Republic of Croatia). This group of projects will enable the transmission of energy from the eastern part of South-Eastern Europe, as well as from the Republic of Moldova, the Republic of Turkey and Ukraine to the southwestern part of the region and further to Western Europe.

Table 20 shows priority projects, while Table 21 shows other projects in the field of transmission networks.

Table 20: Priority projects for the transmission system

2x400 kV transmission line S/S Bajina Bašta - S/S Višegrad (B&H) - S/S Pljevlja (Montenegro) - Trans-Balkan Corridor 4th section								
	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	New power transmission capacity	2028	53.20	yes	KfW loan/WBIF grant/own funds (million euros) 40,5/10,55/2,15	34,20	8,28	yes
The project envisages the construction of a new interconnecting transmission line between Serbia, Montenegro and Bosnia and Herzegovina. The length of the route is 84 km. The project represents a vital part of future electricity transit across the territory of the Republic of Serbia. The full implementation of the project is a prerequisite for the integration of the Bistrica RHPP. The NPV is given only for Serbia, and it is the aggregate value given for sections III and IV of the Trans-Balkan Corridor.								

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	JSC EMS	x							
Pre-feasibility study with general design	JSC EMS	x							
Conceptual design and feasibility study	JSC EMS	x							
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental affairs	x							
Resolving property and legal matters	JSC EMS	x	x	x	x	x			
Preliminary design and feasibility study	JSC EMS	x							
Energy permit	n/a (no energy permit required)	x							
Construction permit design and construction permit	JSC EMS	x							
Preparation of tender documentation	JSC EMS			x	x				
Construction Design	JSC EMS				x				
Construction	–				x	x	x		

OHL 2x400 kV S/S Obrenovac – S/S Bajina Bašta, with the raising of the voltage level at S/S Bajina Bašta to 400 kV - Trans-Balkan Corridor 3rd section								
	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	New facilities and reconstructions	2027	89.58	yes	KfW loan/WBIF loan/own funds (million euros) 64,5/ 20,71/4,37	34,20	8.28	yes
Section III of the Trans-Balkan Corridor includes the construction of a new overhead double-circuit transmission line with a total length of 109 km and a voltage level of 400 kV between S/S Bajina Bašta and S/S Obrenovac. At the same time, the expansion of the 400 kV distribution switchgear at S/S Bajina Bašta is planned, as well as the equipping of two transmission line bays at the 400/220 kV S/S Obrenovac. The total increase in installed power at S/S Bajina Bašta, through the expansion of S/S Bajina Bašta, amounts to 800 MVA (the installation of two power transformers of 400 MVA each is planned). The project represents a vital part of future electricity transit across the territory of the Republic of Serbia and a prerequisite for the gradual shutdown of the 220 kV network in western Serbia. The NPV is given only for Serbia, and it is the aggregate value given for Sections III and IV of the Trans-Balkan Corridor.								

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	JSC EMS	x							

Pre-feasibility study with general design	JSC EMS	x							
Conceptual design and feasibility study	JSC EMS	x							
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental affairs	x							
Resolving property and legal matters	JSC EMS	x	x	x	x				
Preliminary design and feasibility study	JSC EMS	x							
Energy permit	n/a (no energy permit required)	x							
Construction permit design and construction permit	JSC EMS	x							
Preparation of tender documentation	JSC EMS		x	x					
Construction Design	JSC EMS			x					
Construction	–			x	x	x			

Pannonian Electricity Transmission Corridor

	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV	IRR	Planning and technical documentation - status
Description	New facilities and reconstructions	2028/2030	139.95	yes	budget/own funds 139.15 / 0.8	n/a	n/a	no

The project is divided into two phases:
1) First phase:
o New OHL 2x400 kV S/S Subotica 3 – state border of Serbia and Hungary with the equipping of one system (with the necessary expansion of the bays in S/S Subotica 3 required to receive the transmission lines from the direction of Sándorfalva);
2) Second phase:
o Reconstruction of S/S Subotica 3;
o New OHL 2x400 kV S/S Sombor 3 – S/S Novi Sad 3 with the equipping of one system (with the expansion of 400 kV overhead line bays in S/S Sombor 3 and S/S Novi Sad 3);
o New OHL 2x400 kV S/S Sremska Mitrovica 2 – S/S Belgrade 50 (with the expansion of 400 kV overhead line bays in S/S Sremska Mitrovica 2 and the equipping of 400 kV overhead line bays in S/S Belgrade 50).
The implementation of this project enables: integration of the electricity market, placement of energy from RES in the Bačka region, increasing the reliability of supply to consumers in Bačka and Srem, connection of new generating capacities in this area.
NPV will be determined and available in further stages of project development.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	JSC EMS			x					
Pre-feasibility study with general design	JSC EMS			n/a					
Conceptual design and feasibility study	JSC EMS			x					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental affairs			x					
Resolving property and legal matters	JSC EMS				x	x	x	x	
Preliminary design and feasibility study	JSC EMS				x				
Energy permit	n/a (no energy permit required)			x					
Construction permit design and construction permit	JSC EMS				x				
Preparation of tender documentation	JSC EMS				x				
Construction Design	JSC EMS				x				
Construction	–					x	x	x	x

BeoGrid2025: S/S 400/110 kV Belgrade 50 with the distribution system 400 kV and 110 kV of lines and OHL 400 kV S/S Belgrade 50								
	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	New facilities	2026/2028	204.90	yes	Budget/own funds (million euros) 198.4 / 6.5	238.27	32.82%	Planning documentation completed
The Beogrid2025 project is part of the North CSE Corridor project, which is part of the pan-European development plan TYNDP2020. This project includes the construction of a new 2x400kV transmission line Belgrade 50 – CDS Čibuk 1 with a total length of 85km, together with the construction of a new 400/110 kV Belgrade 50 substation (2x300MVA). It is planned to cut and introduce the OHL 400kV No. 450 DS Mladost - S/S Novi Sad 3 into S/S Belgrade 50, with the total length of two new single-system transmission lines being 12km, cutting the existing OHL 2x110 kV No. 1178AB S/S Belgrade 5 - S/S Belgrade 9 and introduction into the future S/S Belgrade 50, creating 2x110 kV S/S Belgrade 50 - S/S Belgrade 9 with a length of 7.09 km and 2x110 kV S/S Belgrade 50 - S/S Belgrade 5 with a length of 7.11 km, cutting of the OHL 2x110kV no. 104/8 S/S Stara Pazova - S/S Inđija 2 and introduction into S/S Belgrade 50, creating OHL 2x110kV S/S Belgrade 50 - S/S Stara Pazova with a length of 12.37 km and OHL 2x110kV line S/S Belgrade 50 - S/S Inđija 2 with a length of 12.49 km. Pre-investment activities are underway for the dual-circuit cable. The goal of the project is to enable the evacuation of electricity generated from renewable sources, located in the South Banat region, as well as to relieve the load on the 220/110/35 kV Belgrade 5 substation, which supplies electricity to a large part of Belgrade, especially parts of New Belgrade and Zemun. The implementation of this project will enable: the integration of renewable energy sources, the development of industry in Srem, and the increase in transmission capacity on the border between Serbia and Romania. The development of the project and technical documentation also required changes to technical solutions, due to new requests from holders of public authorizations and harmonization with the adopted planning document. Due to the extremely urban environments on the transmission line routes, as well as considering the requirements of the Grmovac industrial zone and surrounding settlements, the need to use higher poles, shorten the span between transmission line poles and introduce new transmission line poles on routes in zones of increased sensitivity was noted, as well as the need to use three conductors per phase on 400 kV transmission lines to reduce noise and for environmental protection. Also, compared to the previous budget estimate of the project, a significant increase in market prices for equipment, materials and works was noted.								

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	JSC EMS		x						
Pre-feasibility study with general design	JSC EMS	x							
Conceptual design and feasibility study	JSC EMS		x						
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental affairs		x						
Resolving property and legal matters	JSC EMS		x	x	x	x			
Preliminary design and feasibility study	JSC EMS		x	x					
Energy permit	n/a (no energy permit required)			x					
Construction permit design and construction permit	JSC EMS			x					
Preparation of tender documentation	JSC EMS			x					
Construction Design	JSC EMS			x					
Construction	–			x	x	x	x		

Table 21: Other transmission system projects

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
OHL 2x400 kV S/S Jagodina 4 – S/S Požarevac 3	2030	Construction of a new double-circuit 400 kV transmission line that would connect the existing Jagodina 4 substation with the future Požarevac substation. According to current considerations, a new 400 kV transformer station should be built south of Požarevac. In addition to the double-circuit OHL from Jagodina 4 substation, it will also include the 400 kV OHL No. 401/2 DS Đerdap 1 - DS Drmno and No. 401/4 DS Smederevo 3 - DS Drmno, according to the "input-output" principle.	55.4	yes, a loan from the Saudi Fund for Development

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
		This project would connect the production in the area of southern Banat and the Braničevo district with the consumer regions located in central Serbia, which would lead to both more efficient energy distribution from power plants built in the aforementioned areas and more reliable supply of consumption. In addition, the construction of this transmission line would also facilitate energy transit across the territory of the Republic of Serbia, due to the fact that it would establish a connection between the international projects Central Balkan Corridor (to which it itself belongs) and the Northern Corridor. The construction of the new S/S Požarevac is planned to enable further strengthening of the transmission system in the Kostolac region and connecting this area with other parts of the transmission system, since the introduction of new lines in the Drmno substation has become almost impossible due to the situation around this facility.		
Reconstruction of the 400 kV Đerdap 1 distribution switchgear (DS)	2026	The reconstruction is being carried out due to the obsolescence of the HV equipment and protection and control systems in the 400 kV bays, where they have not been replaced so far. Works are also being carried out on the construction of a control building with the aim of separating it from the Đerdap 1 HPP.	7.5	yes
Increasing transmission capacities in the Bor region	2027	The project includes: a) construction of S/S 400/110 kV Bor 6 b) construction of 400 kV transmission lines resulting from: I. cutting the OHL 400 kV DS Đerdap 1 – DS Drmno and introducing two single-circuit 400 kV transmission lines along the routes to the Bor 6 and Bor 2 substations, thereby forming the 400 kV DS Đerdap 1 – DS Bor 6 and the 400 kV DS Đerdap 2 – DS Drmno substation with the equipping of the 400 kV bay in S/S Bor 2; II. cutting the OHL 400 kV DS Đerdap 1 – S/S Bor 2 and introducing two single-circuit 400 kV transmission lines along the routes to S/S Bor 6; III. cutting the OHL 400 kV S/S Bor 2 - S/S Niš 2 and introducing two single-circuit 400 kV transmission lines along the routes to S/S Bor 6. ZiJin Company has submitted to JSC EMS requests for connection to the transmission system of a total of nine new 110/x kV substations (eight in the Bor area and one in the Majdanpek area) with a total required capacity of 444 MW. The existing transmission infrastructure of JSC EMS allows connection to the transmission system of 134 MW, while for the remaining 310 MW it is necessary to build a new S/S 400/110 kV Bor 6 with its associated 400 kV and 110 kV switchgears.	80.6	yes
Reconstruction of sections of OHLs no.151/2 and 151/3 and connection and distribution switchgear (CDS) 110 kV Košava, equipping of OHL bays	2026	Development of the transmission network as a necessary condition for the evacuation of energy produced from planned wind farms in southern Banat/Integration of renewable energy sources Reconstruction of the OHL into a double-circuit one and increase of the cross-section to 240 mm2 from S/S Pančevo 2 to pole number 99, with a length of approximately 30 km. It is also planned to equip the second system on the transmission line from pole number 99 to the pole at the S/S Alibunar, with a length of approximately 4 km (the transmission line was built into a double-circuit system with one system equipped in the process of connection of the WPP Alibunar to the transmission system at the expense of the Client). Reconstruction of the OHL into a double-circuit system and increase of the cross-section to 240 mm2 from S/S Alibunar to pole number 154, with a length of approximately 23 km. It is also planned to equip a second system on the transmission line from CDS Košava to pole number 154, with a length of approximately 8 km. (the transmission line was built into a double-circuit system with one system equipped in the process of connection of the WPP Košava to the transmission system at the expense of the Client). Equipping the existing reserve transmission line bay No. E04 due to equipping the second 110 kV transmission line system No. 151/6 S/S Alibunar – CDS Košava and connecting the transmission line to the existing 110 kV Košava connection and distribution switchgear.	17.4	yes
OHL 110 kV DS Đerdap 2 – S/S Mosna	2026	The reasons for the construction of this transmission line are the development of the transmission network, with the aim of evacuating energy from the DS Đerdap 2 and ensuring the security of power supply to S/S Mosna.	6.7	yes

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
MV 110 S/S Novi Sad 3 – S/S Inđija 2	2026	Connection project with increased transmission system reliability and consumer power supply security Adaptation of transmission line no. 104 with the installation of special conductors.	4.3	yes
Reconstruction of OHL 110 kV no. 104/1 and 104/2 S/S Belgrade 5 – S/S Belgrade 2 to a double-circuit layout	2026	Reconstruction of single-circuit transmission line No. 104/1 from S/S Belgrade 2 – S/S Belgrade 32 to a double-circuit layout. The reconstruction envisages the dismantling and removal of all existing towers on the OHL 104/1 of the "Jela" type, dismantling of conductors and the existing OPGW protective rope (careful dismantling for further use of the OPGW rope), connecting and suspension equipment on the OHL 104/1, installation of new towers of the "Bure" type (the number depends on the optimal design solution), installation of new ACSR 490/65 mm2 conductors and OPGW protective rope, installation of new insulation, connecting and suspension equipment on the reconstructed section of the OHL 104/1 (future double-circuit line No. 1271A/1 and 1271B/1). Extension (Construction) of the double-circuit section of the 110 kV transmission line No. 104/2 S/S Belgrade 32 – S/S Belgrade 5 on the section from S/S Belgrade 32 to pole 7. When designing, foresee the construction of a new double-circuit transmission line from S/S Belgrade 32 to pole no. 7, which would run parallel to the existing section of the OHL 104/2, including the crossing of the OHL over the Sava River (the section from pole 2 to pole 6 is retained and the 35 kV OHL is also located on that section). The extension (Construction) envisages the installation of new "Bure" type poles (the number depends on the optimal design solution) for the crossing over the Sava River, the installation of new ACSR 490/65 mm2 conductors and OPGW protective rope, the installation of new insulation, connecting and suspension equipment on the extended section of OHL 104/2 (future double-circuit line no. 1271A/1 and 1271B/1).	5.6	yes
Reconstruction of S/S 400/220/110 kV Pančevo 2	2025 (electro.)/ 2026 (constr.)	Transmission network development, Reconstruction due to obsolescence Replacement of equipment in 5 bays of the 400 kV plants, in all 3 bays of the 220 kV plants, as well as in 7 bays of the 110 kV plants. Reconstruction of the plant own consumption, protection, control and measurement systems, as well as all other necessary works in the plant are also planned.	11.3	yes
Reconstruction of S/S 400/220/110 kV Sremska Mitrovica 2 S/S 400/110 kV – phase I	2027	The first phase envisages the installation of a T4 autotransformer with a transmission ratio of 400/110 kV and a power of 300 MVA, along with the equipping of the 400 kV transformer bay No. C3 and the complete reconstruction of the 110 kV transformer bay No. E11 for the connection of the new autotransformer, along with the dismantling of the existing 220/110 kV transformer T2 with the associated bays. The installation of the T4 400/110 kV autotransformer with a capacity of 300 MVA will ensure the security of power supply to consumers who are supplied with electricity through this substation. After the implementation of sections III and IV and the installation of this transformer, conditions will be created for the shutdown of the 220 kV transmission line No. 209/1 TS Bajina Bašta – TS Sremska Mitrovica 2.	6.6	yes
Distribution system 220 kV OHL and the introduction of OHL 110 kV no. 117/1 S/S Belgrade 2 - S/S Belgrade 35 in S/S Belgrade 3 with the equipping of two 110 kV bays in S/S Belgrade 3	2025	Development of the transmission network and increasing the reliability of the transmission system and security of supply to consumers	11.0	yes
Connection line for S/S 110/35 kV Belgrade 44 (Surčin)	2025/2026	This is a Project for connection that is being implemented due to increased consumption growth. Increasing the reliability of the transmission system and the security of consumer supply. Construction of a connection line with a length of about 7.5 km with the equipping of one system to OHL 104/2 of about 2 km. Necessary replacement of 3 poles of the 220 kV transmission line and reconstruction of OHL no. 104/2 from pole no. 6 to pole no. 16 to a double-circuit layout (due to the new S/S, OHL and main road construction) and equipping of the second system from pole no. 16 to S/S Belgrade 5 with a conductor cross-section of 490/65 mm2 (about 5 km).	16.0	yes
Reconstruction of S/S 400/110 kV Bor 2	2025 (electro.)/ 2027 (constr.)	The reconstruction is being carried out due to the obsolescence of HV equipment and protection and control systems in all 400 kV and 110 kV bays. The reconstruction increases the installed power of the substation, which allows for increased security of supply to the consumption area of Bor and new mining capacities.	13.4	yes

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
Connection line for S/S 110/10 kV Belgrade 58 (National stadium)	2026	The project is important due to the implementation of the international specialized exhibition EXPO BELGRADE 2027. It has been declared a project of importance for the Republic of Serbia and includes the construction of two cable lines from S/S Belgrade44 - S/S Belgrade58 (National Stadium) with a length of approximately 4.1 km.	8.3	yes
Strengthening of the transmission network between S/S Bor 2 and S/S Zaječar 2 - CDS 110 kV Bor 4, equipping of OHL bays - S/S 110 kV Bor 2, equipping of OHL bays - OHL 110 kV S/S Bor 2 - CDS Bor 4, equipping of the 2nd system	2025/2026	Construction of a new double-circuit 400 kV transmission line that would connect the existing S/S Jagodina 4 with the future S/S Požarevac. The new 400 kV transformer station, according to current considerations, should be built south of Požarevac. In addition to the double-circuit OHL from S/S Jagodina 4, it will also include, according to the "input-output" principle, the OHL 400 kV No. 401/2 DS Đerdap 1 – DS Drmno and No. 401/4 S/S Smederevo 3 – DS Drmno. This project would connect production in the area of southern Banat and Braničevo District with consumer regions located in central Serbia, which would lead to both more efficient energy distribution from power plants built in the aforementioned areas, and to more reliable power supply to consumers. In addition, the construction of this transmission line would also facilitate energy transit across the territory of the Republic of Serbia, due to the fact that it would establish a connection between the international projects Central Balkan Corridor (to which it itself belongs) and the Northern Corridor. The construction of the new S/S Požarevac is planned to enable further strengthening of the transmission system in the Kostolac region and connecting this area with other parts of the transmission system, since the introduction of new lines in DS Drmno has become almost impossible due to the situation around this facility.	1.8	yes
Reconstruction of OHL 110 kV no. 147/2 S/S Bor 2 – S/S Negotin	2028	The reconstruction involves dismantling and removing existing poles along the entire transmission line route (about 44.3 km), dismantling conductors and protective rope, installing new "Bure" type poles, installing new conductors and OPGW protective rope, installing new insulation, connecting and suspension equipment. The transmission capacity is increased, instead of a single-circuit transmission line with ACSR 150/25 mm2 conductor, the construction of a double-circuit transmission line is envisaged, whereby in the first phase one system would be equipped with ACSR 240/40 mm2 conductor.	14.6	yes
Strengthening the transmission network between S/S Bor 2 and S/S Zaječar 2 (OHL 110 kV CDS Bor 4 - S/S Zaječar 2, expansion of OHL)	2028	Expansion of the 110 kV transmission line from pole no. 53c to OHL 148/5 to S/S Zaječar 2 (future OHL 110 kV no. 1287 CDS Bor 4 – S/S Zaječar 2)	1.7	yes
Installation of a variable shunt reactor at S/S Vranje 4	2026	The project involves the installation of a new reactive power compensator at the 400/110 kV S/S Vranje 4. In the last ten years, the problem of overvoltage has become particularly pronounced in the part of the network operating at the 400 kV voltage level, especially in the south of Serbia, in S/S Vranje 4 and S/S Leskovac 2, after the commissioning of the 400 kV transmission line number 462 S/S Vranje 4 – S/S Štip and the 400 kV transmission line between S/S Kosovo B and S/S Tirana, which is idle. Overvoltage in stationary operation causes accelerated aging of equipment, and can also cause relay protection to fail, as well as unwanted shutdown of transmission lines, transformers or generators, which can cause large financial costs.	14.0	yes
OHL 110 kV S/S Ljubovija - state border - S/S Srebrenica (B&H)	2027	Construction of a single-circuit 110 kV OHL from S/S Ljubovija to S/S Srebrenica (BiH), with a total length on the territory of the Republic of Serbia of approximately 2.6 km.	0.7	yes
Reconstruction of OHL 110 kV no. 113/2 S/S Niš 2 - S/S Leskovac 4	2028	Reconstruction of sections of the power line due to age. The reconstruction of a section of approximately 47.4 km (from pole no. 11 to pole no. 39) of the total length of the power line route is planned. The reconstruction involves the complete replacement of steel lattice poles if they do not meet the requirements for the use of ACSR 240/40 mm2 conductors.	7.5	yes
OHL 110 kV S/S Žabalj - S/S Perlez	2028	The project foresees the construction of a 44 km single-system 110 kV transmission line between S/S Žabalj and S/S Perlez.	6.5	yes
Reconstruction of OHL 110 kV no. 113/4 S/S Leskovac 2 - Traction power substation (TPSS) Grdelica	2028	Reconstruction of sections of the power line due to age. The reconstruction of a section of approximately 12.12 km (from pole no. 15 to pole no. 34u) of the total length of the power line route is planned. The reconstruction involves the complete replacement of steel lattice poles if they do not meet the requirements for the use of ACSR 240/40 mm2 conductors.	2.7	yes

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
Reconstruction of OHL 110 kV no. 113/5 HPP Vrla 3 - TPSS Grdelica	2028	Reconstruction of sections of power lines due to age. The reconstruction of a section of about 12.12 km (from pole no. 15 to pole no. 34u) of the total length of the power line route is planned. The reconstruction involves the complete replacement of steel lattice poles if they do not meet the requirements for the use of ACSR 240/40 mm2 conductors.	7.6	yes
Reconstruction of OHL 110 kV no. 113/3 S/S Leskovac 4 – S/S Leskovac 2	2028	The reconstruction of the existing transmission line with the replacement of concrete poles (8 pole locations) is planned, as well as the adaptation of sections with steel lattice poles (35 pole locations) with the replacement of the current ACSR conductors with a cross-section of 150/25 mm2 with special conductors, equivalent to ACSR conductors with a cross-section of 240/40 mm2.	0.9	yes
Reconstruction of OHL no. 121/2/3/4 (direction S/S Belgrade 10 – S/S TPP NT A MP – TPSS Brgule – TPP Kolubara A)	2028	The reconstruction of the transmission line on this route is planned with the installation of OPGW protective ropes and special conductors, equivalent to ACSR conductors with a cross-section of 240/40 mm2 and the replacement of insulation and connecting and suspension equipment.	7.4	yes
Increase in installed capacity S/S 220/110 kV Valjevo 3	2025	Development of the transmission network and increase in transmission capacity The replacement of existing transformers with new ones with higher capacity is due to the predicted increase in consumption in the area supplied with electricity from this S/S	7.6	yes
Reconstruction of OHL 110 kV no. 105/2 TPP Morava - S/S Jagodina 4	2028	The reconstruction involves the dismantling and removal of existing poles, dismantling of conductors and protective rope, installation of new poles, installation of new conductors and OPGW protective rope, installation of new insulation, connecting and suspension equipment.	3.7	yes
Connection line for S/S 110/20 kV Perlez and the equipping of 110 kV bays in S/S 220/110 kV Zrenjanin 2 for connection of lines for S/S 110/20 kV Perlez	2027	This is a Project for connection that is being implemented due to increased consumption. Increasing the reliability of the transmission system and the security of supply to consumers. This project will provide a twofold power supply for the existing S/S 110/20 kV Temerin and Žabalj, which are now powered unilaterally from S/S 400/220/110 kV Novi Sad 3. Construction of 20 km of transmission lines along the route of transmission line no. 1148 operating at 35 kV, with the installation of 240/40 mm2 conductors and OPGW at a length of 30.4 km (construction of 30 new poles, 11 poles with the removal of existing foundations and 4 new poles on existing foundations). Construction and equipping of a new OHL bay in the 110 kV plant for the connection of the transmission line in the Perlez direction.	3.7	yes
Reconstruction of OHL 2x110kV no. 101AB S/S Belgrade 3 - TPP Kostolac A	2028	Reconstruction of about 20 km and adaptation of sections of the transmission line of about 8 km (replacement of conductors, grounding system, insulators, connection equipment, rehabilitation and painting of poles, repair of foundations). The reconstruction of the "H" section (35.95 km) provides for the dismantling and removal of existing poles, dismantling of conductors and protective rope, installation of new Bure poles, installation of new conductors and OPGW protective rope, installation of new insulation, connecting and suspension equipment.	16.1	yes
Solving the radial supply of S/S Kopaonik	2027	To solve the radial power supply problem of S/S Kopaonik, the construction of a single-circuit transmission line from S/S Kopaonik to transmission line no. 161 north of Raška is planned.	4.6	yes
Adaptation of OHL 110 kV no. 132/3 S/S Kula – S/S Srbobran	2026	Adaptation of OHL 110 kV no.132/3 S/S Kula – S/S Srbobran due to age and poor condition of equipment.	2.8	yes
Connection lines for S/S Belgrade59 (Bio4 campus)	2027	The project includes cable and overhead introduction of OHL 110 kV no. 136A/2 S/S Belgrade 11 – S/S Belgrade 17 and no. 136B/2 S/S Belgrade13 – S/S Belgrade17, as well as cabling of part of the existing OHL 110 kV no. 136A/2 S/S Belgrade 11 – S/S Belgrade 17 and no. 136B/2 S/S Belgrade 13 – S/S Belgrade 17 from pole no. 11 to S/S Belgrade 59 (Bio4 campus).	4.7	yes
Adaptation of OHL 110 kV no. 137/2 TPSS Resnik – TPP Kolubara	2027	Increasing the reliability of the transmission system and the security of consumer supply/Age of the facility	1.7	yes
Connecting lines for S/S 110/10 kV Kragujevac 22	2027	Construction of a cable line from S/S Kragujevac 3 to S/S Kragujevac 22. In the process of harmonization of plans of the TSO and DSO, the need for S/S 110/10 kV Kragujevac 22 (Center) to the transmission system was indicated. Construction of a cable line from S/S Kragujevac 24 to S/S Kragujevac 22.	10.0	yes

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
Reconstruction of DS 110 kV in S/S (400)/220/110 kV Kraljevo 3, second stage	2026	The reconstruction is being carried out due to the obsolescence of the HV equipment and the protection and control system in the remaining part of the 110 kV substation. Reconstruction of the existing 110 kV section in S/S Kraljevo 3, i.e. reconstruction of the transmission lines (E02, E05 and E07), transformer bays (E06 and E08) and the connection bay E09 with the replacement of high-voltage equipment. Also, the replacement of ropes, insulator chains, grounding, connection and suspension equipment in the complete busbars GS1 and GS2 and the installation of the protection and control system were stipulated.	1.4	yes
Connecting cable lines for S/S 110/35 kV Niš 9	2029	The connection of the new S/S Niš 9 to the transmission network is planned with new 110 kV cable lines to the existing S/S Niš 10 and to the new S/S Niš 6. The connection of the new S/S Niš 9 to the transmission network is planned with new 110 kV cable lines to the existing S/S Niš 10 and to the new S/S Niš 6.	7.9	yes
OHL 110 kV S/S Valjevo 3 – S/S Ljig	2028	Total scope of the project Construction of a new single-circuit transmission line between the existing S/S Ljig and S/S Valjevo 3. The implementation of this project will solve the radial power supply of S/S Ljig. It is also expected that the connection of the future S/S Mionica to the transmission system will be carried out by cutting this transmission line and introducing it into it according to the "input-output" principle.	4.3	Yes
QC 110 kV no. 172/1 S/S Belgrade 6 – S/S Belgrade 45, section replacement	2026	Construction of a cable along a new route, with cross-linked polyethylene insulation, along the route of the existing cable from S/S Belgrade 6 to the transition joint in Admirala Geprata Street.	2.1	yes
OHL 110 kV S/S Jagodina 4 – S/S Stenjevac and the equipping of the bay for the introduction of OHL 110 kV towards S/S Stenjevac	2027	Project for connection/Increasing the reliability of the transmission system and the security of supply to consumers. This project will form a loop that will ensure twofold power supply for S/S Despotovac, S/S Stenjevac and S/S Ćuprija. The project involves the construction of a 15 km double-circuit transmission line and a 30 km single-circuit transmission line between S/S Jagodina 4 and S/S Stenjevac. It is planned to equip one system along the entire length of the transmission line, while the second system will be equipped after the potential connection of a new consumer in the "Dobričevo" industrial zone near Ćuprija. This transmission line solves the radial power supply in the direction of S/S Ćuprija and S/S Stenjevac, thereby increasing the security of supply to consumers. Due to the expected connection of industrial consumption in Ćuprija, the transmission line route will be rerouted so that it passes near the expected connection point of the aforementioned industry area. The equipping of two transmission line bays in S/S Jagodina due to the planned construction of a new double-circuit transmission line 110 kV (2×ACSR 490/65 mm2), from S/S 400/110 kV Jagodina 4 to the new S/S 110/X kV industrial complex in the Ćuprija region, with a length of approximately 15 km. Given the location of the new S/S 110/X kV industrial complex in the Ćuprija region, the route of this transmission line will be located on the northern side and in the immediate vicinity of the transmission line route no. 1141/2 S/S Jagodina 4 – S/S Ćuprija. From the planned S/S connection point, the construction of another 30 km of single-system transmission line to S/S Stenjevac is planned.	15.2	yes
Reconstruction of OHL 110kV no. 115/1 S/S Kraljevo 1 – S/S Čačak 3	2027	Project for connection/Increasing the reliability of the transmission system and the security of consumer supply. Reconstruction to a double-circuit layout transmission line with the equipping of one system.	5.9	yes
Reconstruction of OHL 110 kV no. 116/2 S/S Kosjerić - S/S Valjevo 1	2028	Reconstruction of transmission lines due to age and increase in conductor cross-section (complete reconstruction, which includes replacement of poles, conductors, protective rope and suspension equipment).	7.5	yes
S/S 220/110 kV Požega, installation of OHL power transformers with a capacity of 2x250 MVA	2027	Replacement of 220/110 kV power transformers due to age and complete insulation and associated suspension equipment on busbars and cross-connections in the 220 and 110 kV plant, which is necessary due to age and frequent failures. Installation of 220 kV busbar protection will improve the reliability of the 220 kV network in this area.	7.7	yes
Reconstruction of OHL 110kV number 113/1 S/S Niš 2 - S/S Niš 1 into a double-circuit transmission line	2025	This is a connection project that is being implemented to increase the reliability of the transmission system and the security of consumer power supply. The reconstruction of the power line to a double-circuit layout is being carried out.	5.2	yes
Reconstruction and extension of OHL 110 kV no. 114/3 S/S Aleksinac – S/S Niš 1	2028	Reconstruction and upgrade of OHL 114/3 and upgrade of OHL 1245 involve the following: • reconstruction of OHL 114/3 from S/S Aleksinac to pole no.74 (approximate location) along the same route approximately 19.66 km,	5.9	yes

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
		• extension-relocation of OHL 114/3 from pole no.74 (approximate location) to pole no.13 (approximate location) on OHL 1245 for approximately 12.7 km (whereby the existing route from pole no. 74 (approximate location) to S/S Niš 1 is abandoned), • extension of the OHL system transmission line (OHL 114/3+OHL 1245) from pole no. 13 (approximate location) on OHL 1245 to pole no. 36 (approximate location) on OHL 113/1 along a new route of approximately 5.8 km (whereby the existing OHL 1245 route from pole no. 13 to pole no. 1 in front of S/S Niš 1 is abandoned). The reconstruction involves dismantling and removing of existing poles, dismantling conductors and protective rope, installation of new poles, installation of new conductors and OPGW protective rope, installation of new insulation, connecting and suspension equipment. The reconstruction involves installing ACSR 240/40 mm2 conductors instead of ACSR 150/25 mm2		
OHL 110 kV no. 150 S/S Bor 1 – S/S Majdanpek 1, introduction into S/S Majdanpek 2 and distribution system of 110 kV transmission lines in front of S/S Majdanpek 2	2027	The project involves the introduction of the existing transmission line no. 150 S/S Bor 1 - S/S Majdanpek 1 into S/S Majdanpek 2 and the distribution system of the 110kV transmission lines in front of S/S Majdanpek 2.	2.6	yes
Reconstruction of DS 110 kV Pančevo 1	2028	Reconstruction of the complete distribution plant with replacement of equipment, with the digitalization of the DS also being envisaged as part of the project.	12.2	yes
Reconstruction of OHL 110 kV no. 116/1 S/S Sevojno - S/S Kosjerić	2025/2026	Project for connection / Age of the facility / Increasing the reliability of the transmission system and security of consumer power supply Reconstruction of the transmission line due to age and increase in conductor cross-section from 150/25 to 240/40 mm2 (complete reconstruction, which includes replacement of concrete poles, conductors, protective rope and suspension equipment on sections A and C, length about 16.2 km and replacement of conductors, protective rope, suspension equipment and steel lattice poles if they do not meet the requirements for the use of ACSR 240/40 mm2 conductors, on section B, length about 4.3 km). It is also planned to relocate part of the transmission line, from pole no. 77 to pole no. 81.	4.9	yes
Adaptation of OHL 110 kV no. 115/4 S/S Požega – Beljina junction and no. 182 S/S Gornji Milanovac - Beljina junction and dismantling of transmission line no. 115/9 S/S Atenica junction - Beljina junction	2027	Replacement of conductors, protective rope, replacement of insulators, connecting and suspension equipment, replacement of grounding, rehabilitation of the structure and foundations of the poles, and cancellation of the transmission line route no. 115/9	2.4	yes
Connection line for S/S 110/35 kV Kragujevac 4	2026	Construction of a cable line from S/S Kragujevac 24 to S/S Kragujevac 5. In the process of harmonization of the plans of the TSO and DSO, the need to connect S/S 110/10 Kragujevac 24 (Sajmište) to the transmission system was indicated.	2.8	yes
Connection line for S/S 110/35 kV Belgrade 46 (Zbeg)	2027	Introduction of OHL 110kV no.1153 S/S Pančevo 2 – S/S Belgrade 7 to S/S Belgrade 46 according to the principle of input-output with single-circuit transmission lines. In the process of harmonization of the plans of the TSO and DSO, the need for connecting the new distribution S/S 110/35 kV Belgrade 46 to the transmission system was indicated.	1.7	yes
Connection line for S/S 110/10 kV Belgrade 49	2027	Construction of a double-circuit overhead cable line from the future S/S Belgrade44 (Surčin). In the process of harmonization of the plans of the TSO and DSO, the need to connect S/S 110/10 kV Belgrade 49 (Airport) to the transmission system was indicated. Following the planned increase in commercial facilities and the planned expansion of the “Nikola Tesla” airport complex, the need arose to build a new S/S 110/10 kV Belgrade 49 (Airport) owned by EDS.	16.7	yes
Connecting lines for S/S 110/20 kV Novi Sad 8	2029	The planned location of the new distribution S/S Novi Sad 8 is in the northern part of Novi Sad, more precisely on the Boulevard of Europe. Phase I - It is planned that S/S Novi Sad 8 will be connected to the grid using the "input-output" system on OHL 110 kV no. 190B S/S Novi Sad 2 - S/S Novi Sad 3.	2.5	yes

Project	Expected year of completion	Project description	Value (million euros)	Funds provided
		Phase II - OHL 110 kV no. 1135 S/S Novi Sad 3 - S/S Novi Sad 5 would be introduced into the new transformer station using the "input-output" system with a double-circuit layout and an overhead line with a cross-section of 2 x ACSR 240 mm2, approximately 2.5 km long.		
Connection lines for S/S 110/20 kV Svilajnac	2029	The reconstruction involves the dismantling and removal of existing poles, dismantling of conductors and protective rope, installation of new poles, installation of new conductors and OPGW protective rope, installation of new insulation, connecting and suspension equipment.	1.0	yes
Connection line for S/S 110/10 kV Čačak 4	2029	The connection of this transformer station is considered according to the "input-output" principle to the 110 kV transmission line no. 182 S/S Gornji Milanovac - Beljina junction. The starting point is the new 110 kV portals in S/S 110/10 kV Čačak 4, and the end point is the new branch pole in the route of the existing OHL 110 kV no. 182, which would be placed in the span between the existing poles no. 66 and 67. The route from S/S Čačak 4 is directed north and bypasses industrial facilities in the settlement of Konjević. After that, the route turns west and descends towards the Čemernica River, where in the corridor with the planned Preljina - Požega highway (at a distance of about 80 m), it reaches the connection point to the existing line no. 182.	1.2	yes
Connection line for S/S 110/35 kV Belgrade 55 (Zuce)	2028	It is planned to connect the new S/S Belgrade 55 (Zuce) to the transmission system according to the "input-output" principle on 110 kV OHL no. 101A/1 S/S Belgrade 3 – S/S Smederevo 2 (future S/S Belgrade 42 - Grocka).	1.2	yes
Connection line for S/S 110/20 kV Kać	2025/2026	Introduction of OHL 110kV no.1005 S/S Novi Sad 3 – TPP-HP Novi Sad via two single-circuit lines according to the input-output principle to S/S 110/20 kV Kać. In the process of harmonization of the plans of the TSO and DSO, the need to connect S/S 110/20 kV Kać to the transmission system was indicated, based on the planned construction of the new working zone “Kać” and meeting the power supply needs of the factory.	1.4	yes
Reconstruction of S/S 400/110 kV Kragujevac 2	2028	Complete reconstruction of S/S (second phase).	13.3	yes
Reconstruction of S/S 220/110/35 kV Požega – phase I	2027	Demolition of the existing 35 kV plant, raising the level of the plant itself to prevent flooding, construction of a new 35 kV plant with two busbar systems.	0.9	yes
S/S 400/110 kV Konatice with distribution system of lines – phase II / OHL 110 kV no. 121/3 TPP NT A MP – TPSS Brgule, introduction into DS 110 kV	2028	The second phase envisages the installation of two 300 MVA transformers, as well as the installation of two TL bays 400 and 110 kV, three OHL bays 400 kV and 6 OHL bays 110 kV in the existing switchgears within the TPP Kolubara B connection. The project envisages the introduction of transmission line no. 121/3 TPP NT A MP – TPSS Brgule, according to the input-output principle with two single-circuit transmission lines.	14.0	yes
DS 220 kV TPP HP Pančevo	2029	The first phase includes the connection of TPP HP Pančevo to the transmission system and will be financed by the client in the process of connecting TPP HP Pančevo to the transmission system. The second phase involves the construction of cables from the DS 220 kV TPP HP Pančevo to S/S HIP and S/S NIS.	3.5	yes

3.2.1. Scoring of transmission system projects

Table 22: Scoring of transmission system projects

Weight factor				3	3	1	2	3	1	2	1	3	3	-	3	-
Rank	Project	Value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and improvement of competition	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfilment of international obligations	Financing secured
1.	Pannonian Electricity Transmission Corridor	139.95	-	5	5	5	5	5	5	5	5	4	5	1	5	5
2.	OHL 2x400 kV S/S Obrenovac – S/S Bajina Bašta, with raising the voltage level at S/S Bajina Bašta to 400 kV - Trans-Balkan Corridor 3rd section	89.58	8.28%	5	5	5	5	5	5	5	5	4	5	5	5	5
3.	2x400 kV Transmission line S/S Bajina Bašta – S/S Višegrad (B&H) – S/S Pljevlja (Montenegro) - Trans-Balkan Corridor 4th section	53.20	8.28%	5	5	5	5	5	5	5	5	5	4	5	5	5
4.	BeoGrid2025: S/S 400/110 kV Belgrade 50 with distribution system of 400 kV and 110 kV lines and OHL 400 kV S/S Belgrade 50	204.90	32.82 %	5	-	5	5	5	5	5	5	4	5	5	3	5
5.	OHL 2x400 kV S/S Jagodina 4 – S/S Požarevac 3	55.4	-	5	-	5	5	5	4	4	5	4	4	1	5	5
6.	Reconstruction of the 400 kV DS Đerdap 1	7.5	-	5	5	4	5	5	5	4	2	3	-	5	3	5
7.	Increasing transmission	80.6	-	5	-	3	4	4	4	3	3	3	4	1	3	5

	capacities in the Bor region															
8.	Reconstruction of OHL section no.151/2 and 151/3 and CDS 110 kV Košava, equipping of OHL bays	17.4	-	5	-	4	4	5	2	2	3	4	-	5	3	5
9.	OHL 110 kV DS Djerdap 2 - S/S Mosna	6.7	-	5	-	2	4	4	2	-	2	3	4	3	3	5
10.	MV 110 S/S Novi Sad 3 – S/S Inđija 2	4.3	-	5	-	5	-	3	3	-	5	3	5	4	3	5
11.	Reconstruction of OHL 110 kV no. 104/1 and 104/2 S/S Belgrade 5 – S/S Belgrade 2 to a double-circuit layout	5.6	-	5	-	5	-	-	-	5	5	3	3	4	5	5
12.	Reconstruction of S/S 400/220/110 kV Pančevo 2	11.3		5	-	3	5	5	5	2	-	2	-	5	3	5
13.	Reconstruction of S/S 400/220/110 kV Sremska Mitrovica 2 in S/S 400/110 kV – phase I	6.6	-	5	-	3	3	3	3	4	3	-	3	1	3	5
14.	Distribution system 220 kV OHL and introduction of OHL 110 kV no. 117/1 S/S Belgrade 2 - S/S Belgrade 35 in S/S Belgrade 3 with the equipping of OHL 110 kV bays in S/S Belgrade 3	11.0	-	5	-	5	-	2	-	-	5	3	5	5	3	5
15.	Connection line for S/S 110/35 kV Belgrade 44 (Surčin)	16.00	-	5	-	5	-	-	-	5	2	-	5	5	5	5
16.	Reconstruction of S/S 400/110 kV Bor 2	13.4	-	5	-	3	4	4	3	-	-	3	-	5	4	5
17.	Connection line for S/S 110/10 kV Belgrade 58 (National stadium)	8.3	-	5	-	5	-	-	-	5	2	-	5	1	5	5

18.	Strengthening the transmission network between S/S Bor 2 and S/S Zaječar 2 - CDS 110 kV Bor 4, the equipping of two OHL bays - S/S 110 kV Bor 2, the equipping of the OHL bay - OHL 110 kV S/S Bor 2 - CDS Bor 4, equipping of the 2nd system	1.8	-	5	-	3	4	4	3	-	2	3	-	4	3	5
19.	Reconstruction of OHL 110 kV no. 147/2 S/S Bor 2 – S/S Negotin	14.6	-	5	-	3	4	4	3	-	2	3	-	1	3	5
20.	Strengthening the transmission network between S/S Bor 2 and S/S Zaječar 2 (OHL 110 kV CDS Bor 4 - S/S Zaječar 2, extension of OHL)	1.7		5	-	3	4	4	3	-	2	3	-	1	3	5
21.	Installation of a variable shunt reactor at S/S Vranje 4	14.00	-	5	-	5	3	3	-	5	-	-	-	1	5	5
22.	OHL 110 kV S/S Ljubovija - state border - S/S Srebrenica (B&H)	0.7	-	5	-	3	2	-	-	5	2	-	3	1	5	5
23.	Reconstruction of OHL 110 kV no. 113/2 S/S Niš 2 - S/S Leskovac 4	7.5	-	5	-	4	3	3	2	-	2	3	-	2	3	5
24.	OHL 110 kV S/S Žabalj - S/S Perlez	6.5	-	5	-	3	2	2	-	-	2	2	3	1	3	5
25.	Reconstruction of OHL 110 kV no. 113/4 S/S Leskovac 2 - TPSS Grdelica	2.7	-	5	-	3	3	3	2	-	2	2	-	2	3	5

26.	Reconstruction of OHL 110 kV no. 113/5 HPP Vrla 3 - TPSS Grdelica	7.6	-	5	-	3	3	3	2	-	2	2	-	2	3	5
27.	Reconstruction of OHL 110 kV no. 113/3 S/S Leskovac 4 – S/S Leskovac 2	0.9	-	5	-	3	3	3	2	-	2	2	-	1	3	5
28.	Reconstruction of OHL no. 121/2/3/4 (direction S/S Belgrade 10 – S/S TPP NT A MP – TPSS Brgule – TPP Kolubara A)	7.4	-	5	-	3	2	2	2	-	2	3	-	1	3	5
29.	Increase in installed capacity S/S 220/110 kV Valjevo 3	7.6	-	5	-	3	2	2	2	-	3	2	-	5	3	5
30.	Reconstruction of OHL 110 kV no. 105/2 TPP Morava - S/S Jagodina 4	3.7	-	5	-	2	3	3	1	-	-	2	-	1	3	5
31.	Connection line for S/S 110/20 kV Perlez and equipping the 110 kV bay in S/S 220/110 kV Zrenjanin 2 for the purpose of connecting the line for S/S 110/20 kV Perlez	3.7	-	5	-	2	2	2	2	-	2	2	-	3	3	5
32.	Reconstruction of OHL 2x110kV no. 101AB S/S Belgrade 3 - TPP Kostolac A	16.1	-	5	-	3	3	-	-	-	-	3	-	1	3	5
33.	Solving the radial supply of S/S Kopaonik	4.6	-	5	-	5	-	-	-	-	5	-	5	1	-	5
34.	Adaptation of OHL 110 kV no. 132/3 S/S Kula – S/S Srbobran	2.8	-	5	-	2	2	2	2	-	-	-	-	5	3	5
35.	Connection lines for S/S Belgrade 59 (Bio4 campus)	4.7	-	5	-	5	-	-	-	-	2	-	5	1	-	5

36.	Adaptation of OHL 110 kV no. 137/2 TPSS Resnik – TPP Kolubara	1.7	-	5	-	2	2	2	-	-	-	3	-	1	-	5
37.	Connection lines for S/S 110/10 kV Kragujevac 22	10.0		5	-	3	-	-	-	-	2	-	5	1	-	5
38.	Reconstruction of DS 110 kV in S/S (400)/220/110 kV Kraljevo 3, second stage	11.4	-	5	-	3	2	2	-	-	-	2	-	4	-	5
39.	Connection cable lines for S/S 110/35 kV Niš 9	7.9	-	5	-	2	-	-	-	-	2	-	5	1	-	5
40.	OHL 110 kV S/S Valjevo 3 – S/S Ljig	4.3	-	5	-	2	-	-	-	-	3	-	4	1	-	5
41.	QC 110 kV no. 172/1 S/S Belgrade 6 – S/S Belgrade 45, section replacement	2.1	-	5	-	3	-	-	-	-	-	4	-	2	-	5
42.	OHL 110 kV S/S Jagodina 4 – S/S Stenjevac and equipping the bay for the introduction of OHL 110 kV towards S/S Stenjevac	15.2	-	5	-	2	-	-	-	-	-	-	4	1	-	5
43.	Reconstruction of OHL 110kV no. 115/1 S/S Kraljevo 1 – S/S Čačak 3	5.9	-	5	-	3	-	1	1	-	-	2	-	3	-	5
44.	Reconstruction of OHL 110 kV no. 116/2 S/S Kosjerić - S/S Valjevo 1	7.5	-	5	-	3	-	-	-	-	-	3	-	1	-	5
45.	S/S 220/110 kV Požega, installation of two power transformers with a capacity of 2x250 MVA	7.7	-	5	-	3	-	-	-	3	3	-	-	1	-	5
46.	Reconstruction of OHL 110kV number 113/1 S/S Niš 2 - S/S Niš 1 into a double-circuit transmission line	5.2	-	5	-	3	-	-	-	-	2	2	-	5	-	5

47.	Reconstruction and extension of OHL 110 kV no. 114/3 S/S Aleksinac – S/S Niš 1	5.9	-	5	-	3	-	-	2	-	-	2	-	1	-	5
48.	OHL 110 kV no. 150 S/S Bor 1 – S/S Majdanpek 1, introduction into S/S Majdanpek 2 and distribution system of 110 kV transmission line in front of S/S Majdanpek 2	2.6	-	5	-	5	-	-	-	-	5	-	-	2	-	5
49.	Reconstruction of RP 110 kV Pančevo 1	12.2	-	5	-	5	-	-	-	-	4	-	-	2	-	5
50.	Reconstruction of OHL 110 kV no. 116/1 S/S Sevojno - S/S Kosjerić	4.9	-	5	-	2	-	-	-	-	-	2	-	5	-	5
51.	Adaptation of OHL 110 kV no. 115/4 S/S Požega – Beljina junction and no. 182 S/S Gornji Milanovac - Beljina junction and dismantling of transmission line no. 115/9 S/S Atenica junction - Beljina junction	2.4	-	5	-	2	-	-	-	-	-	2	-	1	-	5
52.	Connection line for S/S 110/35 kV Kragujevac 4	2.8	-	5	-	3	-	-	-	-	2	-	-	1	-	5
53.	Connection line for S/S 110/35 kV Belgrade 46 (Zbeg)	1.7	-	5	-	3	-	-	-	-	2	-	-	1	-	5
54.	Connection line for S/S 110/10 kV Belgrade 49	16.7	-	5	-	3	-	-	-	-	2	-	-	4	-	5
55.	Connection lines for S/S 110/20 kV Novi Sad 8	2.5	-	5	-	3	-	-	-	-	2	-	-	1	-	5
56.	Connection lines for S/S 110/20 kV Svilajnac	1.0	-	5	-	2	-	-	-	-	2	-	-	1	-	5

57.	Connection line for S/S 110/10 kV Čačak 4	1.2		5	-	2	-	-	-	-	2	-	-	1	-	5
58.	Connection line for S/S 110/35 kV Belgrade 55 (Zuce)	1.2	-	5	-	2	-	-	-	-	2	-	-	1	-	5
59.	Connection line for S/S 110/20 kV Kać	1.4	-	5	-	2	-	-	-	-	2	-	-	1	-	5
60.	Reconstruction of S/S 400/110 kV Kragujevac 2	13.3	-	5	-	3	-	-	-	-	-	-	-	5	-	5
61.	Reconstruction of S/S 220/110/35 kV Požega – phase I	0.9	-	5	-	2	-	-	-	-	-	-	-	1	-	5
62.	S/S 400/110 kV Cables with distribution system of lines – II stage / OHL 110 kV no. 121/3 TPP NT A MP – TPSS Brgule, introduction into DS 110 kV	14.0	-	-	-	-	-	-	-	-	-	-	-	1	-	5
63.	DS 220 kV TPP HP Pančevo	3.5	-	-	-	-	-	-	-	-	-	-	-	1	-	5

Table 22a – Ranking according to available IRR

Rank	Project	IRR
1.	BeoGrid2025: S/S 400/110 kV Belgrade 50 with distribution system of 400 kV and 110 kV lines and OHL 400 kV S/S Belgrade 50	32.82%
2.	OHL 2x400 kV S/S Obrenovac – S/S Bajina Bašta, with raising the voltage level at S/S Bajina Bašta to 400 kV - Trans-Balkan Corridor 3rd section	8.28
3.	2x400 kV transmission line S/S Bajina Bašta – S/S Višegrad (B&H) – S/S Pljevlja (Montenegro) - Trans-Balkan Corridor 4th section	8.28

Table 22b – Ranking list based on the investment value of the project

Rank	Project	Investment value in millions of euros
1	BeoGrid2025: S/S 400/110 kV Belgrade 50 with Distribution system of 400 kV and 110 kV lines and OHL 400 kV S/S Belgrade 50	204.9
2	Pannonian Electricity Transmission Corridor	139.95
3	OHL 2x400 kV S/S Obrenovac – S/S Bajina Bašta, with raising the voltage level in S/S Bajina Bašta to 400 kV - Trans-Balkan Corridor 3rd section	89.58
4	Increasing transmission capacities in the Bor region	80.6
5	OHL 2x400 kV S/S Jagodina 4 – S/S Požarevac 3	55.4
6	2x400 kV transmission line S/S Bajina Bašta – S/S Višegrad (B&H) – S/S Pljevlja (Montenegro) - Trans-Balkan Corridor 4th section	53.2

7	Reconstruction of OHL section no.151/2 and 151/3 and CDS 110 kV Košava, equipping of OHL bays	17.4
8	Connection line for S/S 110/10 kV Belgrade 49	16.7
9	Reconstruction of OHL 2x110kV no. 101AB S/S Belgrade 3 - TPP Kostolac A	16.1
10	Connection line for S/S 110/35 kV Belgrade 44 (Surčin)	16.00
11	OHL 110 kV S/S Jagodina 4 – S/S Stenjevac and the equipping of the bay for the introduction OHL 110 kV towards S/S Stenjevac	15.2
12	Reconstruction of OHL 110 kV no. 147/2 S/S Bor 2 – S/S Negotin	14.6
13	Installation of a variable shunt reactor at S/S Vranje 4	14.00
14	S/S 400/110 kV Konatice with distribution system of lines – phase II / OHL 110 kV no. 121/3 TPP NT A MP – TPSS Brgule, introduction into DS 110 kV	14.00
15	Reconstruction of S/S 400/110 kV Bor 2	13.4
16	Reconstruction of S/S 400/110 kV Kragujevac 2	13.3
17	Reconstruction of DS 110 kV Pančevo 1	12.2
18	Reconstruction of DS 110 kV at S/S (400)/220/110 kV Kraljevo 3, second phase	11.4
19	Reconstruction of S/S 400/220/110 kV Pančevo 2	11.3
20	Distribution system 220 kV OHL and the introduction of OHL 110 kV no. 117/1 S/S Belgrade 2 - S/S Belgrade 35 in S/S Belgrade 3 with the equipping of two 110 kV bays in S/S Belgrade 3	11.00
21	Connection lines for S/S 110/10 kV Kragujevac 22	10
22	Connection line for S/S 110/10 kV Belgrade 58 (National stadium)	8.3
23	Connection cable lines for S/S 110/35 kV Niš 9	7.9
24	S/S 220/110 kV installation of two power transformers with a capacity of 2x250 MVA	7.7
25	Reconstruction of OHL 110 kV no. 113/5 HPP Vrla 3 - TPSS Grdelica	7.6
26	Increase in installed capacity S/S 220/110 kV Valjevo 3	7.6
27	Reconstruction of OHL 110 kV no. 113/2 S/S Niš 2 - S/S Leskovac 4	7.5
28	Reconstruction of DS 400 kV Đerdap 1	7.5
29	Reconstruction of OHL 110 kV no. 116/2 S/S Kosjerić - S/S Valjevo 1	7.5
30	Reconstruction of OHL no. 121/2/3/4 (direction S/S Belgrade 10 – S/S TPP NT A MP – TPSS Brgule – TPP Kolubara A)	7.4
31	OHL 110 kV DS Đerdap 2 - S/S Mosna	6.7
32	Reconstruction of S/S 400/220/110 kV Sremska Mitrovica 2 in S/S 400/110 kV – phase I	6.6
33	OHL 110 kV S/S Žabalj - S/S Perlez	6.5
34	Reconstruction of OHL 110kV no. 115/1 S/S Kraljevo 1 – S/S Čačak 3	5.9
35	Reconstruction and extension of OHL 110 kV no. 114/3 S/S Aleksinac – S/S Niš 1	5.9
36	Reconstruction of OHL 110 kV no. 104/1 and 104/2 S/S Belgrade 5 – S/S Belgrade2 to a double-circuit layout	5.6
37	Reconstruction of OHL 110kV number 113/1 S/S Niš 2 - S/S Niš 1 to a double-circuit transmission line	5.2
38	Reconstruction of OHL 110 kV no. 116/1 S/S Sevojno - S/S Kosjerić	4.9
39	Connection lines for S/S Belgrade 59 (Bio4 campus)	4.7

40	Solving the radial supply of S/S Kopaonik	4.6
41	MV 110 S/S Novi Sad 3 – S/S Inđija 2	4.3
42	OHL 110 kV S/S Valjevo 3 – S/S Ljig	4.3
43	Reconstruction of OHL 110 kV no. 105/2 TPP Morava - S/S Jagodina 4	3.7
44	Connection line for S/S 110/20 kV Perlez and the equipping of 110 kV bays in S/S 220/110 kV Zrenjanin 2 for connection of lines for S/S 110/20 kV Perlez	3.7
45	DS 220 kV TPP HP Pančevo	3.5
46	Adaptation of OHL 110 kV no. 132/3 S/S Kula – S/S Srbobran	2.8
47	Connection line for S/S 110/35 kV Kragujevac 4	2.8
48	Reconstruction of OHL 110 kV no. 113/4 S/S Leskovac 2 - TPSS Grdelica	2.7
49	OHL 110 kV no. 150 S/S Bor 1 – S/S Majdanpek 1, introduction into S/S Majdanpek 2 and distribution system of 110 kV transmission lines in front of S/S Majdanpek 2	2.6
50	Connection lines for S/S 110/20 kV Novi Sad 8	2.5
51	Adaptation of OHL 110 kV no. 115/4 S/S Požega – Beljina junction and no. 182 S/S Gornji Milanovac - Beljina junction and dismantling of transmission line no. 115/9 S/S Atenica junction - Beljina junction	2.4
52	QC 110 kV no. 172/1 S/S Belgrade 6 – S/S Belgrade 45, section replacement	2.1
53	- Strengthening the transmission network between S/S Bor 2 and S/S Zaječar 2 - CDS 110 kV Bor 4, equipping of two OHL bays - S/S 110 kV Bor 2, equipping of OHL bays - OHL 110 kV S/S Bor 2 - CDS Bor 4, equipping of the 2nd system	1.8
54	Strengthening the transmission network between S/S Bor 2 and S/S Zaječar 2 (OHL 110 kV CDS Bor 4 - S/S Zaječar 2, extension of OHL)	1.7
55	Adaptation of OHL 110 kV no. 137/2 TPSS Resnik – TPP Kolubara	1.7
56	Connection line for S/S 110/35 kV Belgrade 46 (Zbeg)	1.7
57	Connection line for S/S 110/20 kV Kać	1.4
58	Connection line for S/S 110/10 kV Čačak 4	1.2
59	Connection line for S/S 110/35 kV Belgrade 55 (Zuce)	1.2
60	Connection lines for S/S 110/20 kV Svilajnac	1
61	Reconstruction of OHL 110 kV no. 113/3 S/S Leskovac 4 – S/S Leskovac 2	0.9
62	Reconstruction of S/S 220/110/35 kV Požega – phase I	0.9
63	OHL 110 kV S/S Ljubovija - state border - S/S Srebrenica (B&H)	0.7

3.2.2. Ranking of transmission system projects

Table 23: Ranking of transmission system projects

Rank	Project	IMF category	Number of points
1.	Pannonian Electricity Transmission Corridor	New portable energy capacity	122

Rank	Project	IMF category	Number of points
2.	OHL 2x400 kV S/S Obrenovac – S/S Bajina Bašta, with raising the voltage level in S/S Bajina Bašta to 400 kV - Trans-Balkan Corridor Section 3	Increasing energy transmission capacities	122
3.	2x400 kV overhead transmission line S/S Bajina Bašta – S/S Višegrad (B&H) – S/S Pljevlja (Montenegro) - Trans-Balkan Corridor Section 4	Integration of electricity market	122
4.	BeoGrid2025: S/S 400/110 kV Belgrade 50 with distribution system of 400 kV and 110 kV lines and OHL 400 kV S/S Belgrade 50	Connection of new RES, increasing security	101
5.	OHL 2x400 kV S/S Jagodina 4 – S/S Požarevac 3	Increasing the reliability of the transmission system and the security of consumer supply	101
6.	Reconstruction of DS 400 kV Đerdap 1	Aging infrastructure	92
7.	Increasing transmission capacities in the Bor region	Connection of new power plants/customers	81
8.	Reconstruction of a section of the OHL no.151/2 and 151/3 and CDS 110 kV Košava, the equipping of OHL bays	Integration of RES	72
9.	OHL 110 kV DS Đerdap 2 - S/S Mosna	Integration of RES	71
10.	MV 110 S/S Novi Sad 3 – S/S Inđija 2	Increasing the reliability of the transmission system and the security of consumer supply	70
11.	Reconstruction of OHL 110 kV no. 104/1 and 104/2 S/S Belgrade 5 – S/S Belgrade 2 to a double-circuit layout	Increasing transmission capacity	68
12.	Reconstruction of S/S 400/220/110 kV Pančevo 2	Aging infrastructure	67
13.	Reconstruction of S/S 400/220/110 kV Sremska Mitrovica 2 in S/S 400/110 kV – phase I	Increasing the reliability of the transmission system and the security of consumer supply	65
14.	Distribution system 220 kV OHL and the introduction of OHL 110 kV no. 117/1 S/S Belgrade 2 - S/S Belgrade 35 in S/S Belgrade 3 with the equipping of two 110 kV bays in S/S Belgrade 3	Increasing the reliability of the transmission system and the security of consumer supply	64
15.	Connection line for S/S 110/35 kV Belgrade 44 (Surčin)	Consumption growth	62
16.	Reconstruction of S/S 400/110 kV Bor 2	Aging infrastructure	62
17.	Connection line for S/S 110/10 kV Belgrade 58 (National stadium)	Consumption growth	62
18.	Strengthening the transmission network between S/S Bor 2 and S/S Zaječar 2 - CDS 110 kV Bor 4, the equipping of two OHL bays - S/S 110 kV Bor 2, equipping of OHL bay - OHL 110 kV S/S Bor 2 - CDS Bor 4, equipping of the 2nd system	Increasing the reliability of the transmission system and the security of consumer supply	61
19.	Reconstruction of OHL 110 kV no. 147/2 S/S Bor 2 – S/S Negotin	Increasing the reliability of the transmission system and the security of consumer supply	61
20.	Strengthening the transmission network between S/S Bor 2 and S/S Zaječar 2 (OHL 110 kV CDS Bor 4 - S/S Zaječar 2, extension of OHL)	Increasing the reliability of the transmission system and the security of consumer supply	61
21.	Installation of a variable shunt reactor at S/S Vranje 4	Increasing the reliability of the transmission system and the security of consumer supply	60
22.	OHL 110 kV S/S Ljubovija - state border - S/S Srebrenica (B&H)	Increasing energy transmission capacities	58
23.	Reconstruction of OHL 110 kV no. 113/2 S/S Niš 2 - S/S Leskovac 4	Aging infrastructure	56
24.	OHL 110 kV S/S Žabalj - S/S Perlez	Increasing the reliability of the transmission system and the security of consumer supply	54
25.	Reconstruction of OHL 110 kV no. 113/4 S/S Leskovac 2 - TPSS Grdelica	Aging infrastructure	52
26.	Reconstruction of OHL 110 kV no. 113/5 HPP Vrla 3 - TPSS Grdelica	Increasing transmission capacity	52
27.	Reconstruction of OHL 110 kV no. 113/3 S/S Leskovac 4 – S/S Leskovac 2	Aging infrastructure	52

Rank	Project	IMF category	Number of points
28.	Reconstruction of OHL no. 121/2/3/4 (direction S/S Belgrade10 – S/S TPP NT A MP – TPSS Brgule – TPP Kolubara A)	Aging infrastructure	50
29.	Increase in installed capacity S/S 220/110 kV Valjevo 3	Increasing transmission capacity	48
30.	Reconstruction of OHL 110 kV no. 105/2 TPP Morava - S/S Jagodina 4	Aging infrastructure	48
31.	Connection line for S/S 110/20 kV Perlez and the equipping of 110 kV bays in S/S 220/110 kV Zrenjanin 2 for the connection of lines for S/S 110/20 kV Perlez	Consumption growth	46
32.	Reconstruction of OHL 2x110kV no. 101AB S/S Belgrade 3 - TPP Kostolac A	Aging infrastructure	42
33.	Solving the radial supply of S/S Kopaonik	Increasing the reliability of the transmission system and the security of consumer supply	40
34.	Adaptation of OHL 110 kV no. 132/3 S/S Kula – S/S Srbobran	Aging infrastructure	38
35.	Connection lines for S/S Belgrade 59 (Bio4 campus)	Consumption growth	37
36.	Adaptation of OHL 110 kV no. 137/2 TPSS Resnik – TE Kolubara	Increasing the reliability of the transmission system and the security of consumer supply	36
37.	Connection lines for S/S 110/10 kV Kragujevac 22	Increasing the reliability of the transmission system and the security of consumer supply/Consumption growth	35
38.	Reconstruction of DS 110 kV in S/S (400)/220/110 kV Kraljevo 3, second phase	Aging infrastructure	34
39.	Connection cable lines for S/S 110/35 kV Niš 9	Consumption growth	34
40.	OHL 110 kV S/S Valjevo 3 – S/S Ljig	Consumption growth	32
41.	QC 110 kV no. 172/1 S/S Belgrade 6 – S/S Belgrade 45, section replacement	Increasing the reliability of the transmission system and the security of consumer supply	30
42.	OHL 110 kV S/S Jagodina 4 – S/S Stenjevac and the equipping of the bay for introducing OHL 110 kV towards S/S Stenjevac	Increasing the reliability of the transmission system and the security of consumer supply	29
43.	Reconstruction of OHL 110kV no. 115/1 S/S Kraljevo 1 – S/S Čačak 3	Increasing transmission capacity	28
44.	Reconstruction of OHL 110 kV no. 116/2 S/S Kosjerić - S/S Valjevo 1	Increasing transmission capacity	27
45.	S/S 220/110 kV Požega, installation of two power transformers with a capacity of 2x250 MVA	Increasing the reliability of the transmission system and the security of consumer supply	27
46.	Reconstruction of OHL 110kV number 113/1 S/S Niš 2 - S/S Niš 1 to a double-circuit layout	Increasing the reliability of the transmission system and the security of consumer supply	26
47.	Reconstruction and extension of OHL 110 kV no. 114/3 S/S Aleksinac – S/S Niš 1	Aging infrastructure	26
48.	OHL 110 kV no. 150 S/S Bor 1 – S/S Majdanpek 1, introduction of 110 kV transmission lines in front of S/S Majdanpek 2 and distribution system	Increasing the reliability of the transmission system and the security of consumer supply	25
49.	Reconstruction of DS 110 kV Pančevo 1	More efficient infrastructure management	24
50.	Reconstruction of OHL 110 kV no. 116/1 S/S Sevojno - S/S Kosjerić	Increasing transmission capacity	23
51.	Adaptation of OHL 110 kV no. 115/4 S/S Požega – junction Beljina and no. 182 S/S Gornji Milanovac - junction Beljina and dismantling of transmission line no. 115/9 S/S junction Atenica - junction Beljina	Aging infrastructure	23
52.	Connection line for S/S 110/35 kV Kragujevac 4	Consumption growth	20
53.	Connection line for S/S 110/35 kV Belgrade 46 (Zbeg)	Consumption growth	20
54.	Connection line for S/S 110/10 kV Belgrade 49	Consumption growth	20

Rank	Project	IMF category	Number of points
55.	Connection lines for S/S 110/20 kV Novi Sad 8	Consumption growth	20
56.	Connection lines for S/S 110/20 kV Svilajnac	Aging infrastructure	19
57.	Connection line for S/S 110/10 kV Čačak 4	Consumption growth	19
58.	Connection line for S/S 110/35 kV Belgrade 55 (Zuce)	Increasing the reliability of the transmission system and the security of consumer supply	19
59.	Connection line for S/S 110/20 kV Kać	Consumption growth	19
60.	Reconstruction of S/S 400/110 kV Kragujevac 2	Aging infrastructure	18
61.	Reconstruction of S/S 220/110/35 kV Požega – phase I	Aging infrastructure	17

3.3. Distribution network

The development of the distribution network should include a number of projects that will positively impact the reliability, quality and security of supply to all electricity customers. The emphasis in all activities, among other things, must be given to increasing energy efficiency, where one of the priority measures is the reduction of electricity distribution losses.

The development of the distribution network includes the construction of missing transformer stations and lines, primarily at voltage levels of 110 and 35 kV, and the reconstruction and modernization of existing transformer stations (replacement of worn-out power equipment, capacity increase, automation of plant elements, etc.) and existing networks of lower voltage levels (35, 20, 10 and 0.4 kV). These measures will reduce (currently very high) losses in distribution systems and increase their efficiency, achieve a higher level of system reliability and ensure better quality of electricity supply to customers.

In the domain of the electricity distribution sector, the replacement of existing metering devices with modern digital metering devices that will enable the implementation of the so-called "smart metering" is certainly one of the key project tasks. This project activity involves the measurement and acquisition of all relevant consumption values, more precisely remote reading, remote disconnection, consumption management, etc. In the period until 2030, about three million meters are expected to be replaced. Regarding the distribution system, other steps need to be taken regarding the introduction of the so-called "smart grid" concept. Automation of the distribution network within the "smart grid" concept involves the introduction of systems and SCADA applications for remote monitoring and management of existing and future switching and breaker elements in the distribution network. In addition to contributing to the reduction of losses in the distribution system, this is also important due to the possibility of connecting new electricity producers from RES to the distribution network. This will require distribution companies to become active participants in the management of their part of the system.

Table 24 shows priority projects, while Table 25 shows other projects for the distribution network.

Table 24: Distribution network priority projects

S/S 110/10kV National stadium, S/S 110/35kV Surčin, distribution system of lines and construction of CDS								
	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	Powering new consumers, better management of the medium-voltage network, reducing the number of outages, shortening the duration of outages, reducing technical losses in the distribution network	2026	50.00	yes	budget 50.00	80.00	4	yes
	The project should ensure: - supply of new consumers - better reliability of the distribution network; - reduction of the number of outages and the duration of outages for end users; - reduction of losses in the distribution network; - reduction of total network maintenance costs; - better and higher quality planning of the distribution network development.							

	Responsible entity	2025	2026	2027	2028	2029	2030
Spatial documentation		x					
Conceptual design and feasibility study		x					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs	x					
Resolving property and legal matters		x					
Preliminary design and feasibility study	LLC EDS	x					
Energy permit		n/a					
Construction permit design and construction permit		x					
Preparation of tender documentation		x					
Construction Design		n/a					
Carrying out equipment installation works	LLC EDS	x	x				

Automation of the medium voltage network

	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	Management of the medium voltage network, reducing the number of outages, shortening the duration of outages, reducing technical losses in the distribution network	2027	320.00	Partly	Deutsche Bank loan/ French Treasury loan/ €97,151,720/24,348,272 the remainder up to 320 million Euros (198,500,008) EDS own funds and optionally a loan	400.00	4.5	yes
	The project should ensure: - better reliability of the distribution network; - reduction of the number of outages and the duration of outages for end users; - reduction of losses in the distribution network; - reduction of total network maintenance costs; - better and higher quality planning of the distribution network development.							

	Responsible entity	2025	2026	2027	2028	2029	2030
Spatial documentation		n/a					
Conceptual design and feasibility study		n/a					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs	x					
Resolving property and legal matters		n/a					
Preliminary design and feasibility study	LLC EDS	x					
Energy permit		n/a					
Construction permit design and construction permit		n/a					
Preparation of tender documentation		n/a*					
Construction Design		n/a**					
Carrying out equipment installation works	LLC EDS	x	x	x			

Improvement of DSEE - Replacement of impregnated wooden poles with concrete poles with replacement of conductors

	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	reducing the number of power outages, reducing the length of power outages, but also partly reducing losses in conductors, increasing network stability in winter periods when the low-voltage network is most vulnerable to weather conditions	2025	52.50	yes	Loan 52.50	70.00	3	
	The project includes the replacement of worn-out impregnated wooden poles that are in very poor condition with new concrete poles. In addition, the existing conductors will be replaced with more modern conductors of higher capacity. The replacements will be carried out in the most vulnerable areas identified by monitoring the trends of network outages. The same project worth 50 million euros, which was planned for the period 2023-2024, has been successfully implemented.							

	Responsible entity	2025	2026	2027	2028	2029	2030
Spatial documentation		n/a					
Conceptual design and feasibility study		n/a					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs	n/a					
Resolving property and legal matters		n/a					
Preliminary design and feasibility study	LLC EDS	n/a					
Energy permit		n/a					
Construction permit design and construction permit		n/a					
Preparation of tender documentation		n/a					
Construction Design		n/a					
Carrying out equipment installation works	LLC EDS	x	x				

Replacement of electromechanical meters with smart meters

	Technical effect	Expected year of completion			Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	Management of measurements in the low-voltage network, reduction of unauthorized electricity consumption, reduction of non-technical losses in the distribution network	2029			505.00	partly	EBRD and EIB loan / WBIF grant / Budget (EU donation)/ Own funds €120/7.84/110/19.5 / n/a	550.00	n/a	
	The project includes the procurement of smart meters with the possibility of two-way communication, as well as the procurement and implementation of an advanced system for meter reading and control of electricity consumption - Smart Metering system. The Smart Metering system includes advanced meter infrastructure (AMI), automatic meter management (AMM) and meter data management databases (MDM/R) with all necessary software and hardware. In the period 2023-2024, a project was implemented to replace 523,425 electromechanical meters with smart meters worth 110 million euros.									

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation		n/a							
Conceptual design and feasibility study		n/a							
Consent to the Environmental Impact Assessment Study		n/a							
Resolving property and legal matters		n/a							
Preliminary design and feasibility study	LLC EDS	x							
Energy permit		n/a							
Construction permit design and construction permit		n/a							
Preparation of tender documentation		n/a							
Construction Design		n/a							
Carrying out equipment installation works	LLC EDS	x	x	x	x	x	x	x	

Reconstruction of 25 S/S 110/x kV

	Technical effect	Expected year of completion	Value (million euros)	Funds provided	Sources of funding	NPV (million euros)	IRR	Planning and technical documentation - status
Description	The project should ensure better reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce losses in the distribution network; reduce the total maintenance costs of the S/S.	2028	47.50	partly	Loan Direct debit from EDS. 47.5	60.00	4	
	The project includes the reconstruction of S/S 110/35kV							

	Responsible entity	2025	2026	2027	2028	2029	2030
Spatial documentation		n/a					
Conceptual design and feasibility study		n/a					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs	x					
Resolving property and legal matters		n/a					
Preliminary design and feasibility study	LLC EDS	x					
Energy permit		n/a					
Construction permit design and construction permit		n/a					
Preparation of tender documentation	LLC EDS	x					
Construction Design		n/a					
Carrying out equipment installation works	LLC EDS	x	x	x	x		

Table 25: Other projects for the distribution network

Project	Expected year of completion of the facility-initiative	Project description	Value (million euros)	Funds provided
Construction of S/S 110/10 kV BIOCAMPUS	2027	The project should provide power to new consumers, improve the reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce losses in the distribution network; reduce the total maintenance costs of the S/S.	21.00	yes
Reconstruction of 26 S/S 35/x kV	2028	The project should ensure better reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce losses in the distribution network; reduce the total maintenance costs of the S/S.	18.20	no
Replacement of 6 pieces of old ET 110/h kV with new ones with reduced losses	2028	The project should ensure better reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce losses in the distribution network; reduce the total maintenance costs of the S/S.	9.96	no

Project	Expected year of completion of the facility-initiative	Project description	Value (million euros)	Funds provided
Replacement of metering transformers of voltage levels 35 and 110 kV	2028	Procurement of 110 kV NMT 50 pcs, 110 kV SMT 75 pcs, 35 kV NMT for outdoor installation 15 pcs, 35 kV NMT for indoor installation 15 pcs, 35 kV SMT for outdoor installation 45 pcs, 35 kV SMT for indoor installation 45 pcs	1.154	no
Replacement of 39 pieces of old ET 35/h kV with new ones with reduced losses	2028	The project should ensure better reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce losses in the distribution network; reduce the total maintenance costs of the S/S.	6.63	no
Replacement of 1130 pieces of old ET 10(20)/0.4 kV with new ones with reduced losses	2028	The project should ensure better reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce losses in the distribution network; reduce the total maintenance costs of the S/S.	25.25	no
Procurement of mobile S/S 35/10(20)	2028	The project should ensure the development of the distribution system in order to ensure the inclusion of new capacities for the connection of new system users.	6.70	no
Objects of importance for the RS according to the Conclusions of the Government of the RS	2029	EEO for connection to DSEE of facilities of importance for the Republic of Serbia, which, according to the Conclusions of the Government of the Republic of Serbia, are being built by EDS with its own funds	30.00	no
110 kV circuit breakers 62 pieces, 35 kV outdoor circuit breakers 53 pieces and 35 kV indoor circuit breakers 75 pieces	2028	The project should ensure better reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce the overall costs of network maintenance;	4.40	no
110 kV disconnectors 50 pieces, 35 kV external disconnectors 75 pieces and 35 kV internal disconnectors 61 pieces	2028	The project should ensure better reliability of the distribution network; reduce the number of outages and the duration of outages for end users; reduce the overall costs of network maintenance;	1.30	no
Software solution for loss calculation	2028	The software solution for calculating losses will enable monitoring of the received, read and billed energy and based on that calculate the total losses on the ED network and will be integrated with legacy EDS systems. The system will make an assessment of the future state based on history. The system will also enable EDS to: - calculate losses for the accounting period (1 month). - greater accuracy of loss planning and loss reduction measures and thus detection of micro-location of losses. - micro-locating loss centres which will enable more precise targeting of investments to reduce losses. Process automation will save time compared to manual loss calculation in excel files.	10.00	no
Integrated system for remote monitoring, diagnostics and management of low-voltage distribution networks	2028	The project should ensure faster implementation of investments, connections and maintenance;	80.00	no
Relocating measurement points to a public area for unobstructed access	2029	The project includes the relocation of metering points for 719,805 end users and their modernization through the procurement of smart meters with the possibility of 2-way communication and their inclusion in the Smart Metering system. The Smart Metering system includes advanced meter infrastructure (AMI), automatic meter management (AMM) and meter data management (MDM/R) databases with all necessary software and hardware. A relocated metering point involves the creation of a completely new metering point on the regulation line (outside the building). This involves the purchase of a new metering cabinet that needs to be installed and fully equipped with metering and control devices, limiters and other supporting materials (cables, terminals, switches, etc.).	511.00	no
Installation of capacitor banks at MV and LV voltage levels	2030	Efficient reactive power compensation reduces electricity losses, relieves the capacity of existing elements and postpones investments in the construction of new distribution network capacities, reduces peak loads, improves	2.00	no

Project	Expected year of completion of the facility-initiative	Project description	Value (million euros)	Funds provided
(Compensation of reactive energy in the distribution system of Elektrodistribucija Srbije d.o.o. Belgrade)		voltage conditions in the network, and reduces the amount of reactive energy taken at the transmission/distribution threshold.		
Reconstruction of 110 kV transformer bay in S/S where energy exchange measurement with EMS is on the MV side (70 S/S and 107 transformer bays)	2030	The project should ensure the accuracy of measuring the electricity taken from the transmission system instead of the current application of correction factors, which will also reduce electricity losses in the distribution system. The reconstruction of the transformer bay will also increase the reliability of the system.	80.00	no
Compact concrete S/S 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	2030	The project should ensure the development of the distribution system in order to provide new capacities for the connection of new system users.	70.00	no
Pole transformer stations 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	2030	The project should ensure the development of the distribution system in order to provide new capacities for the connection of new system users.	40.00	no
Cables and harnesses with accessories of all voltage levels	2030	The project should ensure faster implementation of investments, connections and maintenance;	50.00	no
Construction of optical infrastructure	2030	The optical infrastructure construction project involves the procurement and laying of optical cables of various types (OPGW, ADSS, underground) in order to connect the distribution areas and branches of "Elektrodistribucija Srbije", thereby achieving the telecommunications independence of the company from EPS, EMS and telecommunications operators. This project will connect the centres of the distribution areas, as well as the centres of EDS branches, with highly reliable, high-capacity connections. The project enables the existence of a single, independent ICT system of the company, thereby improving efficiency, enabling centralized management and control over the electricity distribution system, enabling centralized, unified business systems, reducing operating costs, and contributing to the reduction of commercial and technical losses. This project would influence the more efficient implementation of the medium-voltage network automation project, the Smart Grid project, and similar capital projects being implemented throughout the Republic.	58.00	no
Digitalization of the process of obtaining a decision for the approval of connection	2027	The aim of the Project is to establish a system for electronic submission of applications for obtaining an electricity consent. In addition to introducing the possibility of submitting applications in this way, the digitalization of the application process will also be enabled. The processes that are being digitalized are: - the procedure for connecting a facility to the electricity distribution system within the unified procedure, - the procedure for connecting a facility to the electricity distribution system in the administrative procedure, - the procedure for connecting facilities of electricity producers, - access to the electricity distribution system and related sub-processes.	10.00	no
NOC (Network Operations Centre)	2027	The need for the maintenance and further development of the EDS ICT infrastructure requires the construction of a centre for consolidated monitoring of ICT infrastructure, services and applications, NOC (Network Operations Centre). The main tasks of this system are: • Stable operation of the entire ICT infrastructure of the company, 24x7 monitoring of network infrastructure, data centres and applications with the aim of timely identification of failures of critical segments of ICT systems and applications,	2.0	no

Project	Expected year of completion of the facility-initiative	Project description	Value (million euros)	Funds provided
		Consolidation of monitoring - efficient use of people and faster, more efficient problem solving, establishing visibility of all relevant events, Prevention of incidents or when these incidents occur, faster identification, More efficient control of system functioning, Avoiding service failures or minimizing the time for their resolution, thereby ensuring better quality of services to end users, Improves the utilization of company resources, through control of their quality work, Better deployment of technically qualified personnel, faster exchange of information. • Monitoring connections to external systems, • Supporting local ICT teams, • Reduction of operating and maintenance costs, • Improvement of productivity, • Improvement of the image of the company. The main activities of the system include: • Planning and monitoring the use of the company's ICT infrastructure, • Monitoring and maintaining the company's ICT infrastructure, • Monitoring and maintaining the company's TC system, IP network, IP telephony, video surveillance systems, access control and other infrastructure systems, • Providing assistance in maintaining ICT systems at the local level, • Participating in planning and coordinating the expansion of ICT systems.		

3.3.1. Scoring of distribution network projects

Table 26: Scoring of distribution network projects

Weight factor				3	1	2	0	2	2	0	3	1	1	2	0	3
Rank	Project	Value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and improvement of competition	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfilment of international obligations	Financing secured
1.	S/S 110/10kV National stadium, S/S 110/35kV Surčin, distribution system of lines and the construction of CDS	50.00	4%	5	0	5	0	3	3	0	3	2	0	5	0	3

Weight factor				3	1	2	0	2	2	0	3	1	1	2	0	3
Rank	Project	Value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and improvement of competition	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfilment of international obligations	Financing secured
2.	Construction of S/S 110/10 kV BIOCAMPUS	21.00		5	0	5	0	3	3	0	3	2	0	3	0	3
3.	Automation of the medium voltage network	320.00	4.5%	5	0	5	0	3	3	0	3	2	0	5	0	3
4.	DSEE improvement, replacement of impregnated wooden poles with concrete poles with replacement of conductors	52.50	3%	5	0	5	0	1	3	0	3	2	0	4	0	5
5.	Reconstruction of 25 S/S 110/x kV	47.50	4%	5	0	5		3	3	0	4	2		5	0	1
6.	Complete reconstruction of 26 S/S 35/x kV	18.20	-	5	0	5		3	3	0	4	4	0	3	0	1
7.	Replacement of 6 pieces of old ET 110/h kV with new ones with reduced losses	9.96	-	5	0	5	0	3	3	0	5	4	0	2	0	1
8.	Replacement of 39 pieces of old ET 35/h kV with new ones with reduced losses	6.63	-	5	0	5	0	3	3	0	4	4	0	3	0	1
9.	Replacement of 1130 transformers of voltage level 10, 20, 35 and 110 kV	25.25	-	5	0	5	0	3	3	0	3	1	0	5	0	1
10.	Procurement of mobile S/S 35/10(20)	6.70	-	5	0	5	0	3	3	0	3	1		5	0	1
11.	110 kV circuit breakers 62 pieces, 35 kV outdoor circuit breakers 53 pieces and 35 kV indoor	4.40	-	5	0	5	0	3	3	0	3	0	0	5	0	1

Weight factor				3	1	2	0	2	2	0	3	1	1	2	0	3
Rank	Project	Value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and improvement of competition	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfilment of international obligations	Financing secured
	circuit breakers 75 pieces															
12.	110 kV disconnectors 50 pieces, 35 kV external disconnectors 75 pieces and 35 kV internal disconnectors 61 pieces	1.30	-	5	0	5	0	3	3	0	3	0	0	5	0	1
13.	Replacement of metering transformers of voltage levels 35 and 110 kV	1.15	-	5	0	5	0	3	3	0	3	0	0	5	0	1
14.	Objects of importance for the RS according to the Conclusions of the Government of the RS	30.00	-	5	0	5	0	3	3	0	3	0	0	5	0	1
15.	Replacement of electromechanical meters with smart meters	505.00	-	5	0	5	0	3	4	0	3	1	0	5	0	2
16.	Software solution for loss calculation	10.00	-	5	0	5	0	3	3	0	3	0	0	5	0	1
17.	Integrated system for remote monitoring, diagnostics and management of low-voltage distribution networks	80.00	-	5	0	5	0	3	3	0	3	0	0	5	0	1
18.	Relocating measurement points to a public area for unobstructed access	511.00	-	2	0	2	0	0	3	1	3	0	0	1	0	0

Weight factor				3	1	2	0	2	2	0	3	1	1	2	0	3
Rank	Project	Value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and improvement of competition	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfilment of international obligations	Financing secured
19	Installation of capacitor banks at MV and LV voltage levels (Compensation of reactive energy in the distribution system of Elektrodistribucija Srbije d.o.o. Belgrade)	2.00	-	5		5	0	3	3	0	4	2		2	0	1
20	Reconstruction of 110 kV transformer bay in S/S where energy exchange measurement with EMS is on the MV side (70 S/S and 107 transformer bays)	80.00	-	3	0	5	0	3	3	0	4	2	0	5	0	1
21	Compact concrete S/S 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	70.00	-	5	0	5	0	3	3	0	4	2	0	2	0	1
22	Pole transformer stations 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	40.00	-	5	0	5	0	3	3	0	4	2	0	2	0	1
23	Cables and harnesses with accessories of all voltage levels	50.00	-	5	0	5	0	3	3	0	4	2	0	2	0	1
24	Construction of optical infrastructure	58.00	-	2	0	2	0	0	0	1	1	1	0	1	0	1

Weight factor				3	1	2	0	2	2	0	3	1	1	2	0	3
Rank	Project	Value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and improvement of competition	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfilment of international obligations	Financing secured
25	NOC (Network Operations Centre)	2.0	-	5	0	0	0	0	0	0	1	0	0	2	0	1
26	Digitalization of the process of obtaining a connection approval solution	10.00	-	5	0	5	0	1	3	0	1	0	0	5	0	1

Table 26a- Ranking according to available IRR

Rank	Project	IRR
1.	Automation of the medium voltage network	4.5%
2.	Reconstruction of 25 S/S 110/x kV	4%
3.	S/S 110/10kV National stadium, S/S 110/35kV Surčin, distribution system of lines and construction of CDS	4%
4.	Improvement of DSEE, replacement of impregnated wooden poles with concrete poles with replacement of conductors	3%

Table 26b- Ranking list based on the investment value of the project

Rank	Project	Investment value in millions of euros
1	Relocating metering points to a public area for unobstructed access	511.00
2	Replacement of electromechanical meters with smart meters	505.00
3	Automation of the medium voltage network	320.00
4	Integrated system for remote monitoring, diagnostics and management of low-voltage distribution networks	80.00
5	Reconstruction of 110 kV transformer bay in S/S where energy exchange measurement with EMS is on the MV side (70 S/S and 107 transformer bays)	80.00
6	Compact concrete S/S 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	70.00

7	Construction of optical infrastructure	58.00
8	DSEE improvement, replacement of impregnated wooden poles with concrete poles with replacement of conductors	52.5
9	S/S 110/10kV National stadium, S/S 110/35kV Surčin, distribution system of lines and construction of the CDS	50.00
10	Cables and harnesses with accessories of all voltage levels	50.00
11	Reconstruction of 25 S/S 110/x kV	47.5
12	Pole transformer stations 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	40.00
13	Facilities of importance for the RS according to the Conclusions of the Government of the RS	30.00
14	Replacement of 1130 transformers of voltage level 10, 20, 35 and 110 kV	25.25
15	Construction of S/S 110/10 kV BIOCAMPUS	21.00
16	Complete reconstruction of 26 S/S 35/x kV	18.2
17	Software solution for loss calculation	10.00
18	Digitalization of the process of obtaining a decision on the approval for connection	10.00
19	Replacement of 6 pieces of old ET 110/h kV with new ones with reduced losses	9.96
20	Procurement of mobile S/S 35/10(20)	6.7
21	Replacement of 39 pieces of old ET 35/h kV with new ones with reduced losses	6.63
22	110 kV circuit breakers 62 pieces, 35 kV outdoor circuit breakers 53 pieces and 35 kV indoor circuit breakers 75 pieces	4.4
23	Installation of capacitor banks at MV and LV voltage levels (Compensation of reactive energy in the distribution system of Elektrodistribucija Srbije d.o.o. Belgrade)	2
24	NOC (Network Operations Centre)	2
25	Replacement of metering transformers of voltage levels 35 and 110 kV	1.15
26	110 kV disconnectors 50 pieces, 35 kV external disconnectors 75 pieces and 35 kV internal disconnectors 61 pieces	1.3

3.3.2. Ranking of distribution network projects

Table 27: Ranking of distribution network projects

Rank	Project	IMF category	Number of points
1.	S/S 110/10kV National stadium, S/S 110/35kV Surčin, distribution system of lines and the construction of CDS	increasing energy security	67
2.	Automation of the medium-voltage network	increasing energy security	67
3.	Improvement of DSEE, replacement of wooden impregnated poles with concrete poles with replacement of conductors	increasing energy security	67
4.	Replacement of electromechanical meters with smart meters	increasing energy security	65
5.	Reconstruction of 25 S/S 110/x kV	increasing energy security	64
6.	Construction of S/S 110/10 kV BIOCAMPUS	increasing energy security	63
7.	Replacement of 6 pieces of old ET 110/h kV, with new ones with reduced losses	increasing energy security	63
8.	Complete reconstruction of 26 S/S 35/x kV	increasing energy security	62
9.	Replacement of 39 pieces of old ET 35/h kV, with new ones with reduced losses	increasing energy security	62
10.	Procurement of mobile S/S 35/10(20)	increasing energy security	60
11.	Replacement of 1130 transformers of voltage levels 10, 20, 35 and 110 kV	increasing energy security	60
12.	110 kV circuit breakers 62 pieces, 35 kV outdoor circuit breakers 53 pieces and 35 kV indoor circuit breakers 75 pieces	increasing energy security	59
13.	110 kV disconnectors 50 pieces, 35 kV outdoor circuit breakers 75 pieces and 35 kV indoor circuit breakers 61 pieces	increasing energy security	59
14.	Replacement of voltage level instrument transformers 35 and 110 kV	increasing energy security	59
15.	Objects of importance for the RS according to the Conclusions of the Government of the RS	increasing energy security	59
16.	Software solution for loss calculation	increasing energy security	59
17.	Integrated system for remote monitoring, diagnostics and management of the low-voltage distribution network	increasing energy security	59
18.	Installation of capacitor banks at the MV and LV voltage levels (Compensation of reactive energy in the distribution system of Elektrodistribucija Srbije d.o.o. Belgrade)	increasing energy security	58
19.	Reconstruction of the 110 kV transformer bay in S/S where the measurement of energy exchange with the EMS is on the MV side (70 TS and 107 transformer bays)	increasing energy security	58
20.	Compact concrete S/S 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	increasing energy security	58
21.	Pole transformer stations 10(20)/0.4 kV (with ET), delivery and installation - 1000 pieces	increasing energy security	58
22.	Cables and harnesses with accessories of all voltage levels	increasing energy security	58
23.	Digitalization of the process of obtaining a decision on the approval of connection	increasing energy security	49
24.	Relocating metering points to a public area for unobstructed access	increasing energy security	27
25.	NOC (Network Operations Centre)	increasing energy security	25

Rank	Project	IMF category	Number of points
26.	Construction of optical infrastructure	increasing energy security	20

3.4. Natural gas sector

The Republic of Serbia is a highly import-dependent country in the natural gas energy sector. There have been no significant discoveries of new natural gas deposits in recent years. Most gas fields are in the final phase of exploitation and domestic natural gas production is stagnant.

The security of natural gas supply to the Republic of Serbia has been significantly improved by the construction and commissioning of the main gas pipeline (interconnector) from the Bulgarian border to the Hungarian border (Balkan Stream), as well as by the commissioning of the main gas pipeline from Dimitrovgrad to Niš (interconnection with Bulgaria). The interconnectors in question are connected to the existing transport system of the Republic of Serbia. The start of operation of the interconnector has fundamentally changed the direction of supply and the way the gas pipeline system in Serbia functions. After decades of supply with Russian gas via Ukraine and Hungary, with one entry point into the transport system (Horgoš), now supply from two directions has been enabled, from Bulgaria, that is, the supply of natural gas from the previous Russian Federation and Azerbaijan. The aforementioned gas pipelines have ensured that the infrastructure supply standard (N-1) at the level of the Republic of Serbia has been increased compared to the consumers period, and have also enabled the Republic of Serbia to become a significantly greater transit country for natural gas in the future, given that transit is carried out through the territory of Serbia for in Hungary and Bosnia and Herzegovina.

However, although natural gas supply is currently realized from three directions, the energy policy of the Republic of Serbia continues with further diversification of natural gas supply from additional sources. Despite the suspension of supply of Russian gas to the European Union countries by the Ukrainian operator "GS/SOU", the Horgoš entry point is used for the import and takeover of gas via the Hungarian transport system from the European gas pipeline network. In addition, it is important to realize additional interconnections with neighbouring transport systems (North Macedonia[1], Romania, etc.). These interconnections will enable the supply of natural gas from the BRUA pipeline (Bulgaria, Romania, Hungary, Austria), the Trans-Anatolian and Trans-Adriatic pipelines (TAN and TANAP), from liquefied natural gas terminals in Greece and Croatia, as well as gas produced in Romania.

The increase in natural gas storage capacity in the Republic of Serbia, in addition to solving the problem of seasonal consumption imbalances and increasing security of supply, also aims to ensure mandatory reserves of natural gas. Mandatory reserves of natural gas are created to ensure full supply to consumers in the Republic of Serbia even in the event of a complete interruption in the supply of natural gas from other transport systems for at least thirty days. In addition to expanding the capacity of the Banatski Dvor storage facility to a capacity of 0.75 billion m3 (potentially 1.5 billion m3), capacity can be increased by building an entire storage system in Vojvodina (Itebej, Tilva), whose total capacity is estimated at 2.5 to 3 billion m3 of natural gas. When drafting the Energy Development Strategy, it is necessary to conduct thorough analyses and determine the actual storage needs of the Republic of Serbia in relation to natural gas, primarily from the perspective of projected annual consumption. Considering that in the previous period, specific project activities of PE Srbijagas on the implementation of the storage construction projects in Itebej and Tilva were lacking, this analysis will show the validity of these projects, which are presented in this plan for the sake of caution.

Regular maintenance, further construction and improvement of the transport system, is a prerequisite for a secure supply of natural gas to consumers. The construction of the transport system in western (Valjevo, Loznica), southwestern (Raška, Novi Pazar) and eastern Serbia (Bor, Prahovo, Zaječar, Knjaževac) and southeastern Serbia (Pirot, Bela Palanka, Dimitrovgrad) should open the possibility of supplying industrial and other consumers (heating plants, general consumption) in these areas as well.

Along with the expansion of the transport system, it is necessary to further develop the distribution system and create conditions for the greater use of natural gas in wide consumption. Natural gas is incomparably more environmentally friendly than other solid and liquid fossil fuels and as a transit fuel, together with the use of renewable energy sources, should represent a solution for reducing air pollution in urban areas, especially in the winter months.

The use of natural gas for cogeneration (combined heat and power generation) in industry, the public and commercial sectors, as well as for electricity generation using a combined steam-gas cycle, was discussed in more detail in Part 3.1. of the Plan. The thermal power plant-heating plant (TPP-HP) at the Pančevo refinery is the first combined cycle plant in the Republic of Serbia, and the constructed transport system and the available quantities of natural gas provide the possibility of building additional capacities at other locations. This possibility needs to be considered at the location of TPP Kostolac A in order to ensure hydrogen" production of thermal energy for consumption in Požarevac and its surroundings, as well as in larger industrial centres. These plants could also be used for the combined combustion of biogas or "green obtained from RES.

The implementation of the project portfolio in the natural gas sector is largely conditioned by the process of reform of the gas sector, which has been actively underway in the past period. This reform implies a consistent separation of the activities of transport and storage from distribution and trade. As stated in the introductory remarks, in the upcoming period, all aspects of the transition from the ISO system (independent system operator) to the ITO model (independent transport operator) of transport system operation will be considered.

In order for changes in the sector to be economically sustainable, it is necessary to ensure an adequate price for natural gas for households and the economy.
In this regard, within the framework of the stand-by arrangement with the IMF, corrections to the price of natural gas have already been made, by 10% for May and November 2023 and May 2024.

[1]Project started during 2024

Table 28 shows key infrastructure development projects in the natural gas sector, and Table 29 shows other foreseen projects in this sector.

Table: 28 Priority projects in the gas sector

Receiving and transmitting station (PPS) Loznica

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation - status
Description	Loss reduction	2026	18.5	yes	Own funds/commercial bank loan 100% (Postal savings bank + OTP with the guarantee of RS)	11.779	14.53%	Spatial documentation completed
	Currently, the natural gas transfer between the Republic of Serbia and the Republic of Bosnia and Herzegovina is carried out at the transfer station in Zvornik, after some 25 km of the gas pipeline route that passes through the territory of the Republic of Bosnia and Herzegovina. Before that station, immediately after crossing the Drina River, the transport system operator "Gas Promet" East Sarajevo plans to connect a metering station for the supply of Bijeljina. This generally means that PE "Srbijagas" does not have control over this segment of the pipeline, after which the metering station is located. Also, both metering stations do not comply with the regulations and functional requirements for fiscal metering points.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	PE Srbijagas/Transportgas Srbija d.o.o.		x						
Conceptual design and location permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Consent to the Environmental Impact Assessment Study	Ministry responsible for environmental protection affairs			x					
Resolving property and legal matters	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Conceptual design and feasibility study	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Energy permit	ministry responsible for mining and energy affairs			x					
Building permit project and building permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Preparation of tender documentation	Ministry responsible for mining and energy affairs, PE Srbijagas/Transportgas Srbija d.o.o.		x						
Project for execution	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Construction	PE Srbijagas/Transportgas Srbija d.o.o.				x				

Receiving and transmitting station (PPS) Horgoš

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation - status

Description	Loss reduction	2025	20.00	yes	Own funds/commercial bank loan (OTP) 100% with the guarantee of RS	7.379	11.48%	Spatial documentation completed
	The handover between the transport system of the PE "Srbijagas" and the Hungarian system of the operator FGSZ is carried out at the metering station in Kiskundorozsma, and the control metering is carried out at the PPS Horgos. The equipment installed at the PPS Horgos is old, the method of measurement differs from other metering points at the entrances to the PE "Srbijagas" system, and this creates differences in calculations. Also, the metering station in Hungary does not have all the necessary equipment for full control and verification of consumed quantities, and correction on our part is not possible due to inadequate equipment at the PPS Horgos. This station does not allow the transport of gas from Serbia to Hungary.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	PE Srbijagas/Transportgas Srbija d.o.o.		x						
Conceptual design and location permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Consent to the Environmental Impact Assessment Study	Ministry responsible for environmental protection affairs			x					
Resolving property and legal matters	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Conceptual design and feasibility study	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Energy permit	ministry responsible for mining and energy affairs			x					
Building permit project and building permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Preparation of tender documentation	Ministry responsible for mining and energy affairs, PE Srbijagas/Transportgas Srbija d.o.o.	x							
Project for execution	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Construction	PE Srbijagas/Transportgas Srbija d.o.o.			x					

Receiving and transmitting station (PPS) Banatski Dvor

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation - status

Description	Loss reduction	2026	20.00	yes	Own funds/commercial bank loan (OTP) 100% with RS guarantee	4.940	10.61%	Spatial documentation completed
	The handover between the transport system of PE "Srbijagas" and the underground gas storage facility Banatski Dvor is carried out through a metering station consisting of 3 ultrasonic meters, which are physically placed inside the facility and do not comply with the regulations and functional requirements for fiscal metering points. This station also does not have sufficient capacity to measure the quantities of natural gas planned after the expansion of the underground storage facility.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	PE Srbijagas/Transportgas Srbija d.o.o.		x						
Conceptual design and location permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Consent to the Environmental Impact Assessment Study	Ministry responsible for environmental protection affairs			x					
Resolving property and legal matters	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Conceptual design and feasibility study	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Energy permit	ministry responsible for mining and energy affairs			x					
Building permit project and building permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Preparation of tender documentation	Ministry responsible for mining and energy affairs, PE Srbijagas/Transportgas Srbija d.o.o.	x							
Project for execution	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Construction	PE Srbijagas/Transportgas Srbija d.o.o.				x				

Interconnection Republic of Serbia - Republic of North Macedonia (INMS)								
	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation - status

	1.04 million m3/day (380 million m3/year) from North Macedonia to Serbia	2028	42.00	Partially	Own funds /commercial bank loan with RS guarantee	21.544	13.24%	Public inspection of the spatial plan completed
Description	The project "Construction of the Serbia - North Macedonia Interconnection" would connect the gas pipeline systems of the Republic of Serbia and the Republic of North Macedonia, which would be implemented on the Serbian side by constructing a gas pipeline with a diameter of DN500mm from Vranje to the border with the Republic of North Macedonia, with a length of approximately 47 km. This is a Project defined by the Energy Development Strategy of the Republic of Serbia until 20240 with projections until 2050 ("Official Gazette of the Republic of Serbia", No. 94 of November 28, 2024), as well as the Spatial Plan of the Republic of Serbia. Also, this project is included in the list of projects of interest for the Energy Community, as well as the list of projects of common interest of the European Union. In order to ensure the conditions for the construction of the Serbia-North Macedonia interconnector in terms of the required capacity, it is necessary, instead of the planned gas pipeline from Leskovac to Vranje with a diameter of DN300mm and a length of 63.5 km, to build a new gas pipeline from the main distribution node GRČ Orljane to main measurement and regulation station GMRS Vranje with a diameter of DN500mm and a length of approximately 97 km with a maximum operating pressure of MOP 55 bar. In accordance with the new development strategy of the European gas pipeline network, the pipeline should also enable the transport of hydrogen ("Hydrogen ready"). The implementation of the Project would increase security of supply, enable alternative routes for the supply of natural gas to the Republic of Serbia, and increase opportunities for diversification of supply sources through connection via other national gas pipeline systems to the TAP and TANAP gas pipelines.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Conceptual design and location permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Consent to the Environmental Impact Assessment Study	Ministry responsible for environmental protection affairs			x					
Resolving property and legal matters	PE Srbijagas/Transportgas Srbija d.o.o.			x	x				
Conceptual design and feasibility study	PE Srbijagas/Transportgas Srbija d.o.o.				x				
Energy permit	ministry responsible for mining and energy affairs		x						
Building permit project and building permit	PE Srbijagas/Transportgas Srbija d.o.o.				x				
Preparation of tender documentation	Ministry responsible for mining and energy affairs, PE Srbijagas/Transportgas Srbija d.o.o.			x					
Project for execution	PE Srbijagas/Transportgas Srbija d.o.o.					x			
Construction	PE Srbijagas/Transportgas Srbija d.o.o.					x	x		

* Representatives of WBIF – IPF 10 have processed a financial analysis - Discounted Cash Flow (DCF) methodology for two options financing (Option A: 100% bank financing credit and Option B: 80% credit + 20% non-refundable funds (IPA funds) as well as an economic analysis. In the financial analysis, the gasification scenario with a 20% grant has the best financial results (FNPV: -7.25 million EUR, IRR: 6.6%) , but still insufficient to cover costs (the same is inserted in the table). The economic analysis covers socio-economic benefits (monetized and non-monetized benefits). The recommendation for the project in question is to always use both NPV indicators (financial and economic) in order to demonstrate the dual nature of the project – limited profitability but high social value.

Interconnection Republic of Serbia - Romania

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation - status

	length 1 3.5 km, pressure 63 bar	2027	12.00	no	Budget	8.694	14.76%	Planning documentation adopted, preliminary feasibility study prepared
Description	Currently, the national gas transport systems of Serbia and Romania are not interconnected. This fact makes it impossible to achieve Serbia's strategic goals, which are reflected in the development of a gas market that will be operational and fully integrated and as such ensure the security of gas supply. It is planned that the gas transport systems of Serbia and Romania will be connected by a DN600 diameter gas pipeline with a nominal pressure of 63 bar. The length in Romania is about 85 km, and in Serbia 13.5 km. In the territory of Serbia, a 3.3 km section with a nominal pressure of 63 bar will need to be built to the point of connection with the future gas pipeline for the underground gas storage UGS Banatski Dvor and Belgrade gas pipelines (the "Nakovo" interchange). In the "Nakovo" interchange it is planned to build a control and measuring station, the beginning of the Banatski Dvor gas pipeline section, and to relocate the beginning of the MG-03 gas pipeline, with a cleaning station and a measuring and regulation station. The section from the Nakovo interchange to the connection with the current MG-03 gas pipeline is 10,200 m long, with a DN600 diameter and a nominal pressure of 50 bar.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	PE Srbijagas/Transportgas Srbija d.o.o.	x							
Conceptual design and location permit	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Consent to the Environmental Impact Assessment Study	Ministry responsible for environmental protection affairs			x					
Resolving property and legal matters	PE Srbijagas/Transportgas Srbija d.o.o.			x	x				
Conceptual design and feasibility study	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Energy permit	Ministry responsible for mining and energy affairs			x					
Building permit project and building permit	PE Srbijagas/Transportgas Srbija d.o.o.				x				
Preparation of tender documentation	PE Srbijagas/Transportgas Srbija d.o.o.			x					
Project for execution	PE Srbijagas/Transportgas Srbija d.o.o.					x			
Construction	PE Srbijagas/Transportgas Srbija d.o.o.					x			

Distribution gas pipeline RG 11-02 Leskovac - Vladičin Han – Vranje

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation – status

Description	Connecting to the interconnection with North Macedonia	2028	82,133	Partially	Own funds /commercial bank loan 55% (Banca Intesa) with RS guarantee	57.466	12.62 %	Public review of the spatial plan completed
	The completion of the Leskovac-Vranje gas transport pipeline with the associated main metering and regulation stations will create conditions for the construction of distribution gas pipelines in all villages and towns and the connection of industrial, municipal and individual consumers to the distribution system. The use of natural gas as a fuel will significantly relieve the burden on electricity generation capacities.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	PE Srbijagas		x						
Conceptual design and location permit	PE Srbijagas		x	x					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs			x					
Resolving property and legal matters	PE Srbijagas		x	x					
Conceptual design and feasibility study	PE Srbijagas			x					
Energy permit	ministry responsible for mining and energy affairs			x					
Building permit project and building permit	PE Srbijagas			x	x				
Preparation of tender documentation	PE Srbijagas	x							
Project for execution	PE Srbijagas				x				
Construction	PE Srbijagas				x	x	x		

Expansion of storage capacities of underground gas storage UGS Banatski Dvor								
	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation – status

Description	Increasing storage capacity, security and stability of supply	2026	145.00	no	Credit/PE Srbijagas/Budget	n/a	n/a	Missing planning and technical documentation
	Increasing storage capacity and security and stability of supply. The implementation of the project will enable an increase in daily production capacity to 12.5 million m3, as well as a total storage capacity of up to 750 million m3.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation		n/a							
Conceptual design and location permit	UGS Banatski Dvor	x							
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs		x						
Resolving property and legal matters		n/a							
Conceptual design and feasibility study	UGS Banatski Dvor		x						
Energy permit	ministry responsible for mining and energy affairs	x							
Building permit project and building permit	UGS Banatski Dvor		x						
Preparation of tender documentation	UGS Banatski Dvor		n/a						
Project for execution	UGS Banatski Dvor			x					
Construction	UGS Banatski Dvor			x	x				

Main and distribution gas pipelines of Eastern Serbia Paraćin-Boljevac-Rgotina-Negotin-Prahovo with branches for Bor, Zaječar and Knjaževac

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV	IRR	Planning and technical documentation - status
Description	creating conditions for the construction of distribution gas pipelines in all villages and towns	2028	91.826	yes	Credit/JP Srbijagas/Budget	45.702	11.42 %	Early public review of the development of the spatial plan of the special purpose area for the gas pipelines of Eastern Serbia is underway
	The construction of the Paraćin-Boljevac-Rgotina-Negotin-Prahovo gas transport pipeline with branches for Bor, Zaječar and Knjaževac with the associated main metering and regulation stations will create conditions for the construction of distribution gas pipelines in all villages and towns and the connection of industrial, municipal and individual consumers to the distribution system. The use of natural gas as a fuel will significantly relieve the burden on electricity generation capacities.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030.
Spatial documentation	PE Srbijagas	x							
Conceptual design and location permit	PE Srbijagas			x					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs			x	x				
Resolving property and legal matters	PE Srbijagas		x	x					
Conceptual design and feasibility study	PE Srbijagas			x					
Energy permit	ministry responsible for mining and energy affairs			x					

Building permit project and building permit	PE Srbijagas			x	x				
Preparation of tender documentation	PE Srbijagas	x		x					
Project for execution	PE Srbijagas				x				
Construction	PE Srbijagas				x	x	x		

Table 29: Other projects in the gas sector

Project	Expected year of completion of the facility	Project description	Value (in million euros)	Secured funds	NPV	IRR
Interconnection Croatia	2031	Currently, the national gas transport systems of Serbia and Croatia are not interconnected. This fact makes it impossible to achieve the strategic goals of the European Union, which include the development of a gas market that will be operational and fully integrated and as such ensure security of gas supply. It is planned that the gas transport systems of Serbia and Croatia will be connected by a gas pipeline with a diameter of DN600, with a nominal pressure of 74 bar. The length on the territory of Serbia is 95 km, from the Gospodjinci junction to the border crossing point near Bačko Novo Selo.	60.00	no	4,172	8.75%
Interconnection of Bosnia and Herzegovina	2030	The national gas transport systems of Serbia and Bosnia and Herzegovina are connected by a DN400 gas pipeline with a nominal pressure of 50 bar. This pipeline also serves to supply western Serbia (Šabac, Loznica) and has limited capacity. Therefore, the construction of a transport gas pipeline with a diameter of DN500, a nominal pressure of 50 bar, a length of 90 km on the territory of Serbia, with a branch to Loznica of 12 km is planned. The gas pipeline is run from the point of connection to the gas pipeline MG-04/2 near Inđija to the border crossing point near Novo Selo. At the end of the gas pipeline, a measuring station is planned on the territory of the Republic of Serbia.	65.00	no	2.781	8.46%
Gas pipeline Mokrin-underground gas storage UGS Banatski Dvor-underground gas storage UGS Itebej - Pančevo - Belgrade South	2029	In order to create a backup supply route and create opportunities for direct connection of the UGS Banatski Dvor gas storage facility with the largest consumers in Pančevo and Belgrade, as well as to enable full use of the interconnection with Romania, it is necessary to build a gas pipeline from the future Nakovo hub on the gas pipeline to Romania, via the Banatski Dvor underground storage facility and Pančevo, to a location south of Belgrade, in the Zuc region. It is necessary to build a gas transport pipeline with a diameter of DN600, a design pressure of 63 bar, and a length of 150 km. The construction of this gas pipeline would create conditions for the completion of the gasification of the municipality of Kovacica, as well as the possibility of connecting future gas storage facilities in Itebej, Tilva and Čestereg to the transport system.	150.00	no	5.210	8.40%
North-South gas pipeline; construction of two gas compressor stations	not defined	The project includes the construction of two compressor stations: PS “Batočina” (Kragujevac) with a capacity of 20 MW and PS “Batajnica” (Belgrade) with a capacity of 20 MW.	94.00	no	658	8.08%
North-South gas pipeline; Horgoš Batajnica section	not defined	The project includes the construction of a two-way gas transport pipeline, section Batajnica - Horgoš: gas pipeline length approximately 148 km, MOP 75 bar, diameter DN1000,	243.00	no	7.044	8.34%
North-South gas pipeline; Batajnica-Pojate section	not defined	The project includes the construction of a two-way gas transport pipeline, section Batajnica-Pojate: gas pipeline length approximately 116 km, MOP 55 bar, diameter DN1000	328.00	no	2.488	8.09%

Project	Expected year of completion of the facility	Project description	Value (in million euros)	Secured funds	NPV	IRR
North-South gas pipeline; Pojata-Niš section	not defined	The project includes the construction of a two-way gas transport pipeline section Pojate - Niš, gas pipeline length approximately 161 km, maximum operating pressure (MOP) 55 bar, diameter DN1000	99.00	no	3.357	8.39%
Gasification of the Inđija industrial zone	2026	In order to supply the industrial zone in Inđija with natural gas and future large investments-factories, it is necessary to build a new connection to the transport gas pipeline MG-04/II Senta-Batajnica, due to the small capacity of the existing gas pipeline facilities, to bring gas to the industrial zone where construction is planned and to distribute it to the boundary of the facility. It is necessary to plan the construction of the following gas pipeline system facilities:• Transport gas pipeline from the existing gas pipeline MG-04/II Senta-Batajnica to the location of the main metering and regulation station, with a diameter of DN250, with a length of approximately 2500 m; • Main metering and regulation station (GMRS) with a capacity of 25,000 Sm3/h (Pul=45 bar; Piz= 8-16 bar); • Metering and regulation station (MRS) with a capacity of 8,500 Sm3/h; • distribution gas pipeline made of steel pipes (distribution from GMRS to MRS);	6.00	yes	5.538	16.21%
Distribution gas pipeline Bg-Va-Loznica	2026	The construction of the Belgrade-Valjevo-Loznica gas transport pipeline with the associated main metering and regulation stations will create conditions for the construction of distribution gas pipelines in all villages and towns and the connection of industrial, municipal and individual consumers to the distribution system. The use of natural gas as a fuel will significantly relieve the burden on electricity generation capacities.	99.475	yes	224.164	13.79%
Reconstruction of the oldest main gas pipeline in the Republic of Serbia (MG-03 Senta-Mokrin)	2029	The MG-03 Senta-Mokrin DN600 gas pipeline, 27 km long, is one of the oldest gas pipelines in the PE Srbijagas system and is close to the end of its service life. During operation, the pipeline suffered significant damage, the equipment on the pipeline is also in poor condition, and there is no possibility of remote monitoring and control. On the section across the Tisa River, the river washed away part of the bank, so that the pipeline is now exposed in one part. It is necessary to carry out a detailed reconstruction of this gas pipeline, which would involve the replacement of individual sections and the complete renewal of all equipment on the pipeline.	14.283	no	/	/
Reconstruction of the gas pipeline RG-01-10 (section across the Danube - Smederevo Bridge - drilling and demolition of the bridge)	2026	The crossing of the RG-01-10 Pančevo-Smederevo gas pipeline, DN300, with the Danube River was carried out over an overhead pipe bridge, which has since collapsed. This project envisages the relocation of this section under the Danube bed using the HDD method and the reconstruction of the block stations located near the crossing. After the new section is put into operation, the pipe bridge must be removed.	9.00	no	/	/
Distribution gas pipeline RG 08-20 Zlatibor-Prijepolje with branches for Nova Varoš and Priboj and Distribution gas pipeline RG 09-04/3 Glogovik-Sjenica	2027	The construction of the Zlatibor-Prijepolje gas transport pipeline with branches for Priboj and Nova Varoš and the Glogovik-Sjenica gas transport pipeline with associated main metering and regulation stations will create conditions for the construction of distribution gas pipelines in all villages and towns and the connection of industrial, municipal and individual consumers to the distribution system. The use of natural gas as a fuel will significantly relieve the burden on electricity generation capacities.	54.447	yes	59.165	14.68%

3.4.1.Scoring of projects in the gas sector

Table 30 : Scoring of projects in the gas sector

Difficulty factor				3	2	1	2	1	1	2	1	2	3	1	2	1
Rank	Project	value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and competition improvement	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfillment of international obligations	Financing secured
1.	Receiving and transmitting station RTS Loznica	18.5	14.53%	5	5	2	5	1	5	5	2	3	3	3	1	3
2.	RTS Horgos	20.00	11.48%	5	5	2	5	1	5	5	2	3	3	3	1	3
3.	RTS Banatski Dvor	20.00	10.61%	5	5	2	5	1	5	5	2	3	3	3	1	3
4.	Interconnection N. Macedonia	42.00	13.24%	4	1	5	5	3	5	5	1	1	5	1	5	1
5.	Interconnection Romania	12.00	14.76%	4	1	2	4	3	5	5	1	1	5	1	5	1
6.	Interconnection Croatia	60.00	8.75%	3	1	2	3	3	3	5	1	1	5	1	5	1
7.	Interconnection of Bosnia and Herzegovina	65.00	8.46%	3	-	2	2	3	3	5	1	1	5	1	5	1
8.	Distribution gas pipeline RG 11-02 Leskovac-Vladicin Han-Vranje	82.133	12.62%	3	1	5	3	3	-	-	1	1	5	3	5	3
9.	Expansion of storage capacities of UGS Banatski Dvor	145.00	10.61%	5	3	5	5	3	3	-	5	1	1	2	-	2
10.	Gas distribution pipeline RG 05-06 Belgrade-Valjevo-Loznica	99.475	13.79%	4	3	5	-	3	-	-	1	1	-	5	5	5
11.	Main and distribution gas pipelines of Eastern Serbia Paraćin-Boljevac-Rgotina-Negotin-Prahovo with branches for Bor, Zaječar and Knjaževac	91.826	11.42%	5	1	5	-	3	1	-	1	1	-	2	5	5
12.	Gas pipeline Mokrin-UGS Banatski Dvor-UGS Itebej -	150.00	8.40%	4	2	2	-	3	1	-	1	1	5	1	-	1

Difficulty factor				3	2	1	2	1	1	2	1	2	3	1	2	1
Rank	Project	value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and competition improvement	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfillment of international obligations	Financing secured
	Pančevo - Belgrade South															
13.	North-South main gas pipeline; construction of two compressor stations	94.00	8.08%	4	2	2	-	3	3	3	1	1	-	1	-	1
14.	North-South main gas pipeline; Horgoš Batajnica section	243.00	8.34%	4	2	2		3	3	3	1	1	-	1	-	1
15.	North-South main gas pipeline; Batajnica-Pojate section	328.00	8.09%	4	2	2		3	3	3	1	1	-	1	-	1
16.	North-South main gas pipeline; Pojata-Niš section	99.00	8.39%	4	2	2		3	3	3	1	1	-	1	-	1
17.	Gasification of the Inđija industrial zone	6.00	16.21%	4	-	3	-	3	-	-	1	1	-	1	-	5
18.	Reconstruction of the oldest main gas pipeline in the Republic of Serbia (MG-03 Senta-Mokrin)	14.283	-	5	-	3	-	3	-	-	1	1	-	1	-	1
19.	Reconstruction of the gas pipeline RG-01-10 (section across the Danube - Smederevo Bridge - drilling and demolition of the bridge)	9.00	-	4	1	3	-	3	-	-	1	1	-	1	-	1
20.	Distribution gas pipeline RG 08-20 Zlatibor-Prijepolje with branches for Nova Varoš and	54.447	14.68%	3	-	5	-	1	-	-	1	1	-	2	-	4

Difficulty factor				3	2	1	2	1	1	2	1	2	3	1	2	1
Rank	Project	value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and competition improvement	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfillment of international obligations	Financing secured
	Priboj and Distribution gas pipeline RG 09-04/3 Glogovik-Sjenica															

Table 30 a- Ranking based on available IRR

Rank	Project	IRR
1.	Gasification of the Inđija industrial zone	16.21%
2.	Interconnection Romania	14.76%
3.	Distribution gas pipeline RG 08-20 Zlatibor-Prijepolje with branches for Nova Varoš and Priboj and Distribution gas pipeline RG 09-04/3 Glogovik-Sjenica	14.68%
4 .	Receiving and transmitting station (PPS) Loznica	14.53%
5.	Distribution gas pipeline Bg-Va-Loznica	13.79%
6.	Interconnection N. Macedonia	13.24%
7.	Distribution gas pipeline RG 11-02 Leskovac-Vladicin Han-Vranje	12.62%
8.	Receiving and transmitting station (PPS) Horgoš	11.48%
9	Main and distribution gas pipelines of Eastern Serbia Paraćin-Boljevac-Rgotina-Negotin-Prahovo with branches for Bor, Zaječar and Knjaževac	11.42%
10.	Receiving and transmitting station (PPS) UGS Banatski Dvor	10.61%
11.	Interconnection Croatia	8.75%
12.	Interconnection Bosnia and Herzegovina	8.46%
13.	Gas pipeline Mokrin-UGS Banatski Dvor-UGS Itebej - Pančevo - Belgrade South	8.40%
14.	North-South main gas pipeline; Pojata-Niš section	8.39%
15.	North-South main gas pipeline; Horgoš Batajnica section	8.34%
16.	North-South main gas pipeline; Batajnica-Pojate section	8.09%
17.	North-South main gas pipeline; construction of two compressor stations	8.08%

Table 30 b- Ranking based on the investment value of the project

Rank	Project	Value
1.	North-South main gas pipeline; Batajnica-Pojate section	328.00
2.	North-South main gas pipeline; Horgoš Batajnica section	243.00
3.	Gas pipeline Mokrin-UGS Banatski Dvor-UGS Itebej - Pančevo - Belgrade South	150.00
4.	Expansion of storage capacities of UGS Banatski Dvor	145.00
5.	Gas distribution pipeline RG 05-06 Belgrade-Valjevo-Loznica	99.475
6.	North-South main gas pipeline; Pojata-Niš section	99.00
7.	North-South main gas pipeline; construction of two compressor stations	94.00
8.	Main and distribution gas pipelines of Eastern Serbia Paraćin-Boljevac-Rgotina-Negotin-Prahovo with branches for Bor, Zaječar and Knjaževac	91.826
9.	Distribution gas pipeline RG 11-02 Leskovac-Vladicin Han-Vranje	82.133
10.	Interconnection Bosnia and Herzegovina	65.00
11.	Interconnection Croatia	60.00
12.	Distribution gas pipeline RG 08-20 Zlatibor-Prijepolje with branches for Nova Varoš and Priboj and Distribution gas pipeline RG 09-04/3 Glogovik-Sjenica	54.447
13.	Interconnection N. Macedonia	42.00
14.	Receiving and transmitting station (PPS) Horgoš	20.00
15.	Receiving and transmitting station (PPS) UGS Banatski Dvor	20.00
16.	Receiving and transmitting station (PPS) Loznica	18.5
17.	Reconstruction of the oldest main gas pipeline in the Republic of Serbia (MG-03 Senta-Mokrin)	14.283
18.	Interconnection Romania	12.00
19.	Reconstruction of the gas pipeline RG-01-10 (section across the Danube - Smederevo Bridge - drilling and demolition of the bridge)	9.00
20.	Gasification of the Inđija industrial zone	6.00

3.4.2. Ranking of projects in the gas sector

Table 31 : Ranking of projects in the gas sector

Rank	Project	IMF category	Number of points
1.	Receiving and transmitting station (PPS) Loznica	energy saving / loss reduction	78
2.	Receiving and transmitting station (PPS) Horgoš	energy saving / loss reduction	78

Rank	Project	IMF category	Number of points
3.	Receiving and transmitting station (PPS) UGS Banatski Dvor	energy saving / loss reduction	78
4.	Interconnection N. Macedonia	increasing energy security	77
5.	Interconnection Romania	increasing energy security	72
6.	Interconnection Croatia	increasing energy security	65
7.	Interconnection Bosnia and Herzegovina	increasing energy security	61
8.	Distribution gas pipeline RG 11-02 Leskovac-Vladicin Han-Vranje	increasing energy security	59
9.	Expansion of storage capacities of UGS Banatski Dvor	increasing energy security	56
10.	Gas distribution pipeline RG 05-06 Belgrade-Valjevo-Loznica	increasing energy security	49
11.	Main and distribution gas pipelines of Eastern Serbia Paraćin-Boljevac-Rgotina-Negotin-Prahovo with branches for Bor, Zaječar and Knjaževac	increasing energy security	46
12.	Gas pipeline Mokrin-UGS Banatski Dvor-UGS Itebej - Pančevo - Belgrade South	increasing energy security	42
13.	North-South main gas pipeline; construction of two compressor stations	increasing energy security	35
14.	North-South main gas pipeline; Horgoš Batajnica section	increasing energy security	35
15.	North-South main gas pipeline; Batajnica-Pojate section	increasing energy security	35
16.	North-South main gas pipeline; Pojata-Niš section	increasing energy security	35
17.	Gasification of the Inđija industrial zone	other	26
18.	Reconstruction of the oldest main gas pipeline in the Republic of Serbia (MG-03 Senta-Mokrin)	energy saving	25
19.	Reconstruction of the gas pipeline RG-01-10 (section across the Danube - Smederevo Bridge - drilling and demolition of the bridge)	energy saving	25
20.	Distribution gas pipeline RG 08-20 Zlatibor-Prijepolje with branches for Nova Varoš and Priboj and Distribution gas pipeline RG 09-04/3 Glogovik-Sjenica	increasing energy security	24

3. 5. Oil and oil derivatives sector

The Republic of Serbia is a highly import-dependent country in the oil sector with a relatively low share of its own oil production in total demand.

In the absence of serious disruptions at the global level, the oil market in the Republic of Serbia is free, and price regulation applies only to access to oil transportation systems by oil pipelines and the planned transport of oil derivatives by product pipelines that represent a natural monopoly. The price of oil derivatives will continue to be determined primarily by the movement of the price of crude oil on the global market, which, although difficult to predict, has a long-term upward trend.

The production and consumption of motor fuels will be affected by the increased use of alternative fuels (biofuels, hydrogen, etc.) and electricity in transport (for powering passenger cars, greater use of rail transport, public transport in cities, construction of the Belgrade metro, etc.), as well as the implementation of energy efficiency measures in all areas of consumption. Regardless of the expected decrease in the consumption of motor and energy fuels of petroleum origin, they will still account for a significant share of total energy consumption.

The necessary and expected development of the oil sector involves ensuring regular supply and increasing the security of supply of oil and oil derivatives in accordance with the forecasted trend in the consumption of these energy sources. For now, in the Republic of Serbia, in addition to mandatory reserves, there are only commercial reserves of companies. The goal is to provide storage capacities in the Republic of Serbia (in public ownership or in the form of a public-private partnership) by 2026 such that they ensure the physical storage of mandatory reserves of oil and oil derivatives in the amount of 90 days of net imports or 61 days of internal consumption (whichever is higher).

Oil imports are mostly carried out from one direction, via the oil pipeline from the Omišalj terminal (Krk, Republic of Croatia). In order to increase the security of crude oil supply, it is necessary to consider new supply routes, which is why this plan has analyzed potential projects in order to ensure the fulfillment of the defined goal of regular supply of the domestic market.

In this regard, the projects for the construction of the Hungary-Novi Sad border oil pipeline and the product pipeline system have been recognized as priority infrastructure projects in the oil sector.

The Hungarian border - Novi Sad oil pipeline, with a capacity of up to 5.5 million tons per year, on the Szazalombatta-Algyo-Roszke-Novi Sad route should provide a new route for the Pancevo Refinery to

supply crude oil. It is of particular importance to consider the possibility of expanding this project in the direction from Pancevo to Thessaloniki and Durres.

Development in the field of oil product transport in the future also includes activity on the strategic development project for the construction of a product pipeline system through the Republic of Serbia (Pančevo - Smederevo - Niš). This project will enable more economical transport of motor fuels, reduce losses compared to the current mode of transport from the refinery to distribution centers, increase the security of market supply and reduce the negative impact of motor fuel transport on the environment.

Detailed data on these projects and their current status are presented in Table 32. A list of other projects in the oil sector is presented in Table 33.

Table 32: Priority projects in the oil and oil derivatives sector

1. Oil pipeline Hungary border - Novi Sad								
	Technical effect	Expected completion year	Value (in million euros)	Secured funds	NPV (in million EUR)	IRR	Sources of funding	Planning and technical documentation - status
Description	diversification of crude oil supply, increased energy stability, cost reduction and avoidance of bottlenecks	2027	156.00	yes	16,350,189	8.08%	own funds 5% and, commercial bank loan with guarantee of the Republic of Serbia	in the development phase
	The Republic of Serbia, i.e. the Pančevo Oil Refinery, is supplied with imported crude oil from only one direction, via part of the JANAF transport system of the Republic of Croatia and the transport system Transnafta AD. In order to diversify and secure supply, it is planned to build an oil pipeline that would extend from the border with Hungary to Novi Sad, from where transport would continue along the existing section of the Transnafta AD Novi Sad - Pančevo oil pipeline. The route from Hungary is optimal due to its connection to the Družba oil pipeline, which supplies most of Central Europe. It is planned that the distribution from the Szazalombatta refinery hub will be carried out towards the Republic of Serbia via an oil pipeline to the town of Algyo and further to the border with the Republic of Serbia near the Horgoš border crossing. The starting point of the pipeline is planned to be near the Horgoš border crossing, and the end point is the Novi Sad Terminal. The designed length of the pipeline is 113 km, with a nominal diameter of DN450 and a capacity of up to 5.5 million tons of crude oil.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	Transnafta AD		x	x					
Previous feasibility study with general design	Transnafta AD								
Conceptual design and location permit	Transnafta AD		x	x					
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs			x					
Resolving property and legal matters	Transnafta AD			x	x				
Conceptual design and feasibility study	Transnafta AD		x	x					
Energy permit	ministry responsible for mining and energy affairs			x					
Building permit project and building permit	Transnafta AD			x					
Preparation of tender documentation	Transnafta AD			x					
Project for execution	Transnafta AD				x				
Construction	Transnafta AD				x	x			

2. Pipeline system through Serbia – sections Pančevo-Smederevo and Pančevo-Novi Sad

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million Eur)	IRR	Planning and technical documentation - status
Description	Increasing security of supply of oil derivatives. A more economical method of transport at a lower price than the current one, transport losses are minimal and it is just-in-time transport, increasing the energy efficiency of transport by about 60%. Large transport capacity. The safest form of transport, reduced environmental pollution (lowest CO2, NxOy, HC emissions, no noise). Possibility of cross-border regional connectivity.	2030	32.80	no	Own funds 5% and credit	n/a	n/a	The valid PPPPN spatial plan of the special purpose area needs to be amended and supplemented in the section plan. Missing technical documentation
	The concept of the pipeline system implies that the complete supply of the Serbian market and partial supply of the peripheral areas of the surrounding countries (Croatia, Hungary, Bulgaria) is carried out from the Pančevo refinery. Starting from Pančevo as the center of supply of derivatives, the pipeline system routes branch out towards Novi Sad and Sombor, Belgrade and Niš, via Smederevo and Jagodina. Terminals with appropriate tank capacities, pumping stations (pre-pumps and main pumps) and measuring points for commercial measurement of received and delivered quantities of motor fuels would be located in the mentioned cities. The investment implementation of the Pipeline System through Serbia was originally planned through the construction of three facilities: Facility One (sections Pančevo-Smederevo and Pančevo-Novi Sad), Facility Two (sections Smederevo-Jagodina, Jagodina-Niš) and Facility Three (sections Pančevo-Belgrade and Novi Sad-Sombor). The first facility of the Pančevo-Smederevo and Pančevo-Novi Sad pipeline systems has a length of 26.9 + 90.3 km = 117.2 km and three terminals (dispatch in Pančevo, reception in Smederevo and Novi Sad). The estimated investment value for Facility One according to the Preliminary Design and Feasibility Study from 2012 is 32.8 million euros.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	Transnafta AD				x *				
Previous feasibility study with general design	Transnafta AD								
Conceptual design and location permit	Transnafta AD				x	x			
Consent to the Environmental Impact Assessment Study	ministry responsible for environmental protection affairs				x	x			
Resolving property and legal matters	Transnafta AD				x	x			
Conceptual design and feasibility study	Transnafta AD				x	x			
Energy permit	ministry responsible for mining and energy affairs								
Building permit project and building permit	Transnafta AD					x	x		
Preparation of tender documentation	Transnafta AD					x	x		
Project for execution	Transnafta AD					x	x		
Construction	Transnafta AD						x	x	x

* For project implementation of The first system object, the following needs to be done:
- Obtaining confirmation and firm guarantees on the use of the system from NIS a.d. as the end user of the product pipeline
- Analysis of existing planning and technical documentation from the aspect of validity for the purposes of further design
- Amendment and supplement to the valid PPPPN spatial plan of the special purpose area in the part of the plan for product pipeline sections

- Launching an initiative to declare a project of importance for the Republic of Serbia in order to speed up the procedure for preparing planning and project technical documentation (Article 33 of the Law on Planning and Construction)
- Preparation of project and technical documentation (IDP, SO, PGD, PZI) for the Pančevo - Smederevo section
- Obtaining a building permit and purchasing land for the terminal in Pančevo and Smederevo
- Preparation of project and technical documentation (IDP, SO, PGD, PZI) for the Pančevo - Novi Sad section
-Construction of the Pančevo-Smederevo and Pančevo-Novi Sad sections and associated terminals.

Table 33: Other projects in the oil and oil derivatives sector

Project	Expected year of completion of the project-initiative	Project description	Value (in million euros)	Secured funds
Construction of storage capacities at the lower zone of Ledinci	2028	The business strategy of Transnaft AD on the development of storage capacities for commercial storage and storage of mandatory reserves of oil derivatives, the construction of new tanks in the lower zone of the Ledinci warehouse is planned. The techno-economic analysis of the possibility of building storage capacities in the MGO zone of the Ledinci warehouse for the needs of Transnaft AD included the construction of 40,000 m^3 of tank space for euro diesel at a location in the lower manipulative zone of the Ledinci warehouse, on an area of approximately 37,500 m^2. The following facilities are planned to be built: three tanks of 10,000 m^3 each, two tanks of 5,000 m^3 each, a new pumping station, a fire road, a water tank for fire protection purposes, with a volume of 1,500 m^3, a fire safety system pumping station, with 6 pumps, all pipeline installations for connecting the tanks, loading and unloading of diesel with appropriate fittings, a hydrant network for the needs of the fire safety in the storage area in the new tanks. Of the planned reservoirs, 2x10,000 m^3 and 1x5,000 m^3 are intended for commercial storage and mandatory reserves, 1x5,000 m^3 for the storage needs of the Serbian Armed Forces, while 1x10,000 m^3 would be a technological reservoir for the needs of emergency filling in the event of an accident at the existing reservoirs in the upper zone of the storage facility.	20.00	no

Table 34 - Scoring of projects from the oil and oil derivatives sector

Difficulty factor				3	3	1	2	3	1	2	1	3	3	1	3	1
Rank	Project	Value	IRR	Security of supply or system stabilization	System balancing	Number of inhabitants for whom security of supply or quality of delivered energy increases	Reducing import dependence or creating conditions for net exports of energy and energy products	Renewable energy sources	Energy market development and competition improvement	Projects of regional or wider importance	Energy efficiency	Environmental protection	Diversification of supply routes and sources	Project maturity (low, high, medium)	Fulfillment of international obligations	Financing secured
1.	Serbia Hungary oil pipeline	156.00	8.08 %	5	5	5	5	-	5	5	1	1	5	3	-	1
2.	Pipeline system through Serbia – sections Pančevo-	32.80	-	4	4	1	1	1	5	4	5	1	5	4	1	1

	Smederevo and Pančevo-Novi Sad															
3.	Construction of storage capacities at the Donji Ledinci location	20.00	-	5	4	5	5	-	2	-	1	1	4	1	-	1

Table 34a - Ranking of projects based on IRR

Rank	Project	IRR
1.	Serbia Hungary oil pipeline	8.08%

Table 34 b - Ranking of projects based on investment value

Rank	Project	Investment value
1.	Serbia Hungary oil pipeline	156.00
2.	Pipeline system through Serbia – sections Pančevo-Smederevo and Pančevo-Novi Sad	32.80
3.	Construction of storage capacities at the Donji Ledinci location	20.00

3.5.1. Ranking of projects in the oil and oil derivatives sector

Table 35: Ranking of projects in the oil and oil derivatives sector

Rank	Project	IMF category	Number of points
1.	Serbia Hungary oil pipeline	increasing energy security	84
2.	Pipeline system through Serbia – sections Pančevo-Smederevo and Pančevo-Novi Sad	energy saving	74
3.	Construction of storage capacities at the Donji Ledinci location	increasing energy security	62

3.6. Energy efficiency

Energy efficiency contributes to the security of energy supply, reducing the impact of the energy sector on the environment and climate change, as well as increasing the competitiveness of the economy. The implementation of energy efficiency policy, with an emphasis on efficiency in the final energy consumption sectors, is a strategic commitment of the Republic of Serbia, recognized in all the most important legal, strategic and planning documents in the field of energy. In the long term, the Energy Development Strategy of the Republic of Serbia until 2040 with projections until 2050 (Strategy) foresees a significant improvement of energy efficiency in the republic, as one of the foundations for achieving a green energy transition. The Integrated National Energy and Climate Plan of the Republic of Serbia for the period up to 2030 with a vision to 2050 (INEKP) defines specific goals in the field of energy efficiency, in synergy with the goals for renewable energy sources and the reduction of greenhouse gas emissions, by 2030. Both documents foresee a significant reduction in final and primary energy consumption in the household, public and commercial sectors, industry and transport sectors, compared to the energy consumption predicted by the "business as usual" model, and based on recognized energy efficiency measures. The energy efficiency measures foreseen by the Strategy and INEKP are of a financial, taxing, regulatory and organizational nature.

The implementation of energy efficiency policies and measures is also the subject of policy harmonisation between the Republic of Serbia and the EU in the pre- accession process. The Law on Energy Efficiency and Rational Use of Energy (the Law) adopted in 2021 and the related by-laws are aligned with the consolidated Energy Efficiency Directive 2012/27/EU, the Ecodesign Directive for Energy-Related Products 2009/125/EC and the Energy Labelling Directive 2017/1369/EU, thus achieving a high degree of harmonisation of regulations in the field of energy efficiency. The Law also transposes some of the provisions of the Directive on the Energy Performance of Buildings 2010/31/EU relating to inspections of thermotechnical installation systems in buildings, while the Ministry of Construction, Transport and Infrastructure is responsible for the transposition of this regulation in its entirety. The Reform Agenda of the Republic of Serbia 2024 was also adopted, which, to a significant extent in the field of energy efficiency, requires strengthening the implementation of certain provisions of the Law and measures from the INEKP, in order to accelerate the initiated reforms in a relatively short time.

Compared to the previous Baselines, adopted in 2023, which were primarily focused on the review and manner of providing financial support for initiated projects, these Baselines propose expanding the scope of projects and considering new financial mechanisms and sectors that need additional support.

In the coming period, special attention needs to be paid to further harmonization of the regulatory framework, which was established in the EU by the new Energy Efficiency Directive 2023/1791 and the requirements for: increasing energy savings; implementing RES and energy efficiency measures in district heating systems; measures that would significantly impact the reduction of energy poverty, as well as strengthening the "energy efficiency first" principle.

In the household sector, it is necessary to carry out significant energy renovation of houses and apartments in order to reduce the required amount of thermal energy for heating and cooling, which is a good basis for further replacement of boilers, stoves, air conditioners, i.e. thermotechnical installations and installation of more efficient devices and heat pumps. Particularly interesting measures in households relate to the installation of photovoltaic panels as well as heat pumps, because these measures contribute to the goals of both energy efficiency and RES. It is necessary to plan the further continuation of the existing programs: Clean Energy and Energy Efficiency for Citizens (SURCE Project) and Public ESCO, as well as to expand the scope of households receiving incentives. Through incentive programs for households within the SURCE project, energy-poor households have been enabled to participate, and the implementation of the program will contribute to the overall reduction of energy poverty. Work should be done to develop models of the most effective incentives for reducing energy poverty within the framework of the above-mentioned projects. At the same time, as the Reform Agenda requires, a faster and more significant transition to billing according to heat energy consumption in households connected to district heating systems should be ensured.

In the public-commercial sector, the most significant measures relate to the energy rehabilitation of public facilities and buildings from the economic-commercial sector, with the installation of photovoltaic panels and/or heat pumps. At present, several programs related to the rehabilitation of public buildings are being implemented through the Ministry of Mining and Energy, while at the same time other institutions of the system (local governments, cities, other ministries) are implementing similar programs.

The Ministry, through the Directorate for Financing and Promoting of Energy Efficiency, in cooperation with local governments, co-finances and implements energy efficiency projects in facilities under the jurisdiction of local governments through public calls for proposals for local governments. Funds are provided from the Budget of the Republic of Serbia and the budget of local governments. The Ministry plans to continue implementing these programs in the future, with the aim of reducing energy consumption in the public sector.

One of the more significant projects being implemented is Energy Efficiency in Central Government Buildings, financed from a loan from the Council of Europe Bank (CEB) and IFI donations. The implementation of the project has been accelerated during 2024 and the rehabilitation of up to 5 central government buildings is expected to be completed by the end of 2025. The implementation of the project contributes to the implementation of the objectives of the Reform Agenda as well as the fulfillment of the requirements set out in Article 5 of Directive 2012/27/EU.

Further improvement of the program in the field of rehabilitation of public buildings includes expanding the scope of public buildings that will be rehabilitated by setting a minimum level of rehabilitation, improving the implementation of energy audits of public buildings, and providing appropriate technical documentation by the institutions responsible for the facilities.

Part of the facilities within the public-commercial sector are buildings belonging to the commercial sector. It is necessary to consider the possibility of creating a special targeted support program for that sector with an analysis of the current situation and a proposal for financial support schemes that would not call into question the rules on permitted state aid to economic entities.

The programs implemented by the Ministry in district heating systems in the Republic of Serbia are aimed at modernizing these systems, improving the energy efficiency of the production and distribution infrastructure and switching from fossil energy sources to renewable energy sources with an emphasis on increasing the use of biomass and solar energy. A Roadmap for the Decarbonization of District Heating Systems is being prepared, which should propose specific steps in the further development of these systems and consider the possibilities for heat storage, the use of heat pumps and heat energy obtained from waste treatment or after energy recovery from waste. In particular, the possibilities for the development of the first district cooling systems will be analyzed.

A "Strategic Plan for the Decarbonization Policy of the District Heating and Cooling Sector in the Republic of Serbia" is being prepared, implemented by the European Bank for Reconstruction and Development (EBRD) in cooperation with the Association of District Heating Plants of Serbia and the Ministry of Mining and Energy. The aim of the project is to define steps for improving the system, including heat storage, the use of heat pumps, the use of heat energy obtained from waste treatment or after energy recovery from waste, and the development of the first district cooling systems. Special attention will be paid to the development of guidelines for the expansion of the district heating system by connecting new users, while simultaneously phasing out fossil fuel boiler plants, which will directly contribute to the reduction of CO_2 emissions and pollution. This step is important for

achieving Serbia's climate and energy goals and harmonizing with European Union regulations.

In addition to the above programs, it is necessary to encourage other energy consumption sectors to improve the implementation of energy efficiency measures through awareness-raising activities and campaigns, the implementation of energy audits, the creation of energy efficiency programs and plans, and the establishment of new financial financing mechanisms. Here, it is primarily important to interest SMEs as well as large industrial enterprises in identifying cost-optimal measures that could be relatively easily implemented in a short period of time with maximum financial and energy impact through the energy audit system established by the Law.

Tables 36 to 39 show key projects in the energy efficiency sector. The tables also show projects that started earlier and are still in progress, while completed projects are not shown, with the note that the projects relate to energy renovations of several thousand buildings of relatively small investment value and as such are not subject to the preparation of a Feasibility Study, i.e. calculation of financial indicators NPV and IRR.

Table 36: List of energy efficiency projects – Projects of the Directorate for Financing and Promoting Energy Efficiency

1. NATIONAL PROGRAM FOR ENERGY RENOVATION OF RESIDENTIAL BUILDINGS, FAMILY HOUSES AND APARTMENTS 2022 - CITIZENS								
	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	The estimated energy savings achieved by this project are 197,000 MWh/year, and the reduction in $CO_{2\ emissions}$ is 87,913 t/year. The installation of these solar panels increases the power from RES by 17 MW.	2025	34	yes	25% RS Budget, 25% local self-government units Budget, 50% citizens	n/a	n/a	n/a
Description	Subsidies for citizens relate to measures for replacing windows and doors, thermal insulation of external walls, roofs, ceilings, replacing boilers with more efficient gas or pellet boilers, installing heat pumps and solar collectors for water heating. 151 local self-government units are participating.							
Status	12,159 tripartite contracts between local governments, contractors and citizens were signed. The work was carried out in 10,856 households. The contracts with municipalities will be annexed by 31.03.2025. Physical realization on: 10.03.2025, i.e. 87%							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Execution of works	local self-government units	X	X	X					

2. NATIONAL PROJECT ENERGY RENOVATION OF BUILDINGS OF PUBLIC IMPORTANCE IN LOCAL SELF-GOVERNMENT UNITS (public call PC 2022) – PUBLIC BUILDINGS								
	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	The estimated energy savings achieved by this project are 7500 MWh/year, and the reduction in CO2 emissions is 4200 t/year. The installation of these solar panels increases the power from RES by 1 MW.	2025	9.6	yes	RS budget 61% local self-government units budget about 39%	n/a	n/a	The local government units submitted a conceptual design, a design for the execution of the works, and after their approval, they also submitted the tender documentation for the implementation of the public procurement procedure for the contractor.
Description	Improving energy efficiency in public buildings (improving the thermal envelope of the building, improving the thermotechnical systems of buildings, modernizing the interior lighting system, installing solar collectors and solar panels) and modernizing the public lighting system in local self-government units.							
Status	Works are underway in 2 local self-government units: Pirot, where the energy renovation of the Cultural Center building is underway, and Bosilegrad, where the energy renovation of the Bosilegrad municipality building is underway. Works have been completed in 32 local self-government units: Smederevska Palanka - energy renovation of the building of the local government unit Smederevska Palanka; Gadžino Han - energy renovation of the "VITKO I SVETA" elementary school; Kuršumlija - energy renovation of the "Sunce" preschool; Priboj - energy renovation of the "Nikola Tesla" elementary school in Pribojska Banja; Niška Banja - energy renovation of the "Ivan Goran Kovačić" elementary school; Vrnjačka Banja - energy renovation of the Vrnjačka Banja municipality building; Novi Pazar - energy renovation of the Cultural Center building; Kragujevac – energy renovation of the elementary school “Dragiša Luković Španac”; Kikinda – energy renovation of the Kikinda local government building; Kraljevo – energy renovation of the elementary school “Vuk Karadžić”; Niš – energy renovation of the elementary school “Kralj Petar I”; Vranje – energy renovation of the kindergarten “Pčelica”; Valjevo – project to improve thermotechnical systems and thermal envelope of the Historical Archives building; Zaječar – energy renovation of the Primary and Secondary Education School “Jelena Majstorović”; Subotica – project to improve the energy efficiency of the kindergarten building “Šumice”; Bačka Palanka – energy renovation of the Bačka Palanka municipality building, Ljig – project to improve the energy efficiency of the Cultural Center building; Krupanj – reconstruction of public lighting; Trstenik – energy renovation of the elementary school building “Miodrag Čajetinac Čajka”; Ljubovija – Energy efficiency improvement of the building of the Primary School “Petar Vragolić” in Gornja Ljubovija; Negotin – energy efficiency improvement project of the Primary School “Pavle Ilić Veljko” Prahovo; Ražanj –							

	reconstruction of the Center for Social Work building; Smederevo – energy efficiency improvement project of the Primary School “Dimitrije Davidović” building; Bački Petrovac – Adaptation of the municipal administration building; Svilajnac – Reconstruction of the thermal envelope, mechanical installations and electrical installations of the Primary School “Jovan Jovanović Zmaj” Vrlane; Senta – Replacement of existing lights with energy-saving light sources of the Senta municipality building; Knić – Energy rehabilitation – investment maintenance of the Primary School “Rada Šubakić”, Gruža; Novi Sad – Energy efficiency improvement of the kindergarten “Bubamara” – Preschool “Radosno detinjstvo”; Kula – Project to improve energy efficiency of the Primary School "Isa Bajić" with a 15 KW photovoltaic power plant; Boljevac – Energy rehabilitation of the administrative building of the Municipality of Boljevac; Trgovište - improving the energy efficiency of the "Žarko Zrenjanin Uča" primary school; Užice - a project to improve the energy efficiency of the “Kralj Petar” primary school building. Note: CONTRACTS TERMINATED WITH 4 local self-government units – Stari Grad, Obrenovac, Palilula and Vlasotince

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Execution of works	local self-government units	X	X	X					

3. NATIONAL PROJECT ENERGY RENOVATION OF BUILDINGS OF PUBLIC IMPORTANCE IN LOCAL SELF-GOVERNMENT UNITS (PC 2023) – PUBLIC BUILDINGS

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	The estimated energy savings achieved by this project are 5000 MWh/year, and the reduction in CO2 emissions is 3500 t/year. The installation of these solar panels increases the power from RES by 1 MW.	2025	3.39	yes	Directorate for EE (budget funds)	n/a	n/a	The local self-government units submitted a conceptual design, a design for the execution of the works, and after their approval, they also submitted the tender documentation for the implementation of the public procurement procedure for the contractors.
Description	Improving energy efficiency in buildings of public importance (improving the thermal envelope of the building, improving thermotechnical systems in buildings, modernizing the interior lighting system, installing solar collectors and solar panels) and modernizing the public lighting system in local self-government units.							
Status	The contracts between 21 local governments and the Administration were signed on September 28, 2023. This program for 2023 will include the energy renovation of 10 schools (8 primary and 2 secondary) in Trstenik, Novi Pazar, Grocka, Novi Sad, Despotovac, Niš, Svilajnac, Kraljevo, Ub and Vrnjačka Banja), 2 administrative buildings (municipal buildings) in Rača and Ćićevac, 2 kindergartens in Leskovac and Užice, 2 sports centers in Valjevo and Savski Venac, the Trade Union House in Kruševac, the Culture House in Vladičin Han, one water treatment plant in Pirot and the Health Center in Raška, as well as a project to modernize public lighting in Bosilegrad. Financial realization: 91%;							

	Responsible entity	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Execution of works	local self-government units		X	X					

4. National project for energy rehabilitation of public buildings in local government units (PC 2024) - PUBLIC BUILDINGS

	Technical effect	**Expected completion year**	**Value (in million euros)**	**Secured funds**	**Sources of funding**	**NPV (in million EUR)**	**IRR**	**Planning and technical documentation - status**
	The estimated energy savings achieved by this project are 35,000 MWh/year, and the reduction in CO2 emissions is 24,500 t/year. It is planned that this project will increase the power from RES by 7 MW.	2026	6.78	yes	Administration for EE (budget funds)	n/a	n/a	The local self-government units submitted a conceptual design, a design for the execution of the works, and after their approval, they also submitted the tender documentation for the implementation of the public procurement procedure for the contractor.

Description	Improving energy efficiency in buildings of public importance (improving the thermal envelope of the building, improving thermotechnical systems in buildings, modernizing the interior lighting system, installing solar collectors and solar panels) and modernizing the public lighting system in local self-government units.
Status	This program for 2024 will include energy renovation of 15 schools (13 primary and 2 secondary) in Knjaževac, Niš, Kragujevac, Ljubovija, Zaječar, Kraljevo, Kula, Despotovac, Velika Plana, Tutin, Ljig, Vladimirci, Svilajnac, Ražanj and Valjevo; 6 administrative buildings (municipal buildings) in Bečej, Bosilegrad, Priboj, Sokobanja, Knić and Merošiina, 5 kindergartens in Smederevo, Lajkovac, Ub, Vranje and Surdulica, 3 faculty buildings, Technical Faculty Novi Sad, Faculty of Fine Arts Belgrade and Faculty of Dramatic Arts in Belgrade, 3 buildings and facilities for utility enterprises in Kuršumlija, Valjevo and Lučani, 2 facilities of the Cultural Center in Majdanpek and Aleksinac, Indoor swimming pool in Obrenovac, 1 health center in Belgrade (KBC Dragiša Mišović), 1 library in Bela Palanka, 1 tourist area "Tvrđava Golubac Grad", 1 Children's resort on Zlatibor belonging to Užice, 3 public lighting projects in Smederevska Palanka, Novi Pazar and Vrnjačka Banja. STATUS: Work is underway in 7 local self-government units. In 20 local self-government units, a public procurement for a contractor is underway. 2 local self-government units have met the conditions for the announcement of the public procurements, they are postponed. Works have been completed in 2 local self-government units, in Knić and Kuršumlija. In the remaining 11 local self-government units, the introduction of contractors is expected.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Execution of works	local self-government units		X	X	X				

5. NATIONAL PROJECT ENERGY RENOVATION OF BUILDINGS OF PUBLIC IMPORTANCE IN LOCAL SELF-GOVERNMENT UNITS (PC 2025-2030) - PUBLIC BUILDINGS

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	The estimated energy savings achieved by this project are 35,000 MWh/year, and the reduction in CO2 emissions is 24,500 t/year.	2030	25.42	n/ a	Administration for EE (budget funds)	n/a	n/a	The local government units submitted a project for the execution of the works and, after their approval, submitted the tender documentation for the implementation of the public procurement procedure for the contractor.

Description	Improving energy efficiency in buildings of public importance (improving the thermal envelope of the building, improving thermotechnical systems in buildings, modernizing the interior lighting system, installing solar collectors and solar panels) and modernizing the public lighting system in local self-government units.
Status	This program will carry out energy renovation of at least 20 public buildings per year.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Execution of works	local self-government units			X	X	X	X	X	x

6. NATIONAL PROGRAM FOR THE INSTALLATION OF SOLAR PANELS AND ASSOCIATED INSTALLATIONS FOR THE PRODUCTION OF ELECTRICITY FOR OWN NEEDS IN FACILITIES OF PUBLIC IMPORTANCE IN LOCAL SELF-GOVERNMENT UNITS 2024-2025 - PUBLIC BUILDINGS

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	Improving energy efficiency by installing solar panels in public buildings	2025	1.66	yes	Administration for EE (budget funds)	n/a	n/a	The local government units submitted a project for the execution of the works and, after their approval, submitted the tender documentation for the implementation of the public procurement procedure for the contractor.

Description	Installation of solar panels on public buildings to produce electricity for their own needs
Status	The contracts between 30 local self-government units and the Administration were signed on December 18, 2024. The total value of the project is: 195,309,301.55 dinars (Administration: 168,013,534.64 dinars (86%), local self-government units: 27,295,767.00 dinars (14%));

	This program for 2024 will include energy renovation of 11 primary schools in Tutin, Novi Pazar, Novi Sad, Ljig, Jagodina, Vladičin Han, Golubac, Belgrade (Kaluđerica), Stari Grad, Savski Venac and Vranje; 4 kindergartens or preschools in Smederevo, Bosilegrad, Ćuprija and Lučani; 4 sports halls in Ub, Lajkovac, Mionica and Nova Crnja; 4 municipal public utility companies in Beočin, Osečina and Valjevo on the roofs of the buildings, while in Titel on the land of the PUC; 3 administrative buildings (municipal buildings) in Vrnjačka Banja, Smederevska Palanka and Ada; 2 sports swimming pool facilities in Sokobanja and Obrenovac; 1 Social Work Center in Leskovac; 1 Nature Center in Svilajnac. Public procurement has been announced in 13 local governments, namely: Smederevo, Mionica, Sokobanja, Smederevska Palanka, Ljig, Lajkovac, Svilajnac, Jagodina, Vranje, Titel, Ada, Lučani and Ub.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Execution of works				X	X				

Table 37: List of energy efficiency projects – Projects implemented with KfW

1. **PROJECT ENERGY EFFICIENCY IN PUBLIC BUILDINGS AND RENEWABLE ENERGY SOURCES IN THE DISTRICT HEATING SECTOR (“GREENING OF THE PUBLIC SECTOR”) – MMA**								
	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	The estimated energy savings achieved by this project are 58,000 MWh/year, and the reduction in CO2 emissions is 24,000 t/year. The energy savings and CO2 emission reduction are given for the implementation of the entire project.	2029	First and second phase 55 million euros. All four phases 200 million euros	55 million euros.	EUR 50 million loan and EUR 5 million donation – agreements signed with KfW	n/a	n/a	The development of planning documentation is underway. The development of technical documentation is expected to begin in the second quarter of 2025.
Description	The rehabilitation project of the Military Medical Academy (MMA) envisages the implementation of energy efficiency measures on the thermal envelope of the building, on technical systems for air conditioning, heating and cooling, preparation of sanitary hot water using renewable energy sources, as well as measures related to improving the functionality of the hospital. The project is implemented by the Ministry of Mining and Energy in cooperation with the Ministry of Defense.							
Status	The dynamics of the first phase of design and execution of works will be divided into two sub -phases, as follows: Phase 1 – the so-called “Quick Measures” for which the design and tendering of works will be carried out to be completed by the end of 2025, which will enable the execution of works in the first quarter of 2026. Phase 2 - The high part of the building ("tower" - from the 6th to the 15th floor) whose design and tendering of works will run in parallel with the so-called "quick measures", and will be completed in the fourth quarter of 2026, while works could begin in the first quarter of 2027 with a completion date by the end of 2029. All other measures that would be applied to the lower part of the building (up to the 6th floor) will be implemented in two additional phases - Phase 3 and Phase 4 - for which work could begin in late 2029, or mid-2031.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	Ministry of Defense.			n/a					
Conceptual solution and location conditions	Consultant on the project.			X					
Environmental Impact Assessment Study	Consultant on the project.			X					
Resolving property and legal matters	n/a			n/a					
Conceptual design and feasibility study	Consultant on the project.			X					
Building permit project and building permit	Consultant on the project.			X					

Preparation of tender documentation	Consultant on the project.			X					
Project for execution	Consultant on the project.			X					

2. ENCOURAGING THE DEVELOPMENT OF RENEWABLE ENERGY – DEVELOPMENT OF THE BIOMASS MARKET IN SERBIA COMPONENT II

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	Reduction of CO2 emissions 15000 t/year Pay-as-you-go Installation of approximately 20 MW of biomass boilers with approximately 25 MW of peak and standby gas and light fuel oil boilers; replacement of approximately 10,000 meters of hot water network and automation of 200 substations	2029	31.900	yes	KfW loan of 20 million euros, donation from the Government of the Federal Republic of Germany of 2 million euros, donation from the Western Balkans Investment Framework (WBIF) of 9 million euros and IPA 2018 donation of 900,233 euros.	n/a no feasibility studies have been done	n/a no feasibility studies have been done	n/a – The program has not started and there is no documentation yet.

Description	The program aims to introduce the use of renewable energy sources in selected heating plants in the Republic of Serbia for the production of thermal energy, while switching from the use of fossil fuels to the use of biomass and geothermal energy sources. Heating plants in Prijepolje, Majdanpek, Novi Pazar, Niš, Vranje, and Rača are interested.
Status	The loan agreement for 20 million euros was signed on 27/10/2023 and ratified by the National Assembly of the Republic of Serbia on 31/07/2024. The donation agreement of 2 million euros provided by the Government of the Federal Republic of Germany was signed on 22/12/2023. The agreement on a donation of 9 million euros provided by the Western Balkans Investment Framework (WBIF) was signed on 14/05/2024. The donation contract of 900,233 euros provided by IPA 2018 was signed on 14/05/2024. Special agreement determining the manner of implementation of the Program was signed on 8/4/2025. In progress are the following: - selection of consultants who will conduct preliminary feasibility studies (the activity is being carried out by KfW Bank and the control of tender documentation is underway), estimated value of 800,000.00 euros - selection of an implementation consultant who will implement the Program (the activity is implemented by KfW Bank and the preparation of tender documentation for the selection of the consultant is underway), estimated value up to 2.8 million euros. The call for the selection of experts (economist and engineer) was announced on 31/10/2024. Contracts with the selected candidates were signed on 27/12/2024. Contracts with the environmental expert and the procurement expert will be signed by the end of October 2025. The total value of the contract for all 4 experts will amount to 900,000.00 euros. The Program is expected to begin operations in May 2025 .

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	Local self-government	x	x						
Conceptual solution and location conditions	Local self-government				x	x			
Environmental Impact Assessment Study	Local self-government				x	x			
Resolving property and legal matters	Local self-government			x	x	x			

Conceptual design and feasibility study	Selected contractor			x	x	x			
Building permit project and building permit	Selected contractor					x	x		
Preparation of tender documentation	Implementation consultant				x	x			
Project for execution	Selected contractor					x	x		

3. REHABILITATION OF DISTRICT HEATING SYSTEMS IN SERBIA, PHASE V

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	increasing energy efficiency, reducing harmful gas emissions and ensuring the security of heat energy supply to consumers	2025	32	yes	KfW (development loan EUR 30,000,000 and donation from the Government of the Federal Republic of Germany via KfW EUR 2,000,000)	n/a	n/a	All necessary technical documentation has been prepared.

Description	Rehabilitation and modernization of 7 heating plants (Belgrade, Bor, Jagodina, Leskovac, Negotin, Niš and Senta) through the implementation of 13 individual investments
Status	Rehabilitation and modernization of heating plants by implementing the following activities: - Rehabilitation of heating pipes in Bor, Jagodina, Leskovac, Negotin, Niš and Senta - Rehabilitation and/or installation of substations in Bor, Negotin and Senta - Rehabilitation and/or construction of production capacities in Leskovac, Negotin and Niš - Rehabilitation and modernization of the “Cerak” heating plant in Belgrade All construction contracts have been signed. Of the planned 13 individual investments, 6 have been completed and the remaining 7 will be completed by the end of 2025.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	None of the 13 planned investments required the preparation of planning documentation, as it involves the rehabilitation of existing facilities.	n/a							
Conceptual solution and location conditions	Participating heating plants	x							
Environmental Impact Assessment Study	Only for the investment Rehabilitation and modernization of the “Cerak” Thermal Power Plant in Belgrade, there was a need to prepare an Environmental Impact Assessment Study, which was prepared by the Public Utility Company Belgrade Power Plants, and in accordance with the legal basis of the Project, the Study was harmonized with EU regulations by the Implementation Consultant.		x						
Resolving property and legal matters	None of the planned investments required resolving property and legal matters, as they involved the rehabilitation of existing facilities.	n/a							

Conceptual design and feasibility study	Where necessary, participating heating plants were responsible for developing the Conceptual Design.									
Building permit project and building permit	The participants are responsible for preparing technical documentation if the investment is implemented according to Pink FIDIC, or the Contractor if it is implemented according to Yellow FIDIC.	x	x							
Preparation of tender documentation	The implementation consultant employed on the project is responsible for preparing the tender documentation.	x								
Project for execution	The participants are responsible for preparing technical documentation if the investment is implemented according to Pink FIDIC, or the Contractor if it is implemented according to Yellow FIDIC.	x	x							

4. DECARBONIZATION OF DISTRICT HEATING IN SERBIA

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	Increasing the share of RES in the overall energy mix and increasing energy efficiency.	2032	Estimated project value: 60 million euros	The Joint Minutes of the negotiations between the Government of the Republic of Serbia and the Government of the Federal Republic of Germany held on 19 November 2024 set that the German side will provide the necessary funds. The conclusion of financial agreements is expected at the end of 2025 or the beginning of 2026.	KfW development loan 40 million euros, 20 million euros planned donation from European funds through KfW. The budget for 2025 foresees direct borrowing by the Republic of Serbia for this loan.	n/a	n/a	No - The project is in the early stages of preparation

Description	Introducing RES into district heating systems and building supporting infrastructure
Status	The project is in the early stages of preparation. In December 2024, a call was sent to all district heating plants to apply for investments to participate in the Project. The collection of letters of interest was completed, as was the first round of consideration of applications. KfW conducted an Appraisal Mission in March 2025. It is expected that the draft Memorandum of Understanding, as the first document constituting the legal basis of the Project, will be submitted for consideration by the Ministry of Energy and the Ministry of Finance in May 2025. According to the Dynamic Plan prepared by the Ministry of Economic Development in cooperation with KfW, it is expected that the relevant financial agreements will be signed at the end of 2025 or beginning of 2026. This would be followed by the preparation of the Project, and the start of implementation is expected to be in 2027 at the earliest.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	n/a								
Conceptual solution and location conditions	n/a								
Environmental Impact Assessment Study	n/a								
Resolving property and legal matters	n/a								

Conceptual design and feasibility study	n/a								
Building permit project and building permit	n/a								
Preparation of tender documentation	n/a								
Project for execution	n/a								

Table 38: List of energy efficiency projects – Projects implemented with the EBRD

1. PROJECT RENEWABLE ENERGY SOURCES IN DISTRICT HEATING SYSTEMS IN SERBIA – PHASE 1 (REDE SERBIA)								
	Technical effect	**Expected completion year**	**Value (in million euros)**	**Secured funds**	**Sources of funding**	**NPV (in million EUR)**	**IRR**	**Planning and technical documentation - status**
	It is expected that 115 GWh of thermal energy from RES will be delivered and an additional 61 GWh of primary energy will be reduced by implementing EE measures. The projects would also result in a reduction of CO2 emissions by 13,600 t per year.	2028	40.5	yes	The total value of the project is 40.5 million euros. A €30 million EBRD loan, a €3 million EU investment grant through the Regional Energy Efficiency Programme (REEP) and a €7.5 million Swiss Confederation (SECO) grant through the EBRD for investment and technical assistance.	n/a	n/a	
Description	Introducing RES into the district heating subsector, thereby harnessing its enormous potential in Serbia's energy transition process and enabling greater use of RES with support for improving the regulatory framework							
Status	The donation agreement (technical assistance) worth 3 million euros for the engagement of an implementation consultant was adopted on 22/2/2024 and signed on 26/2/2024. The Loan Agreement, Project Agreement, Grant Agreement I (SECO grant of EUR 4.5 million to co-finance investments), and Grant Agreement III (REER grant of EUR 3 million to co-finance investments) were signed on 09/07/2024. The evaluation of the tender for the selection of an implementation consultant is underway. The projection is that the tender for the execution of the works ("yellow FIDIC") will be announced in the 4th quarter of 2025. Note: Donor funds from the Austrian Government of 1 million euros have financed preparatory activities that will be completed by the end of March 2025.							

	Responsible entity	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Spatial documentation	Heating plants - local self-government units		x	x					
Conceptual solution and location conditions	Consultant – Heating plants			x					
Environmental Impact Assessment Study	Consultant			x					
Resolving property and legal matters	Heating plants - local self-government units		x	x					
Conceptual design and feasibility study	Consultant		x						
Building permit project and building permit	Contractor - Heating Plant				x				
Preparation of tender documentation	Consultant - MME			x					
Project for execution	Contractor				x				

2. INTEGRATION OF RENEWABLE ENERGY FROM SOLAR THERMAL SOURCES AND HEAT PUMPS INTO THE DISTRICT HEATING SYSTEM IN NOVI SAD

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	It is planned to deliver approximately 118 GWh of clean renewable energy to the system. Expected reduction in CO2 emissions: 17,350 tons per year.	2030	107.080	The Loan Agreement and the Project Agreement were adopted by the Government on 20/12/2024 and signed on 27/12/2024. Application for non-refundable means with applied by amount of 24,085,078 EUR from WBIF is carried out in October 2024. Decision on non-refundable with means will be adopted in April 2025.	Estimated project value: EUR 107,080,390; Value: EBRD loan of 85,000,000 euros (105 million euros is provided by the EBRD in the event that the grant (WBIF) is not approved). Grant Amount I: 748,163 euros (approved within the 28th round of technical assistance – WBIF for the preparation of the study) Grant amount II: 24,990,856 euros, of which 3,140,000 euros are for technical support and the investment grant amounts to 20,945,078 euros. (to be approved in the second quarter of 2025 - WBIF)	-29:323.948	2%	The final version of the Study and all related documents (Environmental and Social Action Plan, Conceptual Design) were submitted and approved by the heating plant and the EBRD in October 2024. A tender is being prepared for an implementation consultant, with an estimated value of 3 million euros.
Description	This project aims to improve energy efficiency by integrating renewable energy produced from solar thermal sources and heat pumps into the existing district heating system in Novi Sad, with the final recipient being the Public Utility Company "Novosadska toplana".							
Status	In December 2024, the Loan Agreement and the Project Agreement were signed. The Loan Agreement was ratified on 13/3/2025. A tender for an implementation consultant is being prepared, with an estimated value of EUR 3 million.							

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	Novi Sad Heating Plant			x					
Conceptual solution and location conditions	Novi Sad Heating Plant			x					
Environmental Impact Assessment Study	Consultant			x					
Resolving property and legal matters	Novi Sad Heating Plant			x					
Conceptual design and feasibility study	Consultant		x	x					
Building permit project and building permit	Contractor / Novi Sad Heating Plant				x				
Preparation of tender documentation	Consultant			x					
Project for execution	Contractor				x				

3. ENERGY RENOVATION OF RESIDENTIAL, MULTI-FAMILY BUILDINGS CONNECTED TO THE DISTRICT HEATING SYSTEM – PUBLIC ESCO PROJECT

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	A reduction in primary energy consumption of 81 GWh per year is expected, as well as a reduction in CO2 emissions of 20,000 t per year.	2028	64.5	yes	A €50 million loan from the EBRD and a €14.5 million donation from the State Secretariat for Economic Affairs of the Swiss Confederation (SECO).	n/a	n/a	On 13/11/24, EBRD signed a contract with a consultant for conducting energy audits and preparing a study. The energy audits and preparation of bids for the RB are underway.
Description	Increasing energy efficiency, enabling the transition to billing based on energy consumption, with energy renovation of residential buildings connected to the district heating system in 14 local self-government units: Belgrade, Novi Sad, Niš, Kragujevac, Kraljevo, Užice, Čačak, Pančevo, Zrenjanin, Novi Pazar, Pirot, Vranje, Trstenik and Negotin.							
Status	In mid-November 2024, a contract was signed with a consultant conducting energy audits, worth 2 million euros. For the selected buildings, the EBRD provided funds for the preparation of a study and energy audits, based on which the profitability of investments will be assessed. After the studies are prepared, agreements will be concluded for the implementation of the project.							

	Responsible entity	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Spatial documentation				n/a					
Conceptual solution and location conditions	Consultant			X	X				
Environmental Impact Assessment Study	Consultant			n/a					
Resolving property and legal matters	Residential community association			X	X				
Conceptual design and feasibility study	Consultant			X					
Building permit project and building permit	Consultant			X					
Preparation of tender documentation	Consultant - MME			X	X				
Project for execution				n/a					

Table 39: List of energy efficiency projects – Other projects

1. IMPROVING ENERGY EFFICIENCY IN CENTRAL GOVERNMENT BUILDINGS – PUBLIC BUILDINGS								
	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	GWh are expected, with an annual reduction in CO2 emissions by 7,350 t.	2028	The latest estimates from 2024, made after energy audits were completed for 25 buildings as well as the completed	Funds of 41.02 million euros have been secured. The Council of Europe Development Bank (CEDB) is ready to negotiate a new (additional) loan to complete the implementation of this project.	- 40 million euros loan from CEB, - 1.02 million euros in donations, (0.3 million euros WbiF, 0.6	n/a	n/a	26 energy passports have been prepared for all 26 central government buildings on the list of this project. 25 detailed energy audits (DEPs) have been completed; the Feasibility Study for SIV 3 and the Feasibility Study for the Palace of Serbia (SIV1) are expected to be completed in August 2025. Of the list of buildings for which 25 DEPs have been completed, the building at Resavska 42, which

			Feasibility Studies for SIV3, show that approximately 80 million euros will be required for the implementation of the project.		million euros SIGA-SCA grant and 0.12 million euros provided by UNDP).			belonged to the High Judicial Council, was returned to its owner by restitution, so that building is not included in the scope of this project. The project technical documentation has been completed for the following facilities: 1. Institute for the Improvement of Education; Draže Pavlovića 15; Belgrade 2. Intellectual Property Office; Kneginje Ljubice 5, Belgrade 3. Ministry of Mining and Energy of the Republic of Serbia, Kralja Milana 36, Belgrade 4. Institute for Measurements and Precious Metals; Mike Alasa 14; Belgrade 5. Ministry of Economy and Republic Secretariat for Public Policies; Vlajkovićeva 10, Belgrade Project technical documentation is being prepared for the following facilities: 1. Ministry of State Administration and Local Self-Government; Birčaninova 6, Belgrade 2. National Council for Coordination of Cooperation with the Russian Federation and the People's Republic of China; Vase Čarapića 20, Belgrade 3. Building of Ministries and Judicial Bodies; Nemanjina 22-26, Belgrade 4. Agricultural Land Administration; Gračanička 8; Belgrade 5. Republic Property Directorate, Economic Institute, Korean Center; Kralja Milana 16/Dobrinjska 11; Belgrade 6. SIV3-Office building of the Government of the Republic of Serbia; Omladinskih brigada 1, Belgrade 7. Anti-Corruption Agency; Carice Milice 1; Belgrade
Description	The project will improve the energy efficiency of up to 26 buildings out of a total of 56 central government buildings. This will contribute to fulfilling the obligations towards the Energy Community under Article 5 of the Energy Efficiency Directive 2012/27/EU. Annual energy savings of 22GWh are expected, with an annual reduction in CO2 emissions of 7350 t. The Framework Loan Agreement between the Council of Europe Development Bank (CEDB) and the Republic of Serbia, as a Program Loan for the implementation of the project "Energy Efficiency in Central Government Buildings" was ratified by the National Assembly on November 26, 2020 ("Official Gazette of the Republic of Serbia - International Agreements" 6/2020 of November 30, 2020) and entered into force on December 8, 2020. On October 29, 2020, two grant agreements were concluded: the Agreement on a Donation from the Funds of Western Balkans Investment Framework (WBiF) and the Agreement on a Donation from the funds of Slovak Inclusive Growth Account (SIGA) and the Spanish Social Cohesion Account (SCA) - SIGA – SCA Agreement.							

	The first tranche of the loan in the amount of 10 million euros was withdrawn in October 2023 and transferred to the UNDP account (in accordance with the Loan Agreement) in January 2024. The second tranche of the loan is planned to be withdrawn in the amount of at least EUR 20 million (approximately EUR 23 million) in May 2025.
Status	Of the total of 28 central government buildings, the following were implemented: - 25 detailed energy audits and energy passports were carried out, Feasibility Study and Energy Passport for SIV 3 was completed - The feasibility study for SIV 1 is underway (ORBIS doo Novi Sad and LDK consultant Greece), and it is estimated that it will be completed in July 2025. Note: the object "Klub poslanika" that was on the list was excluded from the project because Administration for Joint Affairs of Republican Bodies started renovations with its own funds. The building of the High Judicial Council at Resavska 42, for which a detailed energy audit was conducted, was excluded from the project, as it was returned to the original owner through restitution. The project includes 26 buildings in total. The development of design and technical documentation has been contracted for 12 facilities: the Institute for the Improvement of Education and Training at Draže Pavlovića 15, the Institute for Intellectual Property at Kneginje Ljubice 5, the Ministry of Mining and Energy at Kralja Milana 36, the Institute for Measurements and Precious Metals at Mike Alasa 14, the Ministry of Economy and the Republic Secretariat for Public Policies at Vlajkovićeva 10, the Agricultural Land Administration at Gračanička 8 (legalization project in progress), the Ministry of State Administration and Local Self-Government at Birčaninova 6, the National Council for Coordination of Cooperation with the Russian Federation and the People's Republic of China at Vase Čarapića 20, the Building of Ministries and Judicial Bodies at Nemanjina 22-26, the Republic Directorate for Property, the Economic Institute, the Korean Center at Kralja Milana 16/Dobrinjska 11, the Office Building of the Government of the Republic of Serbia (SIV 3) and the Anti-Corruption Agency at Carice Milice 1. . The development of project and technical documentation has been completed for 5 facilities: Draže Pavlovića 15, Kneginje Ljubica 5, Kralja Milana 36, Mika Alas 14, Vlajkovićeva 10. The procurement procedure for selecting a project designer for the facility at Carice Milice 1 was also carried out and a contract with the project designer was signed at the end of March 2025. . For the facility at Draže Pavlovića 15, energy rehabilitation was completed on August 29, 2025 (2.5 months ahead of schedule). For the buildings at Kneginje Ljubice 5 and Kralja Milana 36, energy renovation is underway and will be completed in April 2025 and October 2025, respectively. For the facility at Mike Alasa 14, the contract with the selected contractor was signed in March 2025, and on April 3, 2025, an initial meeting was held to mark the start of the works. Completion of the works is expected in December 2025. . For the facility at Vlajkovićeva 10, the signing of the contract with the contractor is expected in May 2025. For the remaining 7 out of 12 facilities, the preparation of project and technical documentation is underway: - project documentation for the facilities at Birčaninova 6 and Vasa Čarapića 20 will be completed in July 2025, so that the execution of the works could be contracted in October. - The design for the facility at Carice Milice 1 is expected to be completed in September 2025. . - The completion of the project design for the facilities, Nemanjina 22-26, Kralja Milana 16/Dobrinjska 11 and SIV 3 is expected by the end of 2025. - The completion of the project design for the facility at Gračanička 8 is expected in the first quarter of 2026. Next projects to be contracted preparation of project technical documentation are: Ministry of State Administration and Local Self-Government, National Employment Service, Republic Directorate for Commodity Reserves at Dečanska 8-8a, LOLE building at Bulevar Kralja Aleksandra 84, Ministry of Telecommunications at Pariska 7, Ministry of Environmental Protection at Dr. Ivana Ribara 91/Evropska 1, Republic Commission for the Protection of Rights in Public Procurement Procedures at Birčaninova 19a and Ministry for European Integration at Nemanjina 34.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	n/a								

Conceptual solution and location conditions	Selected project designer, Administration for Joint Affairs of Republican Bodies, UNDP, MME and local self-government units								
Environmental Impact Assessment Study	n/a								
Resolving property and legal matters	Investor (Administration for Joint Affairs of Republican Bodies) , local self-government units, Republican Geodetic Institute	x	x	x	x	x			
Conceptual design and feasibility study	Selected project designer/consultant, Administration for Joint Affairs of Republican Bodies, UNDP and MME	x	x	x	x	x			
Building permit project and building permit	Selected project designer, Administration for Joint Affairs of Republican Bodies, UNDP, MME and local self-government units	x	x	x	x	x			
Preparation of tender documentation	UNDP, Administration for Joint Affairs of Republican Bodies and MME	x	x	x	x	x			
Project for execution	Selected project designer, Administration for Joint Affairs of Republican Bodies, UNDP and MME	x	x	x	x	x			

2. CLEAN ENERGY AND ENERGY EFFICIENCY FOR CITIZENS IN SERBIA - WORLD BANK - WB

	Technical effect	Expected completion year	Value (in million euros)	Secured funds	Sources of funding	NPV (in million EUR)	IRR	Planning and technical documentation - status
	The estimated energy savings achieved by this project are 430,000 MWh/year, and the reduction in CO2 emissions is 270,000 t/year. It is planned that this project will increase power from RES by 8 MW.	2027	44.9	yes	44.9 million euros loan from the WB (other funds will be provided by the local self-government unit and citizens).	n/a	n/a	The Implementation Unit has developed a calculation using Excel tools. The calculation relates to the monitoring and calculation of energy savings, CO2 reductions, financial flows, the status of contracts with local governments and the statistical processing of all submitted data.
Description	Improving energy efficiency, switching to cleaner energy sources for heating, installing solar panels in households, through providing incentives for citizens. Incentives for citizens amount to up to 50% of the investment value for a single measure, or up to 65% of the investment value for multiple (3+) measures. Within the framework of the measures to be financed, three packages of measures are envisaged (basic, standard and advanced), as well as financing of individual measures. The level of subsidies depends on the choice of package and is highest for the advanced package. It is estimated that, as a result of this project, around 50,000 households will be energy-renovated, i.e. around 10,000 households per year.							
Status	Public Call from 2023 The public call for funding for the energy renovation of single-family houses and apartments carried out by local government units, as well as city municipalities, (PC 2/23) was announced on June 1 and lasted until June 23. On July 20, 2023, contracts were signed with 131 local self-government units. The total value of subsidies is approximately 2.1 billion dinars (MME + local governments). During 2023 and 2024, energy renovation works were completed on 9,017 buildings, while work is still ongoing on other households. The work will continue in 2025, i.e. until 31/5/2025. Note: Over 11,000 applications have been filed by citizens. Public Call from 2024 The public call for funding for the energy renovation of family houses and apartments carried out by local self-government units, as well as city municipalities, (PC 1/24) was announced on April 10 and lasted until April 29 . On May 16 and 17, 2024, contracts were signed with 137 local self-government units. The total value of subsidies is approximately 2.1 billion dinars (MME + local governments).							

	It is estimated that, following the public call from 2024, more than 12 thousand households will be energy-renovated, and that energy savings will amount to over 200 GWh and a reduction in CO2 emissions of nearly 50 thousand tons. For the first time, funds were allocated to socially vulnerable categories (energy-vulnerable customers) within the framework of a special public call. For this purpose, funds were approved for 44 local self-government units, in the amount of 221,954,204.00 dinars, out of a total of 2,090,316,218.39 dinars allocated. In the first half of March 2025, the Public Call for Citizens was published in 127 local self-government units, while the Public Call for Socially Vulnerable Citizens was published in 39 local self-government units. A total of 5182 contracts were approved for 4729 households, and 63 contracts for 60 energy-vulnerable households. Of the total number of local self-government units, 16 local self-government units from 2024, respectively 15 local self-government units from 2023, belong to the fourth group of local self-government units with a level of development below 50% of the national average (devastated), and 32 local self-government units from 2024, respectively 34 from 2023, are recognized as having high air pollution.

	Responsible entity	2023	2024	2025	2026	2027	2028	2029	2030
Spatial documentation	n/a								
Conceptual solution and location conditions	n/a								
Environmental Impact Assessment Study	n/a								
Resolving property and legal matters	n/a								
Conceptual design and feasibility study	n/a								
Building permit project and building permit	n/a								
Preparation of tender documentation	n/a								
Project for execution	n/a								

Table 40. - Ranking of projects based on IRR

Serial number project	Project name	IRR
1	Integration of renewable energy from solar thermal sources and heat pumps into the district heating system in Novi Sad	2%

Table 41. – Ranking of projects based on the investment value of the project

Serial number project	Project name	Investment value in millions of euros
1	Integration of renewable energy from solar thermal sources and heat pumps into the district heating system in Novi Sad	107.080
2	Energy renovation of residential, multi-family buildings connected to a district heating system - public ESCO project	64.5
3	Decarbonization of district heating in Serbia	60.00
4	Project "Energy efficiency in public buildings and renewable energy sources in the district heating sector (greening the public sector)" - MMA	55.00
5	Clean energy and energy efficiency for citizens in Serbia - World Bank - WB	44.9
6	Improving energy efficiency in central government buildings – public buildings	40.9
7	Renewable Energy Sources in District Heating Systems Project in Serbia – Phase 1 (REDE Serbia)	40.5

8	National program for energy renovation of residential buildings, family houses and apartments 2022 - citizens	34.00
9	Rehabilitation of the district heating system in Serbia, phase V	32.00
10	Encouraging the development of renewable energy - biomass market development in Serbia, component II	31.900
11	National project for energy rehabilitation of public buildings in local self-government units (PC 2025-2030) - public buildings	25.42
12	National project for energy rehabilitation of public buildings in local self-government units (PC 2022) - public buildings	9.6
1 3	National project for energy rehabilitation of public buildings in local self-government units (PC 2024) - public buildings	6.78
14	National project for energy rehabilitation of public buildings in local self-government units (PC 2023) - public buildings	3.39
15	National program for the installation of solar panels and accompanying installations for the production of electricity for own needs in facilities of public importance in local self-government units 2024-2025 - public facilities	1.66

4. Conclusions

1. The starting point for the Development Plan defines the main directions of strategic development, which are in accordance with the new Energy Development Strategy of the Republic of Serbia until 2040 with projections until 2050.

2. Delays in the construction of new power plants may cause the Republic of Serbia to become a more significant importer of electricity in the coming years. The expected reindustrialization and growth of industrial production in the period up to 2030 and beyond may lead to an even more pronounced problem of the lack of domestic electricity production. Therefore, in addition to the rational use of energy and ensuring adequate reserves of oil and natural gas, and diversifying the routes and sources of supply of these energy sources, it is necessary to start building new power generation capacities.

3. This document represents the basis for further strategic considerations and projections of the targeted energy mix until 2030 and 2050, in accordance with the international commitments undertaken within the framework of the accession process to the European Union.