

1. INTRODUCTION

On the basis of the Energy Law ("Official Gazette of the Republic of Serbia", no. 145/2014) energy policy of the Republic of Serbia shall be determined by the Energy Development Strategy of the Republic of Serbia until 2025 with projections to 2030 ("Official Gazette of the Republic of Serbia", no. 101/2015) (hereinafter referred to as Energy Strategy), and the conditions, manner, dynamics and measures to achieve the Energy Strategy defines the Strategy Implementation Program (hereinafter referred to as Program). The annual demand for energy sources, which is necessary to provide the reliable, secure and quality supply to final customers, sources for the provision of the necessary amount of energy or energy sources, as well as the required level of stock and spare capacity of facilities for the secure supply of energy and energy are all determined by the Energy Balance of the Republic of Serbia (hereinafter referred to as Energy Balance).

Energy Strategy (adopted on December 4, 2015) defines the strategic priorities of development of energy sector of the Republic of Serbia (hereinafter referred to as RS) for the aforementioned period. Those priorities are:

☒ Provision of energy security, through:

1. reliable, safe, effective and quality supply of energy and energy sources;
2. the establishment of conditions for reliable and safe operation of all systems in the energy sector and for their sustainable development.

In order to enable safe, reliable and quality energy supply it is necessary to promote the rational use of energy, to ensure adequate reserves of oil and natural gas, to provide various sources of supply of these fuels and then to start building new capacities for the production of electricity (from renewable energy sources, as well as with conventional sources of energy, with high energy efficiency) and new capacities for the transmission and distribution of electricity and energy sources that will provide a secure supply at the lowest total cost.

☒ The development of the energy market, through:

1. the provision of competitiveness in the energy market on the principles of non-discrimination, publicity and transparency;
2. the protection of customers of energy and energy sources;
3. the development of the electricity and natural gas markets and their connection to the unique EU energy market;
4. the increasing connectivity of the energy system of RS with power systems of other countries, particularly with those in the immediate surroundings.

In accordance with the Treaty establishing the Energy Community, the Republic of Serbia has set the establishment of a regional energy market as one of its the priorities. This market should be integrated into the EU energy market and to allow more investment in the sector and contribute to its development.

☒ The transition to sustainable energy, through:

1. the provision of conditions for energy efficiency improvement in performing energy activities and energy consumption;
2. the creation of economic, commercial and financial conditions to increase the share of energy from renewable sources of energy, as well as for the combined production of electricity and heat;
3. the creation of institutional, financial and technical conditions for the use of new energy sources (wind, solar, biomass, biogas, etc.);
4. the improvement of the situation and the system of environmental protection in all areas of the energy industry;
5. establishing a more favourable legislative, institutional and logistical conditions for

dynamic investment in the energy sector.

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The Republic of Serbia's Energy Strategy, the National Action Plan for Energy Efficiency ("Official Gazette of the Republic of Serbia", no. 1/2017), the National Action Plan for Renewable Energy Sources ("Official Gazette of the Republic of Serbia", no. 53/2013), the Action Plan for Implementation of National Strategy for Sustainable Development ("Official Gazette of the Republic of Serbia", no. 62/2011), the National Emission Reduction Plan and the National program for integration of Serbia into the European Union [7], define goals, measures and activities that should contribute to increasing energy efficiency, increasing energy production from renewable energy sources, reducing emissions of greenhouse effect one garden as well as the reorganization and restructuring of companies in the energy sector, the creation of new national regulations and standards and harmonization of the existing regulations and standards applied in the EU. Specific measurable objectives for each energy sector are presented in the chapter related to the sector.

Note: National Emission Reduction Plan is currently in the process of adoption. National Program for Integration of Serbia into the European Union is a document containing a precise plan for how to achieve all the criteria necessary for the country to become a member of the EU, and was approved by the Government of the Republic of Serbia on October 9, 2008.

Measures, activities and projects that contribute to the realization of defined measurable goals within the individual sector are all directed towards the overall transition to a sustainable energy in Serbia. Sustainability of development arises from the universal improvement of energy efficiency, the increase of use of renewable energy and improvement of the environment, with the latter being partly a result of from the previous two factors. Energy efficiency is regulated by the Law on Efficient Use of Energy ("Official Gazette of the Republic of Serbia", no. 25/2013), while

both the umbrella law for the energy sector: the Energy Law ("Official Gazette of the Republic of Serbia", no. 145/2014) and the Law on efficient use of energy ("Official Gazette of the Republic of Serbia", no. 25/2013) regulate the field of renewable energy.

In addition to the energy efficiency level (i.e. indicators indicative of the energy efficiency) and the share of the renewable sources in the final energy consumption, there is a third important indicator of the level of sustainable development which is the improvement of environmental state in the field of environmental protection. The legal basis for environmental protection are the following acts:

- Law on Environmental Protection ("Official Gazette of the Republic of Serbia", no. 135/2004, 36/2009, 36/2009, sec. law, 72/2009, sec. law, 43/2011, the decision of the Constitutional Court and 14/2016),
- Law on Soil Protection ("Official Gazette of the Republic of Serbia", no. 112/2015),
- Law on Forests ("Official Gazette of the Republic of Serbia", no. 30/2010, 93/2012 and 89/2015),
- Water Law ("Official Gazette of the Republic of Serbia", no. 30/2010 and no. 93/2012),
- Law on the Protection of Environmental Noise ("Official Gazette of the Republic of Serbia", no. 112/2015),
- Law on Protection against Non-ionizing Radiation ("Official Gazette of the Republic of Serbia", no. 36/2009),
- Law on Waste Management ("Official Gazette of the Republic of Serbia", no. 36/2009, 88/2010 and 14/2016),
- Law on Air Protection ("Official Gazette of the Republic of Serbia", no. 36/2009 and 10/2013),
- Law on Strategic Environmental Impact Assessment ("Official Gazette of the Republic of Serbia", no. 135/2004 and 88/2010),
- Law on Environmental Impact Assessment ("Official Gazette of the Republic of Serbia", no.

135/2004 and 36/2009),

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- Law on Integrated Prevention and Control of Environmental Pollution ("Official Gazette of the Republic of Serbia", no. 135/2004 and 25/2015),

- Law on Chemicals ("Official Gazette of the Republic of Serbia", no. 36/2009, 88/2010, 92/2011, 93/2012 and 25/2015),

- Law on Nature Protection ("Official Gazette of the Republic of Serbia", no. 36/2009, 88/2010, 91/2010 - correction and 14/2016).

In addition, the legal basis is made by laws and regulations and accepted international treaties and agreements (Kyoto Protocol, the United Nations Framework Convention on Climate Change, Parma Declaration on Environment and Health, the Paris Agreement, the European Landscape Convention, Podgorica Initiatives/Regional Approach to Protection Issues Environment and Climate Change in South-Eastern Europe, the Protocol on Water and Health to the Convention on the Use of Transboundary Watercourses and International Lakes, Treaty establishing the Energy community (Law on ratification of the Treaty establishing the Energy Community between the European Community and the Republic of Albania, Bulgaria, Bosnia and Herzegovina, the Republic of Croatia, the former Yugoslav Republic of Macedonia, Republic of Montenegro, Romania, Serbia and the United Nations Interim Administration Mission in Kosovo in accordance with United Nations Security Council Resolution 1244, "Official Gazette of the Republic of Serbia", no. 62/2006), the Convention on Cooperation for the Protection and Sustainable Use of the Danube River, the Framework Agreement on the Sava River Basin).

The inventory of greenhouse gases for the period 2010-2013 and projections to 2020, i.e. the part of the period covered by the Program, is given in the "First Biennial Update Report to the United Nations Framework Convention on Climate Change" [21]. Projections of emissions of greenhouse

gases by 2030 and a contribution to national emissions reduction of 9.8% compared to emissions in the base year, 1990, are given in "Intended Nationally Determined Contribution of the Republic of Serbia" [22]. The special significance of measures, activities and projects mentioned in the Program has the "Regulation on limit values of air emissions from combustion plants" ("Official Gazette of the Republic of Serbia", no. 6/16), which stipulates the implementation of a range of projects in the fields of electricity, district heating, oil and industry, which contain combustion plants. Twenty heating plants within the district heating system, NIS and PE Electric Power Industry of Serbia (hereinafter referred to as EPS), were identified as the operators that are subject to the Law on integrated prevention and control of the pollution of the environment ("Official Gazette", no. 135/2004 and 25/2015) and are required to submit an application to the relevant ministry in order to obtain an integrated permit.

Also a series of measures and activities is planned that should provide sustainable energy sector in line with international commitments and best practice.

This document includes below the following sections, or chapters:

2. The manner of defining strategic energy projects and necessary activities related to the decision about projects being strategic and the basic obligations of the Government of the Republic of Serbia, its ministries and the Energy Agency of the Republic of Serbia in relation to the strategic energy projects;

3. Overview of measurable goals and indicators to be achieved through the implementation of the Program and a list of measures, activities and projects by areas within the Program to achieve the set objectives, taking into account environmental protection and energy efficiency for each of the sectors:

☒ Electricity Sector;

☒ Sector of District Heating

☒ Sector of Renewable Energy Sources

☒ Sector of Oil

☒ Sector of Natural Gas

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☒ Sector of Coal

☒ Sector of Energy Efficiency in Energy Consumption

Within the Program a group of projects is separated, with main characteristics, current status and schedule for implementation of each project being shown in detail. These projects are uniquely numbered throughout the Program, they are key to the achievement of the sector targets and their realization, in addition to the realization of the proposed measures and activities, will be subject to the reporting during the implementation period of the Program.

4. The prioritization of projects defines within the Chapter 3, which is carried out using a specific methodology for the selection and prioritization infrastructure projects approved by the Government of the Republic of Serbia. On the basis of valorised strategic relevance of each of the projects, an amendment was proposed to the Unified list of priority infrastructure projects in the energy sector - a document adopted by the Government of the Republic of Serbia and whose revision is expected in 2018. After the analysis, it was estimated that some strategic objectives are underestimated in the rating system which is defined by criteria of the strategic relevance of the projects that have been used for the formation of a Unified list of priority infrastructure projects in the energy sector. In this sense, rating system and the parameters for the assessment are redefined, as well as the weighting factors of particular mark in order to adequately comprehend the impact projects to the realization of the goals defined by the Energy Strategy and formed in a special ranking list of actions defined within the Program, which better reflects their valued influence on the achievement of the targets whose overview is given in Chapter 3.

5. Literature

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2. STRATEGIC ENERGY PROJECTS

2.1. Basic Concepts Related to Strategic Energy Projects

In order to define the notion of strategic energy project, ways of promoting a project into a strategic one and liabilities and activities of the relevant institutions in monitoring of the implementation of strategic energy projects, terms with the following meanings are used:

- 1) energy infrastructure - represents parts of the energy system, which are located in the Republic of Serbia or connecting the Republic of Serbia with one or more countries;
- 2) decision to build the facility - represents all the decisions made in the process of obtaining permits for construction, not including court decisions and decisions made on appeal;
- 3) project - represents one or more parts of the energy infrastructure;
- 4) project of the Energy Community interest - a strategic energy project which is part of the list of projects of interest to the Energy Community;
- 5) energy infrastructure bottleneck - means limitation of physical flows in an energy system due to insufficient transmission capacity, which includes inter alia the absence of infrastructure;
- 6) project promoter - means one of the following:
 - (a) the transmission system operator (TSO), the system operator for transportation (SOT), the distribution system operator (DSO), or other operator, or investor developing a project of common interest;
 - (b) legal entity that is authorized by contract to accept legal obligations and bear the financial responsibility on behalf of parties to the contract, in the event that there are multiple system operators, investors, or groups of interested parties;

7) smart grid - means an electricity network that can integrate in a cost efficient manner the behaviour and actions of all users connected to it, including generators, consumers and those that both generate and consume, in order to ensure an economically efficient and sustainable power system with low losses and high levels of quality, security of supply and safety

8) works - the construction of the facility in terms of the law governing the planning and construction of facilities and procurement of equipment and services;

9) studies - activities necessary to prepare the execution of the project, in terms of the law governing the planning and construction of facilities and the law governing the protection of the environment;

10) commissioning - means the process of bringing a project into operation once it has been constructed.

2.2. Categories of Strategic Energy Projects

1) Electricity Sector:

(1) high-voltage overhead transmission lines, if they have been designed for a voltage of 110 kV or more, and underground and submarine transmission cables, if they have been designed for a voltage of 110 kV or more;

(2) electricity storage facilities used for storing electricity on a permanent or temporary basis in above-ground or underground infrastructure or geological sites, provided they are directly connected to high-voltage transmission lines designed for a voltage of 110 kV or more;

(3) any equipment or installation essential for the systems defined in (1) and (2) to operate safely, securely and efficiently, including protection, monitoring and control systems at all voltage levels and substations;;

(4) any equipment or installation, both at transmission and medium voltage distribution level, aiming at two-way digital communication, real-time or close to real-time,

interactive and intelligent monitoring and management of electricity generation,

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transmission, distribution and consumption within an electricity network in view of developing a network efficiently integrating the behaviour and actions of all users connected to it — generators, consumers and those that do both — in order to ensure an economically efficient, sustainable electricity system with low losses and high quality and security of supply and safety;

2) Sector of Natural Gas:

(1) pipelines for transport of natural gas and biogas, which are part of the transportation system;

(2) underground reservoirs of natural gas connected to the gas pipeline mentioned under (1);

(3) facilities for admission, storage or decompression of liquefied natural gas or compressed natural gas;

(4) equipment or installations which are important for safe, secure and efficient operation of the system, or allow bidirectional flow of natural gas, including compressor stations;

3) Sector of Oil:

(1) pipelines to transport crude oil;

(2) pumping stations and storage facilities required for the operation of the pipeline;

(3) any equipment or installation that is essential for the safe, reliable and efficient operation of the aforementioned system, including systems for security, control and management, as well as devices for reversible flow;

4) Priority thematic areas to be developed:

the introduction of the smart grid: smart grid technology implementation in the Republic of Serbia, with the aim of effective integration of behaviour and actions of all users connected to the electricity network, in particular the production of large amounts of electricity from renewable or distributed energy sources and controllable consumption;