

# Integrated National Climate and Energy Plan for the period 2021 to 2030 with a vision until 2050 (INECP)

## *Main questions about the Integrated National Energy and Climate Plan (INECP)*

### **1. Why is INECP prepared?**

In accordance with the EU's energy and climate policy and the aspiration to implement decarbonisation and achieve climate neutrality in 2050, the Ministerial Council of the Energy Community adopted a Recommendation on preparing for the development of integrated national energy and climate plans ([\*Recommendation of the Ministerial Council of the Energy Community \(2018/1/MC-EnC\)\*](#)) by the Contracting Parties of the Energy Community. These plans, in accordance with the relevant EU regulations, cover all five dimensions of the Energy Union (decarbonisation; energy efficiency, energy security, research, innovation and competitiveness and the internal energy market) and represent the necessary tools for strategic planning of the energy and climate policy. The Energy Community has prepared guidelines for the development of integrated energy and climate plans ([\*POLICY GUIDELINES by the Energy Community Secretariat on the development of National Energy and Climate Plans under Recommendation 2018/01/MC-EnC\*](#)).

The Law on Amendments to the Law on Energy no. 145/2014 and 95/2018 - other law and 40/2021 Article 8a stipulates the obligation to adopt an integrated national energy and climate plan of RS, in order to harmonise energy and climate planning with EU regulations and practice and to achieve the objectives accepted under the UNFCCC, accession policy at the EU, Energy Community and national levels.

The Integrated National Energy and Climate Plan **for the period 2021 -2030**, including the projection until 2050, will define the targets of increasing energy efficiency, renewable energy sources and reducing greenhouse gas emissions for 2030, but also the policies and measures for their fulfillment, in accordance with the commitment of the Republic of Serbia towards greener and cleaner energy.

The Integrated National Energy and Climate Plan of the Republic of Serbia is adopted by the Government of the Republic of Serbia for a period of up to ten years, taking into account the longer-term perspective, in accordance with the Law on Energy of the Republic of Serbia (Article 8a) at the proposal of the Ministry of Mining and Energy.

### **2. INECP is based on the five dimensions of the Energy Union Governance Regulation, what are these dimensions?**

INECP should provide an overview of the current situation, key policies and adequate measures to address the five dimensions of Regulation (EU) 2018/1999 on the governance of the Energy Union and climate action:

- Decarbonisation (greenhouse gas emissions and renewable energy),
- Energy Efficiency
- Energy Security
- Internal energy market
- Research, innovation and competitiveness

### **3. What should be ensured by an energy and just transition?**

- Modern economy meeting the needs of all citizens,
- New investments,
- New technologies (green hydrogen),
- Developing innovation to keep pace with the world,
- New modern energy plants,
- Significant changes in the functioning of public energy undertakings,
- More clean and green energy and less pollution,
- Better diversification of supply sources and routes,
- Opportunities for new green activities and new jobs,
- Better living and working conditions.

### **4. Why does Serbia need a new energy policy?**

Progress is creating a need for increasing amounts of available energy. This is why new possibilities for using available resources and potential for energy generation are constantly being researched and developed. Simultaneously, the criteria for their use are constantly being raised to a higher level: it is no longer sufficient to provide the necessary amounts of energy, but this energy must be clean. Clean energy has become an imperative for a better life, an advanced economy and the implementation of economic activities in the world.

Europe has always been the leader of initiatives, and therefore the new European energy and climate policy aims to connect and strengthen Europe, enable greater energy independence and minimize the negative impacts upon the life and health of all its inhabitants.

### **5. What does Serbia's new energy policy, as defined by the Integrated National Energy and Climate Plan of the Republic of Serbia until 2030 with a vision until 2050, entail by creating the GREEN ENERGY SECTOR:**

- Significantly greater use of RES potential for electricity and heat generation;
- Energy-efficient buildings;
- Introduction of electric vehicles into traffic;
- Introduction of hydrogen production;
- New gas interconnections with Croatia, Bosnia and Herzegovina, Romania, North Macedonia and Montenegro;
- Expansion of the underground gas storage facility and construction of a new gas storage facility;
- Construction of electricity interconnections;
- Significantly higher capacity for wind and solar power generation in 2030;
- New pumped storage HPPs (Bistrica and Đerdap 3);
- Higher security of supply.

### **6. How does Serbia and the Ministry of Mining and Energy develop their capacities so that they can adequately respond to the risks and challenges we are all facing nowadays?**

This is about the readiness and the possibility to define and monitor energy policy so that various challenges that affect the development of energy sector and thus the development of the entire economy can be considered.

In this regard, it should be noted that due to the geopolitical changes to which we are being exposed, and which affect the energy sector, and above all the security of the supply of energy and energy-generating products, and thus the entire economy and population, it is necessary to develop the area of energy strategic planning, in accordance with the practices of developed countries. This implies the development of human resource, institutional, software and financial capacities. Strategic planning implies common, interrelated and constant actions of all relevant stakeholders: the Ministry responsible for energy and other ministries, relevant energy undertakings and other institutions, as well as relevant experts.

#### **7. Why is it prepared by consultants?**

INECP is a very complex and comprehensive document whose development requires engaging of experts possessing relevant knowledge and experience, especially considering that the analytical basis of the plan is based on energy sector development projections that include reference energy scenarios and policy scenarios. Namely, in order to analyze the development of the energy system that is complex and depends on numerous parameters and changes at the international level, in the economy, in demographic and social environments, special tools for energy modeling are used: SEMS-System for energy modeling of Serbia, Tools for high share of renewable energy sources and Tool for macroeconomic analysis. These tools represent complex types of software with a large amount of input data for the use of which it is necessary to have specific expertise and experience.

#### **8. Why is it prepared by foreign consultants and how much does it cost?**

The development of the Integrated National Energy and Climate Plan of RS for the period 2021 - 2030 was approved as an activity within the framework of the project "Further development of energy planning capacity", IPA 2017 (non-allocated funds). The contract was signed on 8 February 2021 with the consortium LDK Consultants, Engineers and Planners S.A. Greece and the Centre for Renewable Energy Sources and Saving (CRES), Greece.

Bearing in mind the fact that the preparation of INECP is based on the activities of the project financed from IPA 2013, which was implemented in the period September 2017 – October 2019, as well as on the successful and highly professional previous cooperation, the same consortium was contracted for the continuation of the project.

#### **9. How were the Consultants selected?**

Consultants comprising the consortium LDK Consultants, Engineers and Planners S.A. Greece and the Centre for Renewable Energy Sources and Saving (CRES), Greece, were selected for the implementation of the project "Further development of energy planning capacities", under which the INECP will be developed, via a tender procedure conducted by the Ministry of Finance – Department for Contracting and Financing of EU Funded Programs. Bearing in mind that the project is financed by the EU through the IPA 2017 program, the project contract was awarded by negotiation procedure according to the PRAG Rules.

#### **10. Why was the deadline for the preparation of INECP extended?**

The need for additional financial support and extension of the project duration by 6 months arises from circumstances that unexpectedly occurred during the project implementation, as well as the extended scope and schedule of works. These circumstances are as follows:

##### **1) Global energy crisis**

Following the closure during the COVID-19 pandemic and the drop in production in all sectors, the energy sector faced the biggest changes resulting in an abrupt increase in the consumption of all energy-generating sources (crude oil, natural gas, coal, etc.), which led to an increase in the price of

electricity up to the new record high on the European continent. The unexpected low rate of wind power generation in the EU at one period placed an additional burden on the electricity sector, forcing countries to turn to alternatives such as thermal power generation. An unexpected change in the electricity production mix in Europe affected the prices at which EPS trades on the commercial market, which also reached record highs. Due to all of the afore-mentioned developments, countries are searching for all possible solutions to improve their energy security of supply and to avoid possible shortages and power outages, to mitigate the impact on customers and to find the best possible solutions for the ongoing crisis.

In the process of assessing possible energy scenarios for INECP, the Republic of Serbia is not exempted from this situation. After proposing 33 scenarios, a lot of sensitivity analyses related to the impact of the current crisis were also carried out. One sensitivity analysis considered possible approaches to using existing thermal power plants, including sending some of their capacity to the cold reserve. The reasons why nuclear energy is considered in some of the scenarios are a reduction in dependence on imported gas and an effort to reduce carbon dioxide emissions from existing thermal power plants, and to provide baseload energy when there is an increased use of RES. At the same time, we need to bear in mind that Serbia has a valid moratorium on the construction of nuclear power plants. Regarding the international documents signed by the Republic of Serbia regarding the green agenda, a significant amount of analyses were made taking into account the more ambitious reduction of greenhouse gas emissions and the increase of renewable energy sources in final energy consumption. All these analyses were made taking into account the impact on projected GDP, in order to guarantee a balanced impact on the socio-economic perspective.

## **2) National energy crisis**

Since December 2021, Serbia has faced its own energy/electricity crisis that was not directly related to the European and global energy crisis. Despite the large natural resources of lignite, new mines were not prepared nor was any new coal discovered in a timely manner in Serbia, so the coal reserves that were available at the start of the winter period were not sufficient for the upcoming winter and the coal was of poor quality. In one day, more than 2GW was lost in electricity generating capacities (out of 3GW). In order to meet the increased demand during winter and reduce the high costs of imported electricity, hydro accumulations were used intensively, which led to their enormous decline, to a minimum level over 5 year-period. Such a situation in regards to the provision of coal for thermal power plants is still in the process of recovery and the plan of excavation of lignite is progressing in a positive direction.

This situation further emphasised the importance of ensuring the security of supply, as one of the main approaches in the planning of electricity generation capacities. During the process of INECP preparation, this led to a new modelling which considered alternative approaches to reducing dependence on imports and enabling diversification of the electricity production mix.

## **3) Russia-Ukraine conflict**

The war in Ukraine has additionally burdened the already existing energy crisis and made Serbia's energy planning even more uncertain and complex. In the situation when Serbia relies mainly on Russia for natural gas imports and when the gas prices are rising enormously, there was a need to further explore alternatives to the previously considered use of natural gas in electricity production. Therefore, the upcoming analyses will try to mitigate and possibly overcome the uncertainties related to the security of supply and propose some alternatives that will rely less on natural gas.

## **4) Other Circumstances**

In addition to the above, the circumstances that influenced the need to extend the INECP preparation process are: the involvement of additional working group members in the consultation

process, a large number of consultations held with working group members, as well as the electoral process in Serbia during which adoption of documents was not possible.

In order to overcome this situation, the Ministry of Mining and Energy made a decision, following obtaining a positive feedback from the Consultant, to extend the process of implementation of INECP by including a larger number of analyses conducted by the SEMS tool, but also by another tool for a high share of renewable energy and macroeconomic analysis, which was not planned during the preparation of the Terms of Reference.

### **11. Who participates in the preparation of the INECP?**

In the preparation of INECP, a participatory approach is applied, which means that relevant institutions, the general public, the private sector and civil society organizations are involved in the process. Also, for the purpose of monitoring the implementation of the INECP project, the Ministry of Mining and Energy established a multidisciplinary Working Group comprising the following representatives:

1. Environmental Protection Agency
2. Distribucijagas Srbija doo Novi Sad
3. AD "Elektromreža Srbije"
4. PE "Elektroprivreda Srbije"
5. Ministry of Construction, Transport and Infrastructure
6. Ministry of Agriculture, Forestry and Water Management
7. Ministry of Economy
8. Ministry of Environmental Protection
9. Naftna industrija Srbije ad
10. Chamber of Commerce of the Republic of Serbia
11. Statistical Office of the RS
12. Transnafta
13. Transportgas Srbija doo Novi Sad
14. PE Srbijagas
15. Hydrometeorological Service of Serbia
16. CEKOR
17. BOS
18. RES Foundation
19. European Bank for Reconstruction and Development.

In addition, the Ministry also organizes meetings and consultations with national and foreign or international institutions, organizations and companies, if necessary.

### **12. What does the SC do for INECP and what is the task of the working group?**

In accordance with the Manual for IPA Program Implementation, the Steering Committee of the project "Further Development of Energy Planning Capacity" was established, consisting of the representatives of the Ministry of Mining and Energy, the Ministry of Finance, the Ministry of Environmental Protection, the Ministry of European Integrations, the Delegation of the European Union to the Republic of Serbia and contractors.

The role and main duties of the Steering Committee are:

- monitoring the progress in the implementation of the contract by reviewing, considering and reaching an agreement prior to the approval of extraordinary and final reports by the Contracting authority;

- ensuring close cooperation between the institutions involved;
- providing strategic guidance and support in resolving problems affecting proper implementation of the contract, including fulfilling assumptions and mitigating risks;
- coordination with other EU projects related to this area and other projects of relevant donors in order to promote synergy and integration.

In addition, the Ministry of Mining and Energy has established a working group to monitor the development of INECP and to provide the necessary information, comments and opinions. In accordance with the Terms of Reference, the Working Group has the following tasks:

- 1) it supervises and monitors the implementation of the project "Further development of energy planning capacities",
- 2) it provides support to the Project Contractor in achieving the results defined by the Terms of Reference,
- 3) it provides all available information on the progress in the implementation of the project at the request of the CFCU and the IPA Unit;
- 4) it obtains the necessary information and data for the purpose of implementation of the Project;
- 5) it prepares opinions and comments about all the results of the Project defined by the Terms of Reference and, if necessary, proposes the improvement of the report;
- 6) it attends meetings with the Project Contractor and other meetings agreed with the Head of the Working Group and the Working Group Coordinator;
- 7) it participates in the implementation of workshops and meetings defined by the Terms of Reference.

### **13. Who from the non-governmental sector participates in the work of the WG?**

Civil society organizations that are members of the working group and whose representatives participate in its work are: RES Foundation, Belgrade Open School and Center for Ecology and Sustainable Development (CEKOR). MME also responded to the calls of both RERI and Ana and Vlade Divac Foundation.

The selection of representatives of civil society organizations for membership in the working group to monitor the development of INECP was made on the basis of the [Public Call for civil society organizations to submit candidacies for membership in working groups](#), which was published by the Ministry of Mining and Energy in cooperation with the Ministry of Human and Minority Rights. The goal of this public call is to conduct a public and transparent selection of civil society organizations whose representatives will be proposed for membership in the working groups.

### **14. How is INECP prepared?**

Pursuant to the Law on Energy (Article 8a, paragraph 5) and the Law on the Government (Article 17, paragraph 4 and Article 24, paragraph 2), the Minister of Mining and Energy adopted on 18 April 2022 the [Rulebook on closer contents and guidelines for determining the national goals of INECP, the manner of its preparation and reporting on its implementation](#) (hereinafter: the Rulebook).

Chapter IV of this Rulebook contains provisions related to the description of the method of preparation of the INECP, which include: establishment of a working group in order to ensure publicity and appropriate dialogue in the process of preparing of this document, then regional cooperation in the field of energy and climate, conducting public consultations with the aim of ensuring public participation in the preparation of the INECP, assessment of the INECP by the Energy Community, method of updating the INECP and evaluation of the updated INECP.

## **15. When were the early consultations opened?**

In the process of developing the INECP, the Ministry of Mining and Energy held numerous meetings and consultations and involved the general professional public, especially regarding the dimension of research, innovation and competitiveness. The representatives of the Serbian Academy of Sciences and Arts, the Ministry of Education, the Innovation Fund, the Science Fund, the Development Agency of Serbia, the Serbian Chamber of Commerce were involved in the process through the meetings held. Also, in order to collect data within this dimension, the Ministry addressed in writing a large number of faculties from the universities in Belgrade, Novi Sad, Nis and Kragujevac, various relevant institutes (Nikola Tesla Institute, Mihailo Pupin Institute, Vinca Institute), the Ministry of Agriculture, Forestry and Water Management, and obtained inputs that the Consultant took into account when working on INECP.

The Regulatory Institute for Renewable Energy and the Environment (RERI) organized public consultations related to the INECP development process on 24 November 2021, which were also attended by the representatives of the Ministry of Mining and Energy in order to inform the public about the INECP preparation process. At the Parliamentary Forum for Energy Policy of Serbia, which was held in the Parliament of the Republic of Serbia before MPs and journalists on February 8, 2022, scenarios were announced and the preparation process of INECP and its content were explained through a discussion. At the Faculty of Mechanical Engineering on April 1, 2022, during the presentation of the goals of the development of the Hydrogen Strategy document organized by the Chamber of Commerce and GIZ, the preparation of the INECP and the Energy Development Strategy strategic documents was discussed. The INECP presentation was also held at the Agenda 2030 event -Synergies toward sustainable future organized by Ana and Vlade Divac Foundation on June 9, 2022. In the framework of the promotion of the Public Call for Innovative Decarbonization Solutions organized by the Government of Japan and UNDP, held on 7 July 2022, the concepts and goals of INECP were presented.

During April this year, on the website of the Ministry of Mining and Energy, on the web page: <https://www.mre.gov.rs/dokumenta/strateska-dokumenta/integrisani-nacionalni-energetski-i-klimatski-plan-republike-srbije-za-period-2021-do-2030-sa-vizijom-do-2050-godine>, the material containing basic information about INECP as well as about the project within which it is implemented, Rulebook on closer contents and guidelines for determining national goals of INECP, description of modelling tools and input data of modelling tools, is posted. Along with the Ministry's announcement, on 19 April 2022, information on the start of work on the document was published on the e-Consultation website together with supporting documentation: <https://ekonsultacije.gov.rs/topicOfDiscussionPage/61/1>

The Terms of Reference define that after the preparation of the draft INECP, public consultations, consultations with the Secretariat of the Energy Community and cross-border consultations will be conducted.

## **16. What input data was used to create INECP?**

For the preparation of the INECP, official statistical data of the Statistical Office of the Republic of Serbia, the National Bank of Serbia, energy undertakings, ministries and Eurostat were used.

The input data used for each of the modeling tools used can be viewed in the document located at: [https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.mre.gov.rs%2Fsites%2Fdefault%2Ffiles%2F2022%2F04%2Fmodelling\\_tools\\_08102021\\_v1.0\\_sr.docx&wdOrigin=BROWSELINK](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.mre.gov.rs%2Fsites%2Fdefault%2Ffiles%2F2022%2F04%2Fmodelling_tools_08102021_v1.0_sr.docx&wdOrigin=BROWSELINK)

## **17. What is a scenario?**

In order to determine the sustainable course of the development of the energy system and taking into account the existing uncertainties, analytical models are used to develop strategic alternatives with different goals and their schedule of implementation. They help to analyse the impact of different internal and external factors and alternatives to the development of the energy system and provide information to facilitate making decisions. The simplest way is to describe that each scenario is a separate outline describing a determined action, in order to achieve results. These include the status quo, that is, what happens if things are left as they are, unchanged and without taking any measures, they can be low, medium and high ambitions, and they can be scenarios that are not considered but contain the most ambitious goals for the purpose of comparison.

## **18. How many work scenarios are under review?**

In the process of developing this plan, a number of scenarios were analyzed, on the basis of which the following work scenarios were developed:

- 1) Scenario 1 with two options after 2030 (with and without nuclear power – Scenario 1N and Scenario 1)
- 2) Scenario 2 with two options after 2030 (with and without nuclear power – Scenario 2N and Scenario 2)
- 3) Scenario 3 with two options after 2030 (with and without nuclear power – Scenario 3N and Scenario 3)
- 4) Scenario S with two options after 2030 (with and without nuclear energy – Scenario S-N and Scenario S)
- 5) Scenario 6 (Fit for 55)

All work scenarios except scenario 6 -Fit for 55 are defined on the basis of assumptions which are important for the development of the energy sector of Serbia, in order to determine possible and achievable targets in the modeling results in the field of reducing greenhouse gas emissions and the share of renewable energy sources in gross final energy consumption and targets in the field of energy efficiency in 2030 and 2050.

## **19. What does Scenario 6 (Fit for 55) represent?**

Scenario 6-Fit for 55 is presented in the document Modeling Results, but it was done solely to see what would happen if the targets of the Republic of Serbia were equal to the targets of the EU (at the EU level). In the EU, each country has its own targets, i.e. when Serbia would achieve 55% reduction in greenhouse gas emissions in 2030. In this regard, this scenario is not the subject of early consultations, i.e. comments and questions are not submitted.

The draft legislative package submitted by the EC to the European Parliament on 14 July 2021 foresees a number of significant changes to the current targets regarding the environmental impact of energy use. The main proposed changes are the following:

- Net greenhouse gas emissions will be reduced by at least 55% by 2030 compared to 1990 levels.
- The Renewable Energy Directive will set an increased target for the production of 40% of energy from renewable sources by 2030.
- The Energy Efficiency Directive will set a more ambitious binding EU-level annual target for reducing energy use.

- The Effort Sharing Regulation sets enhanced emission reduction targets to each Member State for buildings, road and domestic maritime transport, agriculture, waste and small industries.
- The introduction of more stringent CO<sub>2</sub> emission standards for cars and vans will accelerate the transition to zero-emission mobility by requiring the average emission of new cars to be reduced by 55% from 2030 and 100% from 2035 compared to 2021 levels.
- The development of a carbon border adjustment mechanism will set the carbon price on imports of targeted product choices (electricity, iron and steel, cement, aluminium) to ensure that ambitious climate action in Europe does not lead to "carbon leakage".

#### **20. Will the development of INECP lead to greater environmental protection? In what manner?**

Understandably, by using renewable natural potentials and capacities (solar energy, water and wind), we achieve greater protection of the climate and the environment. By increasing the production of electricity from renewable sources, we reduce the emission of sulphur and nitrogen oxides, dust and other pollutants, as well as greenhouse gases. In doing so, it will be ensured that all natural resources we have available are conserved and used rationally with maximum compliance to environmental standards.

Flue gas desulphurisation, denitrification and dedusting plants are installed in thermal power plants that will remain in operation, thus reducing these emissions to the standards prescribed by the EU.

#### **21. How will the implementation of INECP affect energy independence and stability?**

INECP is a strategic document that will define the targets that will lead to a higher share of RES in the energy mix, increasing energy efficiency, decarbonization, i.e. reducing greenhouse gas (GHG) emissions, further development of the internal energy market, as well as to promoting research, innovation and competitiveness.

By increasing energy efficiency and gradually replacing renewable sources of non-renewable coal whose reserves are limited, as well as by higher use of electricity instead of the fossil fuels that are imported today, Serbia's energy sector is permanently focused on domestic energy resources. This reduces energy imports to the most necessary measure and reduces the effects of uncertainties in external markets, which are very pronounced today.

In doing so, the structure of the system towards renewable sources will be changed so that, in addition to increasing flexible capacities for energy accumulation and covering variable loads and production, it will ensure reliable and stable system operation.

Lower dependence on imports will also contribute to the engagement of citizens who will become prosumers because the new legislative framework allows them to produce electricity for their own consumption and to export the surplus to the grid.

#### **22. How to ensure energy security?**

The foundation of energy security is based on diversification, that is, the ability to produce, transmit and distribute energy from different sources, technologies, locations in such a manner that the energy system is not dependent on any homogeneous source or technology.

#### **23. What does the integration of the internal energy market entail?**

Market integration entails the agreement of all parties in terms of implementation methods, but above all the establishment of internal markets of individual countries in the region (which do not currently exist in all countries) in order to provide for establishing and integration into a single regional market.

#### **24. Will the scenario chosen in the INECP be in line with EU targets?**

The scenario has not yet been selected, because there are 4 proposed scenarios that are the subject of discussion by the general public and the general public. However, there is a scenario among them that corresponds to the ambitious targets of the EnC. Therefore, we conducted negotiations with the EC and at a recent meeting of the informal Ministerial Council in Baden, the targets on the basis of which this scenario was developed were defined.

- Reduction in GHG emissions compared to 1990 level: 40.3%
- Amount of emissions in ktCO<sub>2</sub> that can be emitted: 47820
- RES share in GFEC: 40.7%
- Primary energy consumption: 14,938 Mtoe
- Final energy consumption: 9.54 Mtoe

When defining target, we take into account all the impact factors, in order to be certain that we can achieve the set targets in the given circumstances.

#### **25. Are the two scenarios tailored to our future needs?**

Serbia needs a healthy environment, safety and security of supply, new jobs, a new economic environment and economic growth. The scenarios are set to offer the possibility to consider lower, medium and ambitious targets, from the point of view of what Serbia can achieve in the given period. Certainly, each of the proposed scenarios corresponds to the needs of the Republic of Serbia in the process of energy transition. The question is only which of the scenarios is the most optimal one for Serbia.

#### **26. How will it be implemented/applied?**

Based on **the Rulebook on closer content and guidelines for INECP**, the Ministry is obliged to report to the Secretariat of the Energy Community by March 15, 2025 and every two years thereafter, on the status of implementation of INECP. In this regard, the Ministry will establish a Working Group with those members who are obliged to carry out their activities according to the prepared INECP within the timeframe and in the manner determined by the INECP. The possibility of establishing a working body of the Government for the implementation of INECP is not excluded. These reports are public.

Also during the implementation of measures and activities to achieve the objectives of the INECP, the document itself can be updated by changing the national target or contribution for any of the quantified goals or contributions of the Energy Community to reflect an equal level of ambition for renewable energy sources and energy efficiency or a higher level of ambition for renewable energy sources and energy efficiency and reduction of greenhouse gas emissions compared to that established in its last communication to the INECP. The national policies set out in the INECP are subject to modification and adjustment provided that the modifications and adjustments are included in the integrated national energy and climate reporting on progress.

## **27. What will happen if we fail to pass the INECP within the prescribed period? What will the consequences be?**

All Contracting Parties of the Energy Community, which includes the Republic of Serbia, by transposing the relevant EU regulation, adopted by the Ministerial Council of the Energy Community, undertake to prepare Integrated National Energy and Climate Plans.

Our new legislative framework, more precisely the new Law on Energy and the Law on Energy Efficiency and Rational Use of Energy, already defined the obligation to prepare the INECP in accordance with EU regulations and practice.

In addition, Serbia is a signatory of the Sofia Declaration on the Green Agenda for the Western Balkans, which also stipulates the development of an Integrated Energy and Climate Plan.

In accordance with the EU policy in the field of energy and climate and the aspiration to implement decarbonization and achieve climate neutrality in 2050, the Ministerial Council of the Energy Community adopted the Guidelines on the Preparation and Development of Integrated National Energy and Climate Plans in 2018.

In accordance with the RS Law on Energy and with the aforementioned Guidelines, the Republic of Serbia is preparing and adopting the Integrated National Energy and Climate Plan for the RS for the period from 2021 to 2030, including the perspective until 2050.

The deadline for the development of the INECP is June 2023.

Failure to pass the INECP entails sanctions provided for in the Energy Community Treaty in the event of non-fulfilment of the obligations (suspension of voting rights, exclusion from meetings, denial of financial support from the EU).

By adopting the INECP, together with other climate and energy related national strategic documents, Serbia consistently fulfils the obligations assumed by the Paris Climate Agreement and contributes to the protection of the planet from climate change.

The consequences of not adopting the INECP and not applying measures to achieve the goals are as follows:

- The energy system remains on a path that is not sustainable, due to outdated technologies and high CO<sub>2</sub> emissions,
- Development financing has become exceedingly difficult because international financial institutions and an increasing number of banks do not finance investments related to the use of coal,
- Domestic economic and scientific development related to the functioning and development of the energy sector have less chance of being included in new energy technologies,
- Serbia lags technology-wise in the field of energy,
- Exposure to the risk that, by untimely entry into decarbonization, later, due to the tightening of the international attitude towards the climate, it will enter into sub-optimal forced development solutions with higher costs and dependence on foreign countries – reducing Serbia's ability to strategically manage its future in terms of energy,
- Continuation of an almost passive attitude towards energy efficiency, i.e. irrational consumption of energy resources.
- Less investment inflows and market unattractiveness,
- Reduced economic growth and employment rates.

## **28. Does the implementation of the INECP achieve economic and social development?**

That is right. With the implementation of the INECP, greater development is achieved, in terms of greater investment in RES. In order to accomplish all these goals, an Investment Plan was prepared which, together with the implementation of the INECP, will contribute to greater economic growth, the creation of green jobs and a balance between the development of the energy sector and environmental protection. The investment plan includes energy and mining projects worth EUR 35 billion, out of which EUR 21.4 billion are planned for RES projects.

Investing in the energy sector is actually a real driver and a development opportunity for every country.

### **29. What will INECP bring to Serbia? What is the importance of the adoption of INECP for the Republic of Serbia?**

The INECP is an especially important strategic document bearing in mind that it helped us create an energy policy and energy sustainability by defining the targets that will enable the reduction of CO2 emissions, greater use of RES, increased energy efficiency, innovation, greater security and development of the internal market. Additionally, we envisaged that the national framework target for eliminating energy poverty would be included in the INECP if it was shown that a significant percentage of households were experiencing energy poverty. Also, we envisaged that if it is determined that there is a large number of households in energy poverty, the national framework goal for reducing energy poverty will be included in the INECP.

In general, the INECP will bring along numerous innovations, a better standard of living and a cleaner environment.

The development of the INECP resulted from the signed SAA (Stabilization and Association Agreement), as well as the Treaty on the Establishing of the Energy Community. Serbia's determination is to take over and continue to implement the regulations in the field of energy that are in force in the EU. The development of the INECP is defined in the new Law on Energy and the Law on Energy Efficiency and Rational Use of Energy. For the first time, it sets goals in the areas of EE, RES and greenhouse gas emissions, which were previously discussed separately, in a unified and synchronized manner. The INECP specifically considers the following within the framework of five sub-sections: **decarbonization** (increasing the share of energy from renewable sources in the final gross energy consumption in 2030 and reducing greenhouse gas emissions), **increasing energy efficiency**, **energy security** through strengthening the diversification of energy sources and supplies from other countries, the purpose of which can be to reduce dependence on energy imports; increasing the flexibility of the national energy system; solving the issue of limited or interrupted energy supply in order to improve the resilience of the energy system, as well as the **internal energy market** with cross-border interconnection, **innovation, competition and new technologies**. Setting unified goals allows equal attention to be paid to the most critical issues of sustainable energy development. Setting unified goals makes it possible to pay equal attention to the most critical issues of sustainable energy development and to achieve all goals with the lowest costs for the system.

### **30. Will the INECP secure the energy system if it relies on RES?**

The goal of this document, among other things, is greater energy security. It is true that, with greater use of RES, production variability may become a problem. However, with proper balancing, it is absolutely possible to successfully run the energy system.

Furthermore, energy security should ensure the strengthening of the diversification of energy sources and supplies from other countries, the purpose of which can be to reduce the dependence on energy imports, increase the flexibility of the national energy system and solve the issue of limited

or interrupted energy supply in order to improve the resilience of the energy system, including the timeframe for the realization of goals.

### **31. Is the implementation of the INECP economically viable?**

Investments in the energy sector are large-scale investments. The entire process of energy transition is costly, but if we do not start investing now, we will suffer tomorrow as a result of climate change and incur far larger damages.

### **32. What part of the energy transition are we currently in? (What else is left for us to do...)**

Serbia is at the beginning of the energy transition, but it is certainly determined to implement it, as evidenced by the reform of the legislative framework in this area. Namely, a set of laws were adopted that are fully harmonized with the EU legislation, which is a condition for the new energy policy. In addition, work is underway on the drafting of strategic documents, namely the INECP, the Energy Development Strategy, and the Hydrogen Strategy. New measures are also being applied in the fields of energy efficiency and RES. After the adoption of strategic documents as well as programs and action plans for the implementation of these documents, serious and dedicated work is expected on their implementation. All activity holders will have their obligations and tasks within the deadlines and in the manner determined by this strategic framework. This means the following obligations: the collection and analysis of data during the implementation of public policies prescribed by these strategic documents, i.e. their measures, in order to determine whether the established goals are being achieved, as well as whether the planned measures and activities are carried out according to plan and efficiently, further evaluation of the effects of energy policies through evaluating the efficiency and effectiveness of the implemented policy, its effects on the basis of relevant data and analyses, as well as the results of monitoring the implementation, in order to review and improve, i.e. to determine whether it is necessary to introduce certain changes.

### **33. What does the energy transition imply and what will it result in (benefits and shortcomings)?**

Energy transition, first and foremost, entails energy security, the development of innovative technologies, and, most importantly, a shift in consciousness toward the responsible use of natural resources. All investments in new developments must ensure energy security. Furthermore, it is especially important that this transition be just, which means that the associated costs must be evenly distributed in society so that the negative consequences (job losses, mine closures, thermal power plant closures and related works and companies) can be avoided and that further unhindered economic development can be enabled.

### **34. Will we ensure a secure supply of both energy and energy products?**

In order to ensure the necessary amounts of electricity, the Government of RS decided on 31 March 2022 to enable the procurement of up to four million tons of coal, which, according to its technical characteristics and quality, meets the needs of JP EPS thermal power units in the period from 1 April 2022 until 31 December 2023.

Likewise, when it comes to gas, in addition to the existing stock in USG Banatski Dvor, the RS leased part of the capacity of a storage facility in Hungary, which will ensure an unhindered supply to the market in the period from October this year to March next year, so that we will have sufficient volumes of this energy source for the upcoming heating season.

This will alleviate the consequences of the current situation in Serbia's energy sector in the short term, until the end of next year.

The normalization of coal production for the needs of power plants and the entry into operation of new capacities for renewable energy sources and TPP Kostolac B3 will enable electricity production

to stabilize at a level which, with the usual sales and purchases on the regionally better integrated energy market, covers the total consumption. Professional management of energy companies will ensure the maximum use of capacity, efficient investments and a strategic approach to sustainable long-term development, in accordance with adopted strategic planning documents, including the INECP, and thus will ensure the security of supply.

### **35. Will citizens directly feel the consequences of the energy transition?**

The transition from the current dominant share of coal to low-carbon technologies is a process that requires new large-scale investments in energy sources, in capacities, i.e. technologies that enable the integration of an increased share of renewable unmanageable energy sources (wind and sun) and an increase in the capacity of power systems. However, large investments would be necessary even if the current structure of energy sources were to be maintained, because e.g. thermal power plants are on average over 40 years old, they are characterized by low efficiency and operate with decreasing reliability, and the remaining coal reserves are increasingly complex and expensive to exploit and of poorer quality. The introduction of taxation of CO<sub>2</sub> emissions is a global trend, not only an EU practice, and it is certain that Serbia will also have to introduce it at some point, which will be a new significant cost for thermal power plants and further question their competitiveness.

In any case, the changes will gradually be transferred to all energy customers. The scenarios that are analysed within the INECP allow the selection of the structure and dynamics of the transition that will be in the national interest, i.e. that will ensure the security of supply and availability of energy with the lowest possible costs and import dependence and a positive impact on macroeconomic changes. On the other hand, in order for energy to be available to everyone, including the citizens of lower socio-economic status, the number of protected customers, entitled to the status of energy-vulnerable customers, will increase many times, for which appropriate funds will be provided.

Transitional changes will also affect the part of the economy related to the functioning and development of the energy sector. It is preliminarily estimated that in Serbia, with about 15,000 workplaces directly involved in the production and use of coal, there are a total of about 22-44,000 indirect and direct workplaces that will be affected by the complete abandonment of coal. These workplaces are in companies that are involved in maintenance, revitalization, environmental rehabilitation and reconstruction, capacity replacement, and investment in capacity expansion. By preparing and implementing just transition processes, it will be possible to use fewer resources and less current technology while switching to low-carbon alternatives that will be acceptable to all employees involved, affected regions as well as companies.

### **36. What has the state done (what will it do) to mitigate the above consequences?**

The RS, in cooperation with the EBRD, is implementing the Just Transition Diagnostics Study project, which will analyse which regions of Serbia, its municipalities, industries, companies and the number of employees will be affected by the energy transition and how the negative consequences can be mitigated (job losses, mine closures, thermal power plant closures and related businesses and companies), i.e. what all the regulatory, social, educational, financial and other measures and activities should be implemented in order to avoid negative effects and promote efficient economic development (retraining, measures in the educational system, the possibility of creating new jobs and new workplaces in the affected regions, etc., the dynamics of all these changes and the costs).

The state has already supported energy consumers in becoming prosumers, which helps both them and the state change the energy structure and improve the energy efficiency of their buildings. The state provides subsidies in the amount of 50% for citizens to replace windows and doors as well as install solar panels.

**37. Does this strategic document enable the trading of CO2 emissions?**

No, the INECP does not enable the trading of CO2 emissions, but the Republic of Serbia will definitely consider with special attention the issue of the timely introduction of the greenhouse gas emissions trading system.

## **Renewable Energy Sources in the Green Energy Transition**

**38. What is the target for renewable energy sources for 2030?**

The objective of the Republic of Serbia in the share of RES in gross final energy consumption will be determined based on the considered scenarios in which this share is between 41% and 43%.

The working scenarios envisage the goal of reducing greenhouse gas emissions, reducing the share of fossil fuels in the final energy consumption, as well as increasing the share of RES in the final energy consumption.

**39. What is the share of RES in electricity production until 2030?**

In accordance with the envisaged scenario, the share of RES in electricity production is from 49% to 59%, depending on the scenario.

**40. Can RES completely replace baseload energy, i.e. electricity production in TPPs, and in what way?**

After 2030, the decarbonization process will be intensified, so that by 2050, thermal power plants will completely cease producing electricity.

The estimated technically usable potential of hydropower plants is 18 TWh, the estimated technically usable potential of wind power plants is 30 TWh, the estimated potential of solar power plants installed on roofs is approximately 13.2 TWh, on the ground 12.6 TWh and on water about 0.7 TWh.

If we consider that there is also a significant potential for the construction of biomass power plants, it can be concluded that it is theoretically possible to produce power completely from RES.

**41. How much energy produced from wind and solar sources is planned in the energy mix by 2030?**

In total, it is envisaged that the installed capacities of wind power plants and solar power plants will amount to 5.05 GW, i.e. 36.8% of the installed capacities. In other words, production from wind and solar power will amount to almost 25% of the total energy mix.

**42. What is the role and place of the prosumer in the energy transition?**

As mentioned, the estimated potential of solar power plants installed on roofs is approximately 13.2 TWh and given that a large part of this potential is related to prosumers, the importance of prosumers is great.

**43. In what way does Serbia plan to encourage the development of RES?**

The Law on the Use of Renewable Energy Sources, as well as by-laws, provide incentive measures for the development of RES.

The following table shows by-laws related to green energy that encourage the development of RES:

1.	Regulation on the criteria, conditions and method of calculation of claims and obligations between prosumer and supplier
2.	Regulation on the quota in the market premium system for wind farms
3.	Regulation on the market premium and feed-in tariff
4.	Regulation on the model agreement on the market premium
5.	Regulation on the amount of special compensation for the incentive of privileged producers of electricity in 2022
6.	Regulation on the manner of keeping the register of prosumers connected to the transmission, distribution, i.e. closed distribution system and the methodology for evaluating electricity production in the production facility of the prosumer
7.	Proposal for a regulation on the method of calculation and presentation of the share of all types of energy sources in the electricity sold
8.	Proposal for a regulation on calculating the share of renewable energy sources
9.	Proposal for a regulation on sustainability criteria for biofuels, bioliquids and biomass fuels
10.	Draft regulation on the assumption of balance responsibility and criteria for determining the liquidity of the organized intraday market with a model agreement on the assumption of balance responsibility
11.	Draft regulation on the model agreement on the feed-in tariff
12.	Draft regulation on the producer of electricity from renewable energy sources and the guarantee of origin
13.	Regulation on the amount of special compensation for the incentive of privileged producers of electricity in 2022 A regulation on the amendment of the aforementioned regulation has been prepared
14.	Finalization of the draft regulation on incentive measures for reaching the share of renewable energy sources in traffic
15.	Drafting of the regulation on renewable hydrogen is underway

**44. Considering that it is planned that replacement capacities will come from variable sources (wind, solar power), how does the RS plan to ensure energy security and stability?**

It should be noted at the outset that significant new capacities of reversible hydroelectric power plants will be built.

Furthermore, the Law on the Use of Renewable Energy Sources calls for electricity storage, as well as the use of innovative technologies and hydrogen in the production of electricity, with green hydrogen accounting for 1% of the final energy consumption.

Given the planned capacity of hydroelectric powerplants of 1.29 GW, storage and innovative technologies, as well as the fact that coal-fired power plants can be used as a backup, energy security should be sustainable.

**45. What are our natural potentials and how is the scenario based on them? What is the percentage of utilization of potential? How were the analyses carried out?**

Serbia has great natural potential at its disposal. For example, the number of sunny days in Serbia is 270 and the duration of sunshine is about 2300 hours. The average intensity of solar radiation is:

- 1209 kWh/m<sup>2</sup> per year in north-eastern Serbia
- 1400 in central Serbia
- 1500 in south-eastern Serbia

In most of the territory of Serbia, the number of hours of solar radiation is significantly higher than in many European countries.

As for the wind potential, there are several suitable locations for the construction of wind power plants in Serbia, such as: Stara Planina, Vlasina, Ozren, Rtanj, Deli Jovan, Crni Vrh, etc.

Dedicated measurements could be used to determine suitable microlocations for the construction of wind generators - mountainous areas, Zlatibor, Kopaonik and Divčibare.

Before the adoption of the new legal framework, the Republic of Serbia had 11 MW of installed solar power, 398 MW of installed wind power, and 3097 MW of installed hydropower potential.

According to the "First Report on the Implementation of Tasks on the Development and Adoption of the New Energy Development Strategy and Strategy Implementation Program", the total technically available capacity of wind power plants is 10,075 MW, whereby the percentage of utilization is currently around 4%. According to the same report, the total technically available potential for solar power plants is about 24,000 MW, so its utilization is currently at the very beginning, and the percentage of utilization is less than 0.1%.

After the introduction of the prosumer institution, this percentage changes daily.

Finally, according to the same report, the technically usable potential of hydropower plants is 4,736 MW, so the utilization percentage is high and amounts to 65%.

The scenarios were created on the basis of the defined goals that we need to achieve using the SEMS, RES and Macroeconomic tools with energy modelling.

According to the report "Further Development of Energy Planning Capacity": the energy modelling system of Serbia that has been developed using the TIMES modelling framework (Integrated

MARKAL-EFOM System), an energy system model generator developed within the ETSAP Technology Collaboration Program at the International Energy Agency (IEA), will have a time horizon until 2050. TIMES is a dynamic, bottom-up, technology-rich partial equilibrium optimization model used to analyse different scenarios of mid- to long-term future energy system development. This model has been used in more than 60 countries and 200 institutions, confirming the success of the methodology and approach and the relevant insights gained by applying the system. (more information is available on the Ministry of Mining and Energy's website, link: modeling\_tools\_08102021\_v1.0\_sr.docx (live.com) )

On the website of the Ministry of Mining and Energy, it is possible to see input data for modelling. ([https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.mre.gov.rs%2Fsites%2Fdefault%2Ffiles%2F2022%2F04%2Fmodelling\\_tools\\_08102021\\_v1.0\\_sr.docx&wdOrigin=BROWSELINK](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.mre.gov.rs%2Fsites%2Fdefault%2Ffiles%2F2022%2F04%2Fmodelling_tools_08102021_v1.0_sr.docx&wdOrigin=BROWSELINK))

According to the report "Further Development of Energy Planning Capacity": A macroeconomic analysis tool will be developed based on the basic model structure for calculating the general equilibrium for mitigation, adaptation, and application of innovative technologies (MANAGE). MANAGE is a recursive dynamic model of a country's general equilibrium that provides a consistent representation of the country's entire economy, including interactions between key economic actors—producers, consumers, and government. The model is specifically designed to analyse various issues related to the economics of climate change and environmental policies, including baseline emissions of CO<sub>2</sub> and other greenhouse gases, greenhouse effect mitigation policies - taxes, caps and trade, economic and sectoral impact assessments of environmental protection policies. (For more information, see modeling\_tools\_08102021\_v1.0\_sr.docx (live.com) )

#### **46. Capacities (RES, TPP, CHP, etc.) How will the shutdown of TPPs be carried out? What will happen to the citizens who are employed in TPPs?**

Depending on the scenario, the use of thermal power plants will gradually decrease at a slower or faster pace, while the share of renewable energy sources will increase. In order to enable the integration of variable renewable sources (sun and wind), reversible hydropower plants will be built, and then, to the necessary extent, batteries and hydrogen should be included as support, in accordance with the speed of commercialization. Part of the thermal power plants that will be withdrawn from regular operation will be used as a reserve, ensuring the security of supply at the necessary volume and period. Much like in the case of coal mine employees, thermal power plant employees whose work is no longer needed will be provided adequate support within the framework of measures for the implementation of a just transition, which will enable them to continue working under adequate conditions.

#### **47. Will greater use of RES threaten the natural potential of our country?**

An increase in the share of RES, especially wind and solar energy, requires the engagement of surface areas in zones with suitable natural resources for these technologies. All such projects must meet the prescribed spatial requirements, environmental protection requirements, and all other existing and new regulations in accordance with best European and other practices. This will serve to avoid any threat to the potential of national natural resources and the environment, both locally and in terms of the use of overall resources, such as land. Some of the necessary measures and policies can be foreseen in the INECP.

This also applies to all other technologies, which will be applied in parallel with the development of RES, such as the construction of reversible hydroelectric power plants, batteries, nuclear power

plants, and carbon dioxide storage capacities throughout the service life, including construction, exploitation, and shutdown - plant decommissioning.

**48. What is the percentage of participation of RES in the total production of electricity in Serbia?**

The total installed power of all capacities for electricity production in Serbia is about 8.4 GW, of which the capacities of coal-fired thermal power plants are about 4.4 GW, which is about 52%, and the capacities of RES power plants are about 2.9 GW, which is about 34%. When it comes to total electricity production, thermal power plants produce about 69% of electricity, while RES power plants produce about 27% of electricity. Approximately 23.11% of electricity is produced in hydropower plants without HEPP, that is, about 85% of electricity from renewable sources is produced in hydropower plants.

**49. How much of this energy is obtained from the wind, and how much from the sun, i.e. how many wind power plants and how many solar power plants are there in Serbia?**

In total, there are eight wind power plants and 135 solar power plants whose production in 2020 was 1,569 GWh. The total installed power of RES power plants is 2,916.25 MW, of which the installed power of wind power plants is 397.96 MW, while the installed power of solar power plants is 11 MW.

**50. How many of these power plants are under construction and where are they located?**

Six wind power plants are under construction (WPP Krivača, WPP Kostolac, WPP Bela Anta, WPP Alibunar 1 and 2 and WPP EnergoDolovo) and one solar power plant SPP Petka. Wind power plants are located in Alibunar, Krivača (Golubac municipality), Dolov and Kostolac, while the solar power plant is also in Kostolac.

**51. How many kilowatts go to RES and how many households are covered by RES?**

The total installed power of the RES power plants is 2,916.25 MW. The share of household consumption in electricity consumption according to the 2020 balance is approximately 49%, and it can be said that 55% of households could be supplied from renewable sources.

**52. What is the percentage increase in investments in RES compared to last year, when RES-related laws were passed?**

With the new Law on the Use of Renewable Energy Sources, we created a favourable environment for green investments as well as for the inclusion of citizens in the energy transition, by introducing the institute of the prosumer. The total installed capacity is currently 537 MW. Currently, there are submitted requests for connection for capacities of about 13 GW. If these requests for connection are considered, the increase amounts to about 96%.

The biggest obstacle to the development of RES is currently the underdevelopment of the high-voltage network, which was not sufficiently invested in in previous years, due to poor EMS planning and selective access to the network. Other countries invested faster in the development of the high-voltage network, and Serbia will have to follow that path if we want to create the conditions for faster development of the RES sector, without which there is no energy security and self-sufficiency.

In the register of prosumers, 62 buyers from the household category and eight buyers from the other category were registered, with a total power of about 2 MW, which is a direct consequence of the

new law. A request for capacity in the amount of 25 MW was also submitted. Before the passing of the Law, the total installed capacity was 11.2 MW, and now 25 MW has been requested and 2 MW installed, which is an increase of 58.5%.

**53. What is the percentage increase compared to five years ago?**

The increase amounts to 78% of the installed power. The increase refers to the installed power of privileged electricity producers (biogas, biomass, MHPP, solar power plants, and wind power plants) in the year 2018 compared to 2022. If we count 2017 as a reference year, then the increase amounts to 82%.

**54. How exactly is the procedure for the production of energy from renewable sources facilitated for prosumers?**

In accordance with the new regulations established by the adoption of the Law on the Use of Renewable Energy Sources and the Regulation on the criteria, conditions, and method of calculation of claims and obligations between prosumers and suppliers, citizens build solar plants on their own premises only with the obligation to obtain a Contractor's Statement with confirmation from the responsible contractor that the devices, installations, and measuring points are correct and installed in accordance with regulations and standards. Citizens submit a request, which is only a formal act that contains information about the future prosumer and their intention to hand over the produced energy to their supplier. After installing the solar panels, the licensed engineer inspects the installations, and makes a statement that the devices, installations, and measuring points are correct and installed in accordance with regulations and standards, and then the citizen turns to the supplier to conclude a full supply agreement with EPS Supply.

Upon the conclusion of the agreement, the supplier immediately informs Elektrodistribucija d.o.o. on the concluded agreement. Within five days, the system operator is obliged to connect the solar panels to the system, with prior notification of the customer about the date when the connection will be made. When the authorized persons of Elektrodistribucija d.o.o. arrive, citizens are obliged to submit, on the spot, a statement from the responsible contractor that the installation was performed in accordance with the technical regulations of the profession. After making sure that the installation, especially the preparation of the measuring point, is correct, the authorized persons make the connection to the network and enter the prosumer in the register, which completes the entire procedure.

The previous procedure took significantly longer, it included more steps, implied more documentation and costs, and did not distinguish between other types of power plants and solar panels for own consumption, nor between households and industry. To complete the procedure, according to the previous regulations, it was necessary to create a Conceptual Solution, obtain the Conditions for Design and Connection from Elektrodistribucija, Location Conditions, to create a design for a building permit and obtain a Decision on the Approval of the Execution of Works or Building Permit.

After that, it was necessary to contact the DSO with a request to issue an Approval for the Connection of the Power Plant to the Distribution System and sign an agreement defining the works on the connection and based on that the construction of the connection could commence. After the completion of the construction of the connection and the power plant, the owner of the facility hired a commission for technical inspection and submitted a request for the connection of the power plant to the distribution system for trial operation. During the trial period, it was necessary for the user of the system to have concluded an exploitation agreement with Elektrodistribucija, and with a supply

agreement with the supplier, as well as an agreement for the purchase of electricity. In the end, a use permit was obtained and a request for permanent operation was submitted.

**55. Which items on the electricity bill are paid by the prosumers once they enter the system of their own energy production?**

Prosumers are obliged to settle all items on the electricity bill, but certain items will be reduced due to their own production and calculation method (net-measurement or net-calculation). In guaranteed supply, the buyer is obliged to settle the items of calculated power, electricity, system access fee, renewable sources fee, energy efficiency fee, excise duty, VAT and PMS fee. In commercial supply, the buyer is obliged to settle the items of electricity, system access fee, renewable sources fee, energy efficiency fee, excise duty, VAT and PMS fee. Of course, depending on the electricity produced, the harmonization of production and consumption, and the electricity delivered to the network, the items will be reduced accordingly.

**56. Should prosumers pay a fee for RES and a fee for energy efficiency?**

Collection of fees for RES is prescribed by Article 57, paragraph 5. of the Law on the Use of Renewable Energy Sources, and the amount of the fee is regulated by the Regulation on the amount of the special fee for the incentive of privileged producers in 2022, and all electricity end customers are obliged to pay the fee for the incentives of privileged producers in accordance with the law, except in cases established by law (prosumers are not exempted). The purpose of the fee for RES is to provide funds for incentive measures for privileged producers of electricity from RES. All end customers are charged this fee per 1 kWh of electricity taken from the system. Prosumers are charged this fee for the amount of electricity taken from the system. Due to the fact that the prosumers have a production facility in the internal installation, they withdraw less electricity from the system (the current consumption is compensated by the current production, not by withdrawing it from the system – that is why the greatest savings are achieved when consumption and production are harmonized), while their "incentives" due to electricity delivered to the system are realized through net metering or net billing.

**57. Are prosumers charged for the electricity they withdrew from EPS in one month if the amount of withdrawn energy is less than the energy they supplied to EPS? What is the difference between two-tariff and single-tariff meters?**

In accordance with the Regulation on the criteria, conditions and method of calculating claims and obligations between the prosumer and the supplier, if the prosumer withdrew less energy from the power system during one billing period than they delivered to the system, the withdrawn energy is not charged. The calculation is carried out according to the tariffs, so in the event of two-tariff meters, the ratio of received and delivered energy is observed according to each of the tariffs.

**58. If prosumers are billed for the difference between the energy withdrawn from EPS and the energy delivered to EPS, what will happen in the winter months when the prosumers will be withdrawing much more than they will be supplying?**

During the calculation period, the consumed electricity is charged as a positive value of the difference between net electricity determined by the periods of application of the active energy tariff and excess electricity from the previous period determined by the periods of application of the active energy tariff, in accordance with the Regulation on the criteria, conditions, and method of calculating claims and obligations between the prosumer and supplier. If the prosumer delivers more energy to the system than they receive in a certain accounting period, that surplus is transferred to the next period according to the tariff application periods and reduces the net energy value.

If the prosumer takes on larger amounts of energy than the delivered energy, they certainly have to pay for that energy. If they withdraw much larger quantities, the bills for the withdrawn energy will also be higher.

**59. Why are we drafting documents such as this one, when everyone is currently looking for ways to return to coal?**

Neither the EU nor other major economies are questioning their long-term decarbonization goals due to the current energy crisis. In addition to the EU, this applies, for example, to China, India, countries with a currently high share of coal in electricity production and the largest consumers of total coal.

The EU's decision to reduce gas purchases from Russia and the reduction or interruption of deliveries by Russia to certain EU members have jeopardized the security of electricity supply, especially in the coming winter season. To mitigate these risks, Germany, Italy, Austria, the Netherlands and Spain have announced the activation of coal-fired power plants in reserve in 2022 (Germany 10,400 MW). The volume of additional electricity production from coal will depend on the available quantity and price of natural gas, the growth of electricity consumption, the available resources of wind and sun in the coming period, the inflow of water into HPPs (exceptionally low in the EU in this year, 2022), etc. To the same end, Germany, Poland and the Czech Republic support a temporary increase in domestic coal production. Germany will have by far the largest share of these changes.

These measures are of a temporary nature (in Germany, for example, they will last for two years) and will not affect the ambitious intentions of the EU and its members to encourage the increase of energy efficiency and the development of renewable energy sources (wind and sun – e.g. simplification of permit issuing procedures) with even more vigour than previously intended, nor will they affect the application of technologies that enable an increase in the share of renewable energy in power systems (hydrogen, energy storage, use of electric vehicles, heat pumps, etc.), and in some member states, the construction of nuclear power plants.

In the first half of 2022, the production of electricity from coal in the EU increased by about 10% compared to the same period in 2021, but it is 25% lower than in 2017. The share of coal in the total electricity production in the first half of 2022 was 16%, in the same period in 2021, it was 14%, and in 2017 it was 21%.

Both China and India are accelerating the development of solar and wind power plants. Due to the uncertainty surrounding coal imports, China is now seeking to increase domestic coal production.

## **OIL AND GAS in the Green Energy Transition**

**60. What is the Republic of Serbia doing to ensure sufficient quantities of natural gas for the needs of the market?**

In order to ensure a secure supply of gas in the coming years, the construction of new transport and storage capacities is a priority for the Republic of Serbia. The new interconnected gas pipelines will overcome the biggest current problem – the supply of imported gas from only one source. Some of these new interconnections also serve the function of gas transit to other countries.

Also, the establishing of mandatory stocks of natural gas is of immense importance. Mandatory stocks of natural gas are established in the event that security of supply is threatened due to

disruptions in the supply of energy and energy products. Mandatory stocks of natural gas are publicly owned and managed by the ministry responsible for energy affairs.

**61. What is the Republic of Serbia doing to ensure sufficient quantities of oil for the needs of the market?**

The Republic of Serbia undertakes activities for the establishing of adequate stocks of oil and oil products. According to the internationally accepted obligation, stocks should be established for 61 days' average daily consumption in the Republic of Serbia. In 2021 and 2022, the Ministry of Mining and Energy raised the level of existing stocks compared to 2020 by 100% and provided stocks for 36 days. Also, a public-private partnership project is being developed, which would provide the remaining amounts of mandatory stocks in the short term.

In addition to mandatory stocks and at the initiative of the Ministry of Mining and Energy, the area of the so-called operating stocks, i.e. commercial stocks of oil companies, heating plants and EPS, was regulated, whereby they must at all times amount to the prescribed number of days of their consumption in the previous year. The establishing of operational stocks ensures an adequate response in crisis situations and the prevention of short-term market disruptions, and in the event of long-term disruptions, or internationally adopted decisions, mandatory stocks are used, in accordance with the adopted Crisis Plan.

**62. What is the role of natural gas in the decarbonization of the Serbian energy sector?**

Natural gas plays a significant role in the energy transition process as an energy source that reduces air pollution and limits carbon dioxide emissions. Replacement of fuels that pollute the environment (oil derivatives, coal) with natural gas in various production processes, as well as traffic, will contribute to the achievement of the set climate goals.

**63. Does the Republic of Serbia have defined plans for the occurrence of a crisis in the supply of oil and gas?**

The Government adopted a Crisis Plan to ensure the security of natural gas supply. This Plan is applied in situations that affect or may affect the normal functioning of the natural gas market in the Republic of Serbia and/or threaten the security of supply, where the crisis in supply can be caused by external or internal risks.

This Plan determines the levels of crisis, the reasons for introducing a state of crisis and the procedures in the event of a crisis by level, as well as the energy entities that are responsible for ensuring the security of system operation and the security of supply to certain groups of end customers in the event of a shortage of this energy source.

The Government also adopted a Program of measures in the event that the security of energy supply is threatened, which prescribes the established procedures and procedures that are undertaken during a crisis in the supply of oil and oil derivatives, i.e. energy and energy products.

**64. Will natural gas as an energy source be available to all citizens of the Republic of Serbia?**

All strategic documents of the Republic of Serbia envisage the construction of a gas pipeline system throughout the territory of Serbia in order to make this energy source available to the economy and all our citizens.

**65. When will energy prices for citizens cease to be a "social category"?**

The Ministry of Mining and Energy, by passing a law in 2011, created a legal basis for regulating the issue of vulnerable customers using electricity and natural gas, and over the years tried to expand the scope of these customers who would be entitled to a reduced bill for delivered electricity, i.e. natural gas. The idea behind introducing this basis was that the prices of electricity and natural gas should cease to apply to vulnerable categories, and that companies from this sphere should be allowed to operate in accordance with the needs of investments, developments and maintenance of their capacities.

However, greater coverage of these customers requires more significant funds that need to be provided in the budget of the Republic of Serbia, so the realization of this idea depends on the current budget possibilities.

**66. What is the Republic of Serbia doing to increase the number of gas suppliers on the domestic market?**

The current energy crisis has affected the entire world, including the Republic of Serbia. At the same time, it showed all the weaknesses of the energy system, which were caused by numerous factors in the previous period. First of all, these are the lack of investment in infrastructure, the slow implementation of the legal framework and insufficient market transition.

In the area of natural gas, this has led to a high dependence on one source of supply and a lack of competition in the market. By adopting the amendments to the Law on Energy, the legal basis for the licensing of entities was created.

Also, the operation of the entire natural gas sector and the business operation of energy entities in this area is harmonized with European legislation, which aims to create conditions for free access to transport capacities and equal conditions for all potential suppliers.

The introduction of a new participant in the natural gas market - trade in natural gas for wholesale supply has additionally created an opportunity to open the natural gas market so that companies that are not registered in the Republic of Serbia can perform these activities on the market of the Republic of Serbia.

**67. In the future, will the price of connection to the gas pipeline system be the same throughout Serbia?**

The operators of gas distribution systems, of which there are currently 31, in accordance with the provisions of the Law on Energy, determine the connection price based on the methodology adopted by the Energy Agency of the Republic of Serbia. On the basis of average quantities and norms, each of the operators of the distribution system decides to determine the amount of connection costs to standard connections in accordance with this methodology. This Decision is submitted by the distribution system operator to the Energy Agency of the Republic of Serbia for the purpose of checking its compliance with the methodology and granting consent.

Due to the specificity of each of the networks, i.e. the development costs of individual systems and the level of network capacity utilization, connection prices cannot be the same throughout the territory of Serbia. The Government of the Republic of Serbia, in accordance with its competences, makes efforts to make these prices as low as possible. Thus, in the past period, changes in the regulations affected the reduction of the connection price, primarily due to the termination of the obligation to pay certain local taxes and fire inspection fees.

**68. How will the Republic of Serbia reduce its dependence on Russian gas?**

The plan is to build more gas interconnections with neighbouring countries in order to strengthen regional connectivity and security of supply, and diversify not only routes, but also sources of gas supply. The construction of the interconnector would enable the natural gas market of the Republic of Serbia to be supplied with gas from the Southern Gas Corridor, the Caspian region and the existing and planned LNG Terminals in the region (Greece, Croatia, Albania, etc.).

**69. Is there a regional plan for cooperation in case of disruptions in the supply of energy and energy products in the coming period?**

The energy security of the region in the conditions of the Energy Crisis requires solidarity, interconnectedness and joint activity on strategic projects.

At the initiative of the Ministry of Mining and Energy, an initiative was launched to develop a regional crisis plan for supply in the event of disruptions in the supply of energy and energy products.

On this occasion, North Macedonia, Albania and Serbia agreed on the formation of a joint working group that will deal with solving problems this winter, as well as potential cooperation on large strategic projects in the field of energy.

**70. When can we expect the use of biofuels in transport?**

The Regulation on the share of biofuels on the market entered into force on 12 October 2019 and is applicable from 1 January 2021.

In accordance with this Regulation, the Government issued a Decision on the determination of the mandatory share of biofuels that system reporting entities are obliged to place on the market of the Republic of Serbia, by which the obligation to place biofuels on the market starts from 1 July 2023, in a share of 0.5% of the energy content of biofuels in the total fuel energy that reporting entities are placing on the market.

Bearing in mind that the legislative framework of the Republic of Serbia is harmonized with the new directive on renewable energy sources (RED2), it is expected that a new regulation on the share of renewable energy sources in traffic will be adopted, which will also include the use of biofuels.

**71. Can an increase in the price of natural gas for households and the economy be expected?**

Global prices of natural gas increased significantly during 2021 and 2022, which is also reflected in the natural gas market in the Republic of Serbia.

In order to protect consumers from the excessive impact of the increase in the price of natural gas, the Government of the Republic of Serbia took measures in 2022 to increase the price of natural gas for the next heating season for households by a maximum of 9%, and similar measures will be taken for the economy.

By adopting the Regulation on the temporary measure of limiting the price of gas and compensation for the difference in the price of natural gas procured from imports or produced in the Republic of Serbia in the event of a disruption in the natural gas market, it is possible for importers and producers of natural gas to charge the difference in the purchase price and the sales price of gas in accordance with this Regulation, from the budget of the Republic of Serbia.

**72. What mechanisms are available to respond to natural gas shortages?**

In order to monitor the supply of energy and energy products to the market of the Republic of Serbia and propose appropriate measures in the event that the security of supply to customers or

the operation of the energy system is endangered due to insufficient supply on the market or the occurrence of other extraordinary circumstances, the ministry responsible for energy affairs has established a Special Working Group for monitoring the security of supply of energy and energy products.

When it is determined that there may be a shortage of natural gas, as well as other energy products, actions are taken in accordance with the adopted plans in case of crisis in the field of oil and gas, which prescribe the measures and activities that can be taken.

**73. Are petroleum products on the market of the Republic of Serbia fully compliant with European standards?**

According to Article 337 of the Law on Energy, petroleum products and biofuels placed on the market must meet the requirements set out in the regulations on the quality of liquid petroleum fuels and biofuels, regulations on environmental protection, technical and other regulations related to the trade in petroleum products and biofuels.

Technical and other requirements for liquid fuels of petroleum origin used as fuels for internal combustion engines and as energy fuels placed on the market of the Republic of Serbia, as well as the manner of assessing the conformity of liquid fuels, are prescribed by the Rulebook on Technical and Other Requirements for Liquid Fuels of Petroleum Origin. The technical requirements fully comply with the EU directives.

In order to control the quality of petroleum products, as well as the legal regulations related to their flows, the Government of the Republic of Serbia introduced two control mechanisms – monitoring, which examines the quality parameters of petroleum products and marking, which examines the concentration of markers in petroleum products, which is a kind of excise stamp because it is added to the petroleum product right before its release on the market. Any drop in concentration indicates that a fuel that has not been legally placed on the market has been added to the derivative.

**74. Does the Republic of Serbia meet the conditions for accession to the European Union in the field of oil and gas?**

In these areas, the Republic of Serbia has two criteria to meet – the formation of mandatory oil reserves and the separation of natural gas transport system operators, the so-called "unbundling". In connection with the fulfillment of these criteria, appropriate Action Plans have been adopted, the implementation of which is in progress.

***Electricity in the green energy transition***

**75. Will the Republic of Serbia stimulate the use of electricity in transportation?**

From the aspect of competence of the Ministry of Mining and Energy, by-laws of the Law on the Use of Renewable Energy Sources are being adopted, which will enable suppliers of fuels of fossil origin to meet their obligation to place fuels from renewable sources by placing electricity from renewable sources to the market.

In this way, fuel suppliers are stimulated to develop the infrastructure for charging electric vehicles, which contributes to the decision of potential customers to opt for electric vehicles. Also, these acts

will enable an obligation on public road and rail transport operators to include electric vehicles in their fleet.

The Ministry of Mining and Energy will also regulate the area of electric vehicle charging services.

#### **76. What is Just Transition and what will it bring ?(Status of employees in mines and TPPs until 2050)**

The energy transition, i.e. a just transition in Serbia, should include coal mines and related coal-using plants for the production of electricity and heat.

In the Republic of Serbia, we have two large surface mines that are part of EPS, as well as 9 mines with underground coal exploitation. Preliminary analysis indicates that there are about 15 thousand jobs (out of about 22-44 thousand direct and indirect jobs) threatened by the complete elimination of coal. The regions of Šumadija and western Serbia, southern and eastern Serbia and parts of Belgrade will be affected by the country's transition to a low-carbon economy – which will affect older employees the most, because of limited opportunities for work mobility. The positive thing is that key municipalities affected by the transition are geographically close to the main economic center, Belgrade (which accounts for/contributes to about 40-55% of Serbia's economy). This increases the chances of substitution of economic activity and facilitates planning and implementation of corrective measures.

The most common age of employees in coal mines and thermal power plants is between 51 and 60. Older than 40 make up more than 70% of employees. They will meet the conditions for retirement until the mine or thermal power plants cease to operate.

A project implemented by the Ministry of Mining and Energy in cooperation with the European Bank for Reconstruction and Development (EBRD) called the Study Diagnostics of a Just Transition: Serbia is underway.

The study is being undertaken to support Serbia on the paths to low greenhouse gas emissions in accordance with the Paris Agreement, while ensuring Just Transition through a detailed analysis of the impact of the energy transition on regions, industries, companies and workers working in coal and coal power generation, as well as an analysis of how negative consequences (job losses, mine closures, thermal power plants closures) can be eliminated, i.e. what all the regulatory, social, educational, financial and other measures and activities are to be taken to enable further smooth economic development.

The Integrated National Energy and Climate Plan of RS until 2030 with projections until 2050, which is in the process of preparation, and this Study, together, should give a complete picture of the energy transition in Serbia, i.e. its technical, social, financial and economic aspects.

The main objective of the project is:

- diagnosing the situation, i.e. defining the regions that may be affected by the energy transition and determining the situation in these regions,
- development of the Action Plan.

The action plan should include:

- Overview of the process of transition of the energy sector in Serbia;
- Assessment of the financial, economic, social, gender, health and environmental status of the region based on the selected energy scenario and
- A set of budgeted actions to support the just transition in Serbia.

#### **77. What is electro mobility and what does it bring?**

The European Commission's 2016 Low Emission Mobility Strategy recognized the important role of e-mobility in the decarbonisation process of the transport sector in terms of CO<sub>2</sub> and noise reduction

in urban and other densely populated areas. E-mobility makes a significant contribution to meeting the Union's climate and energy objectives.

E-Mobility can also provide the energy system with network flexibility services through the implementation and deployment of new technologies such as smart charging and vehicle-to-grid ("V2G") technology.

The Clean Energy Package, which supports the decarbonisation process, sets out market rules that should contribute to the integration of electric vehicles and public and private charging stations into the electricity network.

The provisions of Directive (EU) 2019/944 on common rules for the internal market in electricity have been transposed into the Law on Energy of 2021.

In accordance with the above, the Ministry must adopt an act regulating the technical specifications for charging points/only in terms of connection/method and place of measurement, obligations of the system operator who provides the service of charging electric vehicles towards the end customer, obligations of the provider of the service of charging electric vehicles/towards the operator and supplier/and other matters related to the operation of charging points/but only from the aspect of the impact of charging cars on the energy system.

Everything else related to charging stations and the provision of services, which is also contained in Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the establishment of infrastructure for alternative fuels, is the responsibility of the Ministry of Construction, Transport and Infrastructure.

#### **78. Is the electro mobility included? In what manner?**

Electro mobility is included by introducing stronger CO2 emission standards for cars and vans, thus speeding up the transition to zero-emission mobility. The average emissions of new cars will be required to decrease by 55% from 2030 and 100% from 2035 compared to 2021 levels.

#### **79. Nuclear power plants**

Law on the Prohibition of the Construction of Nuclear Power Plants in the Federal Republic of Yugoslavia ("Official Gazette of FRY", No. 12 of 10 March 1995, "Official Gazette of RS", No. 85 of 6 October 2005 - other. law), prohibits construction of nuclear power plants, nuclear fuel production facilities and spent nuclear fuel reprocessing facilities for nuclear power plants in the Federal Republic of Yugoslavia.

If the Republic of Serbia were to decide to replace thermal power plants with nuclear power plants, 2000 – 2500 MW of installed power would be needed, as well as to enter the structure of the model into RS strategic documents.

High investments costs present the initial challenge, and for Serbia, in addition to the Law on Prohibition, the lack of professional staff for all phases of such projects and the lack of necessary infrastructure, primarily institutions.

Joint construction of a nuclear power plant could be an option if a neighboring country has already started work on the project, and in such a way a base replacement of electricity in a faster way would be reached. This solution is less favorable in terms of energy security, possibilities for the development of knowledge, technologies, supporting industries and related activities within Serbia. Such an investment would be essentially close to the import of electricity, where ownership would provide greater certainty.

#### **80. CO2 Prices**

Introduction of internal carbon dioxide emission prices.

After the adoption of the Law on Amendments to the Law on Energy ( April 20, 2021), the process of defining a new energy policy was started through strategic and other relevant documents to be adopted. When adopting these documents, the Ministry will take into account the Study of the Secretariat of the Energy Community "Design of the mechanism for determining carbon emission prices for the Energy Community", which provides recommendations for the gradual introduction of the mechanism for collecting emissions and market integration.

The adoption of carbon dioxide prices implies a significant increase in electricity prices.

### **81. Increase in the price of electricity and protection of vulnerable customers**

The increase in the price of electricity is a necessary measure for the stabilization of Serbia's electricity system, but it is worthless if at the same time there is no radical turn in the business of EPS, and it is socially justified only if the state provides greater protection to objectively disadvantaged citizens.

The electricity consumption of the average Serbian household is on average 50% higher than in the EU, even by 90% above the CEE average.

Instead of having low, non-market energy prices as before, the state should only financially protect the socially disadvantaged, while the rest would have to pay the market price of the energy they use (in proportion to their consumption).

A prerequisite for implementing such a major and important shift in domestic economic policy is the reform of the existing program of the energy protected buyer.

In accordance with the Law on Amendments to the Law on Energy ( "Official Gazette of RS", No. 40/2021), the Ministry of Mining and Energy has prepared a proposal for a new regulation on the energy disadvantaged customer. The proposal for a regulation includes the following proposals for increasing the number of energy disadvantaged customers and extending the scope of rights:

- increasing the threshold of total household income as a condition for acquiring the status of an energy disadvantaged customer, which is now determined on the basis of data on the minimum monthly consumer basket prepared by the Ministry of Trade, Tourism and Telecommunications in cooperation with the Statistical Office of the Republic of Serbia, and which according to the Proposed Regulation amounts to:

- 1) for households with one member up to RSD 18,292.45;
- 2) for households with two members up to 28,856.47 dinars;
- 3) for households with three members up to 39,420.49 dinars,
- 4) for households with four members up to RSD 49,984.51,
- 5) for households with five members up to RSD 60,548.53;
- 6) for households with six members up to RSD 71,112.55;
- 7) for households with over six members  
for each additional member, 10,564.02 dinars are added.

- that the status of energy disadvantaged customer can also be acquired by the household for the supplied thermal energy. In this regard, the Decree Proposal provides for the possibility for the applicant, when submitting an application, to opt for the right to reduction of the monthly bill for certain quantities of electricity and, at the same time, the right to reduction of the bill for thermal energy, or the right to reduction of the monthly bill for certain quantities of thermal energy.

- that, in addition to the beneficiaries of financial social assistance and child support benefits as prescribed by the applicable Decree on the energy disadvantaged customer, the status of energy disadvantaged customer may be acquired by the beneficiaries of the increased financial assistance for care of another person, based on the decision of the competent authority on the use of rights ("direct" acquisition of status);

- that the condition relating to the maximum area of a housing unit owned by household members does not apply to a rural household;

Overdue debt for electricity, natural gas or heat energy does not deny a consumer the right to acquire the status of energy vulnerable customer.

- that one household, if it meets the requirements, can simultaneously exercise the right to reduce the monthly bills and will be protected against suspension of the supply of electricity due to unfulfilled obligations from the supply contract.

Based on the new conditions and criteria proposed by the Decree Proposal, it is expected that the status of energy disadvantaged customer in the Republic of Serbia will be acquired by about 191,000 households.

### ***Energy efficiency in the green energy transition***

#### **82. Is the Republic of Serbia able to achieve energy efficiency goals by 2030?**

Energy efficiency is one policy that can significantly contribute to overcoming the challenges we face today, since the application of energy efficiency measures reduces energy consumption and thus contributes to reducing import dependence, the use of fossil fuels and greenhouse gas emissions, and also contributes to the fight against poverty. Based on the results of the 4th Energy Efficiency Action Plan of the Republic of Serbia, Serbia has shown that it has reached 88% of the target set for the period 2010-2018, and we also achieved the goal defined for 2020 in the Program of achieving the Strategy regarding the maximum permissible energy consumption for 2020. In the previous period, a lot of work was done both to stabilize energy consumption and to create a satisfactory legal and financial framework for setting ambitious goals. So we believe that the basis for the realization of EE goals has been created, especially now that the Directorate for Financing and Encouraging Energy Efficiency has started operating and when we are implementing or planning projects in the amount of over 900 million euros.

#### **83. How much will it cost to achieve the ambitious goals for the Republic of Serbia and how will the funds be provided?**

In order to achieve the set goals, according to some estimates so far, it is necessary to provide additional investments annually of about 2.5% of GDP. It is certainly the state that needs to provide part of the incentive to encourage investments within these values. On the example of the work of the Directorate for Financing and Encouraging Energy Efficiency, one can see a model of how the state encourages new investments. The Ministry provided 25% of funds for the National Energy Rehabilitation Program for Residential Buildings, Family Houses and Apartments and the Solar Panel Installation Program, 25% is provided by LSGUs, and the remaining 50% by citizens who implement EE measures in their households.

This year, in the RS budget for EE measures, funds in the amount of almost 2 billion dinars were provided (which is about 10 times more than in 2018).

We expect that in the future, in order to achieve the goals, part of the funds will be provided from the Budget, part through pre-accession IPA funds, and part through the International Financial Institutions in the form of loans.

If RS would not work on achieving the goals from INCEP instead of new investments, we would get a further increase in energy consumption. If nothing is done, final energy consumption will continue to grow at an estimated 16.5% for 2020-2030, while primary energy consumption is estimated to grow by about 12% in the same period.

There is also a danger that our products that we export to the EU (about 65% of exports) will be subject to the so-called carbon levy (CBAM), which would make our products lose competitiveness.

**84. How will the energy efficiency targets be set? What methodology?**

EE targets are not determined independently but combined with RES and GHG emissions targets, taking into account import dependency. By setting a series of initial parameters and the measures implemented and planned, optimal financial scenarios are obtained as a result (for these initial set parameters). Taking into account the assumed international obligations and analyzing the possibilities of the Republic of Serbia to ensure the implementation of one of the scenarios in the future, as well as the possible implications of not achieving the goals (in the previous question analyzed), we opt for concrete values of the goals.

**85. What will be the consequence of not meeting the EE target?**

The target for EE has so far been set as indicative in the EU, and according to Article 3 of The Energy Efficiency Directive 2012/27/EU (EED Directive) the EE target did not fall under the binding targets and did not entail any consequences for its non-fulfillment for 2020. Member States, primarily through INCEP (and setting their own targets), demonstrated their ambition to contribute to the overall EU goal, as well as to transition the energy sector towards sustainability. At this time, there is no legal consequence of not meeting the EE target.

**86. How are EE measures implemented in energy poor households? How does INECP treat energy-poor households?**

The Law on Energy Efficiency and Rational Use of Energy recognizes the problems of energy poverty and according to Article 73 The Directorate for Financing and Encouraging Energy Efficiency is obliged to prepare special programs for the application of energy efficiency measures to energy disadvantaged and other customers in order to reduce energy poverty.

At the end of this year, the implementation of the project "Clean Energy and Energy Efficiency for Citizens in Serbia" is expected to begin in cooperation with the World Bank. The project is expected to cover 80,000 households with a special emphasis on the most vulnerable households or social categories, and from that number up to 25,000 households will have investments in sustainable heating. Priority will be given to families that live in single-family homes and use solid fuels (coal, wood), since the largest percentage of single-family homes are inhabited by poor households and are heated by solid fuels. The realization of the project will contribute to reducing energy and carbon intensity in the residential sector in Serbia, improving air quality in urban areas, increasing the quality of heating and living conditions (lower heating costs, and better comfort) of households with lower incomes.

Also, according to the Rulebook on the Development of INECP (Rulebook on Closer Content and Guidelines for Determining National Objectives of the Integrated National Energy and Climate Plan and the manner of its Preparation and Reporting on its Implementation), the number of households in energy poverty is estimated. If it is established that there are a significant number of households in energy poverty, the INECP includes a national indicative target for reducing energy poverty.

**87. How is INECP achieved by increasing energy efficiency?**

The implementation of measures from the INECP achieves an increase in energy efficiency. INECP energy efficiency is planned in terms of: proposing a set of EE measures to be implemented in different sectors of energy consumption, sources of financing for these measures are planned, holders of measures (who will be responsible for implementing the measures) and savings under these measures are also planned. Thus, the energy rehabilitation rate that should be realized in the residential and public buildings sector and with what effects is planned. How large should the

measures in the industry be and what the measures should be. What is the replacement rate of regular petrol-powered vehicles with electric vehicles, the replacement rate of household appliances with more efficient ones, etc. With the measures proposed in the INECP, it is possible to achieve energy savings higher than the annual production of Kostolac A and B together by 2030.

**88. What is the role of energy efficiency in the energy transition?**

- Energy-savings
- In the longer term, less need for new investments in energy
- Greater energy independence

**89. In which sectors of energy consumption is it possible to achieve the greatest energy savings?**

According to all indicators, savings can be achieved in the households and traffic sectors, while the most cost-effective are energy savings in the industry sector.

**90. How cost-effective is the implementation of energy efficiency measures?**

The cost-effectiveness of energy efficiency measures is directly related to the period of savings payment. This period largely depends on the cost of the energy/energy product used. As we are witnessing a world crisis and a significant increase in the prices of all energy products, the implementation of energy efficiency measures will certainly be more and more significant and more cost-effective for all types of energy used.

**91. How will energy efficiency affect the development of construction and other industries in Serbia?**

The impact in the construction industry will primarily be reflected in the production of various insulation materials, doors and windows with improved energy characteristics, and the employment of labor in the production and installation thereof. Educated by the experience of Eastern - European countries, the demands for energy rehabilitation of buildings will give new momentum to the work of the construction industry. Regarding export-oriented industrial production, EE measures will contribute to the competitiveness of our products in foreign markets.

**92. What is the impact of energy renovation of buildings on employment in the construction sector?**

According to the Long-Term Strategy for Encouraging Investment in the Renovation of the National Buildings Fund of the Republic of Serbia, it is expected that 7 new jobs in the construction sector will be created for every million euros invested in the energy rehabilitation of the national building fund by 2050.

**93. How does investment in building renovation affect GDP?**

Based on the proposed scenario of building renovation from the Long-Term Strategy for Encouraging Investment in the Renovation of the National Buildings Fund of the Republic of Serbia by 2050, the total investment required for the renovation of buildings by 2050 would amount to RSD 4,841 billion. In accordance with the analysis of energy savings resulting from the integrated energy renovation of buildings, the estimated impact of the integrated renovation program on the realization of energy savings by 2050 amounts to RSD 2,704 billion. Thanks to investments in the renovation of the national buildings, Serbia's GDP could increase by 3.73% to 6.63% per annum in the period from 2021

to 2050, while the share of budget revenues generated by these investments in GDP would be between 1.12% and 1.99% per annum.

**94. What EE measures are planned to be implemented in households in order to achieve the objectives of INECP:**

Measures in households are the replacement of windows and doors and insulation in order to improve the energy characteristics of buildings/houses, replacing inefficient boilers/heating devices with a more efficient transition to new energy sources, significantly greater use of heat pumps, installation of solar collectors and photovoltaic panels.

**95. What EE measures are planned to be implemented in the Public and Commercial Sector in order to achieve the objectives of INECP:**

The public and commercial sector has already entered the Energy Management System, according to which the Law on Energy Efficiency and Rational Use of Energy and the accompanying by-laws have already defined the targeted savings to be achieved. This introduces a system of monitoring, streamlining, and reducing energy consumption. The Energy Management System itself is a non-technical measure, but in order to realize savings, energy managers must also plan investments in the implementation of technical measures (such as energy rehabilitation of buildings, replacement of heating devices with more efficient ones and the use of heat pumps, installation of small CHP plants - combined heat and power generation, etc.)

**96. Examples of EE measures that are most cost-effective in the Industry sector:**

The most cost-effective energy efficiency measures in SMEs are on compressed air systems, insulation of uninsulated sections of pipelines, fittings and equipment (circulation pumps), replacement of classic wall-mounted boiler units with condensing, installation of new electric motor drives. In larger industrial complexes, the most cost-effective measures are technological steam and hot water systems, the electricity system, the compressed air system and the air conditioning and cooling system. Industrial combined heat and power generation is one of the most significant measures for all types of industry.

**97. What measures are planned to be implemented in the Transport sector:**

The basic measure in the transport sector refers primarily to the significantly higher introduction and use of hybrid and electric cars. This is particularly important not only from the point of view of energy efficiency and reduction of greenhouse gas emissions – GHG, but also significantly contributes to the reduction of other harmful emissions of gases and PM particles resulting from burning fossil fuels.

**98. What is the savings for 1000 euros invested in energy rehabilitation of public buildings?**

As part of the previous activities on financing projects for improving the energy efficiency of public buildings in local self-government units since 2014 (a total of 7 public calls), a total of about 1.7 billion dinars was invested, and savings of about 22 million kWh/year were realized. On this basis, it is estimated that about 1500 kWh/year will be saved per 1000 euros invested in energy rehabilitation.

**99. What savings are achieved by applying high-efficiency combined heat and power generation in relation to individual heat and power generation?**

High-efficiency combined production of thermal and electrical energy saves 33% of primary energy compared to individual production of thermal and electrical energy.

### Other questions

#### **100. Is the state preparing to sell EPS?**

The transformation of EPS from a public company to a joint stock company owned by the state should have been done a long time ago, because for over 10 years there is no legal basis for being a public company. It is a matter of harmonizing the legal form of PE EPS with the law. In order to make the change, it is also necessary to assess the value of the company.

For example, all the same was done with EMS AD, which with a slight delay but in the end acted in accordance with the law and has been functioning for years as a joint-stock company that is fully owned by the state. More precisely, on November 8, 2016, the company changed its legal form and became a non-public joint stock company wholly owned by the Republic of Serbia.

Thus, the change of status from a public company to a joint-stock company owned by the state is not a "step towards privatization".

EPS remains 100% state-owned.

The Ministry and the RS Government were not satisfied with the business of PE EPS, which has nothing to do with its legal form. The goal of the Ministry and the RS Government is to do a lot in the coming years to develop this company, which is crucial for the country's energy security.