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# **SOCIAL ASPECT OF ENERGY TRANSITION IN SERBIA**

*- personal view of energy transition by public data-*

UNECE Group of Experts on Coal Mine Methane  
Workshop on Just Transition of mining areas in Albania  
Tirana, Albania, 11 December 2023.

# 1. ENERGY PRODUCTION IN SERBIA

Energy | Statistical Office of the Republic of Serbia

Statistical Office of the Republic of Serbia

HOME STATISTICS BY THEME SURVEYS PRODUCTS SERVICES ABOUT US

Home > Statistics by theme > Energy

**Energy**

Energy statistics provides the information on purchase, trade, stocks, transformation and consumption of energy/ energy commodities. All data are harmonized with standards of Eurostat and International Energy Agency, thus being comparable on international level. Detailed, complete and timely data on energy statistics are necessary for monitoring the energy situation on national level, and are significant for decision making related to state energy policy managing.

**Information**

Annual Energy Balances for Electricity, Heat, Blast Furnace Gas, Coal, Oil and Oil Derivates, Natural Gas, Geothermal Energy, Wood Fuels, Biogas, Industrial Waste and Biodiesel are available as final results for 2021 year [link](#).

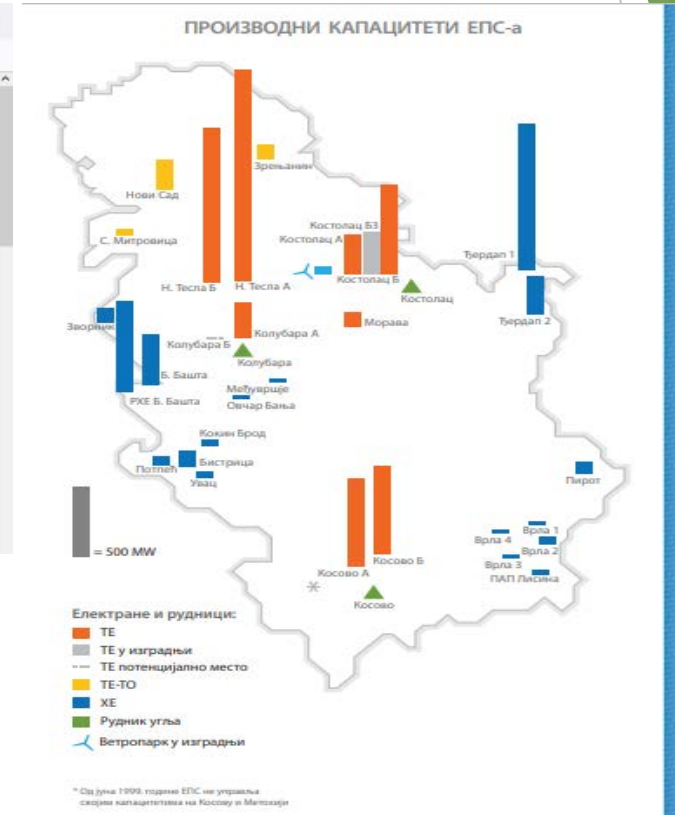
Annual data are available in the database entitled **Annual data and Energy balances**. In the database, energy balances can be formed by selecting all flows. Balances were constructed according to the principles of Eurostat's new concept of energy balance, which was published at the end of January 2019. The structure of the energy balance is [HERE](#).

Construction of energy balances according to the old Eurostat concept can be realised on data which are in the database called **Annual data - archive**. The data were archived by the end of 2017 and will not be corrected in the future.

## Primary energy production, 2020

	TJ	%
<b>REPUBLIC OF SERBIA</b>	<b>454 064</b>	<b>100</b>
Coal	295 647	65.11
Hydro Energy	32 524	7.16
Solar photovoltaic	48	0.01
Wind Energy	3 512	0.77
Crude oil and natural gas liquid	38 030	8.38
Firewood, wood chips and residue <sup>1)</sup>	67 334	14.83
Natural gas	15 133	3.33
Geothermal energy	212	0.05
Biogas	1 624	0.36

<sup>1)</sup> The final consumption of biomass data are taken over from the Ministry of Mining and Energy.



Thermo power plant – 69%  
 Hydro plant – 28%  
 Renewable energy sources-OIE – 3%

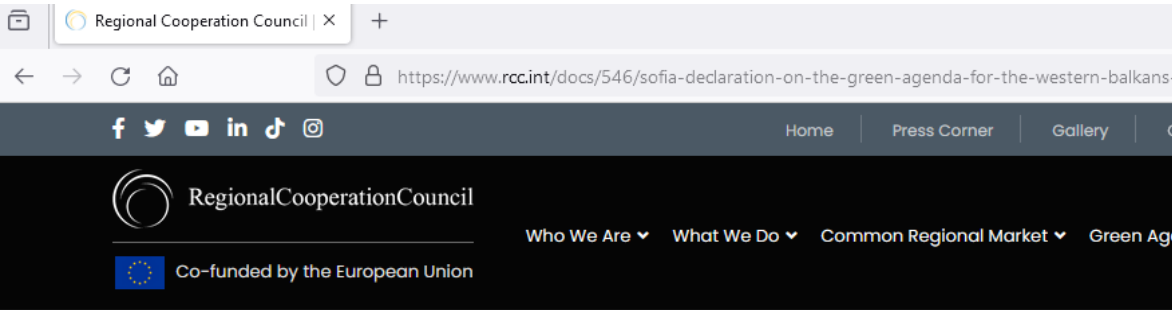
## 2. MINISTRY RESPONSIBLE FOR MINING AND ENERGY SECTOR



The screenshot shows a dark blue navigation menu for the Ministry of Mining and Energy. At the top, there are menu items: MINISTRY ▼, ADMINISTRATION ▼, DOCUMENTS ▲, PUBLIC INTEREST ▼, BULLETIN BOARD ▼, and CONTACT ▼. On the right side, there are social media icons for Instagram and Facebook, along with a search icon and a language selector (L) with plus and minus signs. Below the navigation, there are two main sections: Sectors and Inspections, each with a red horizontal line underneath. The Sectors section lists: Sector for power engineering; Sector for renewable energy sources (> 30 law, rolebook,...); Sector for energy efficiency and climate change (20 law, plans); Oil and gas sector (70 law, rolebook, plans); Department of Geology and Mining (71 Law, rolebook, plans); and Sector for international cooperation and European integration (39 law, rolebook, plans,...). The Inspections section lists: Department of electric power inspection; Energy inspection group; Geological survey group; Mining inspection department; and Pressure equipment inspection department.

In the **Ministry of Mining and Energy**, with more than 200 different laws, regulations, plans, strategic documents, the field of energy, mining, renewable energy sources, and energy efficiency are regulated in this period of energy transition([www.mre.gov.rs](http://www.mre.gov.rs)).

# 3. DECLARATION ON THE GREEN AGENDA FOR THE WESTERN BALKAN, UP TO 2050; SOFIA, Nov. 2020



HAVE TODAY AGREED TO FULLY ENDORSE THE GREEN AGENDA FOR THE WESTERN BALKANS AND EXPRESS OUR COMMITMENT TO IMPLEMENT ACTIONS IN THE FOLLOWING FIVE PILLARS:

## I. Climate, energy, mobility

We commit to work towards the 2050 target of a carbon-neutral continent together with the EU through mainstreaming a strict climate policy and reforming energy and transport sectors, and in particular through the following actions:

- Align with the **EU Climate Law** once it is adopted with a vision of achieving climate neutrality by 2050;
- Set forward-looking **2030 energy and climate targets** in line with the Energy Community framework and EU *acquis*, as well as develop and implement **integrated Energy and Climate Plans** with clear measures designed to reduce greenhouse gas emissions in the Western Balkans economies by integrating climate action into all relevant sectoral policies;
- Prepare and implement **climate adaptation** strategies to increase resilience through climate-proofing of investments and to ensure greater integration of climate change adaptation with disaster risk reduction;
- Continue alignment with the **EU Emissions Trading Scheme**, as well as work towards introducing other carbon pricing instruments to promote decarbonisation in the region;
- Increase opportunities for the **deployment of nature-based solutions to mitigate and adapt to climate change**;
- In view of the launch of the **European Climate Pact** consider development of a similar mechanism in the region or possibilities for the region to participate in this initiative;

## DOCUMENTS AND PUBLICATIONS

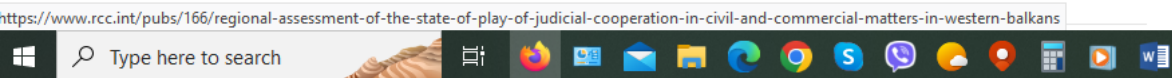


### Sofia Declaration on the Green Agenda for the Western Balkans

10 Nov 2020 | DECLARATION/DECISION

During the Western Balkans Sofia Summit, held on 10 November 2020, region reached important milestone by endorsing the Leaders' Declaration on the Green Agenda that aligns with EU Green Deal. Declaration is to support and accelerate changes and processes in the region with the overarching goal of addressing climate change.

Download: EN



THE REPUBLIC OF SERBIA HAS SIGNED THIS DECLARATION, 16 November 2020  
<https://www.rcc.int/docs/546/sofia-declaration-on-the-green-agenda-for-the-western-balkans-rn>



# 4. ROADMAP OF THE CIRCULAR ECONOMY

## MINISTRY OF ENVIRONMENTAL PROTECTION OF THE REPUBLIC OF SERBIA

**Roadmap for Circular Economy in Serbia**

**FEBRUARY 9, 2021**

The Roadmap for Circular Economy in Serbia is a process aiming to gather, promote and connect the identified stakeholders whose knowledge, innovation and creativity can contribute to a faster transition to circular economy. This document is a guide to circular economy transition models that equally focus on profit, environmental protection and preservation of resources. Economic, social and environmental dimensions are given equal importance. The goal of the Roadmap is to encourage manufacturing with the use of circular business models, to motivate the industry to create new jobs, and to improve doing business by finding

*Circular economy is a renewable industrial economy that has a changed concept of production and consumption when design, use of resources and creation of waste is concerned.*

*There is no waste in the concept of circular economy. It only has the raw material reusable for the same or other production processes. Also, renewable sources of energy have priority. Energy is used efficiently, innovative technologies, green public procurements, replacement of hazardous chemicals by those less dangerous are stimulated, entailing as inevitable the changes in the consumer habits.*

*A Roadmap for circular economy in Serbia is a process intended to get to know, promote and put together the recognized stakeholders able to contribute by their knowledge, innovativeness and creativity to a faster transition to circular economy. **This document is guidance** for transition to a model of circular economy focusing, apart from the profit, to the protection of the environment and preservation of resources. **Economic, social and ecological dimension are equally valuable.***

*The purpose of the Roadmap is to encourage production through application of circular business models, to motivate industry to create new work posts and to advance doing business by detecting innovative, sustainable solutions on the market. This document is intended to **instigate the society to systemic changes in thinking, culture and attitude vis-à-vis the resources**, and also to encourage the decision-makers to **commit politically to amend public policies and dialogues** in the context of circular economy.*

*This is an initial document to put in motion a dialogue between the decision-makers and representatives of industry, academic sector and civil society, **aimed at defining future transition steps and a time framework** for doing business without waste, by using digital tools.*

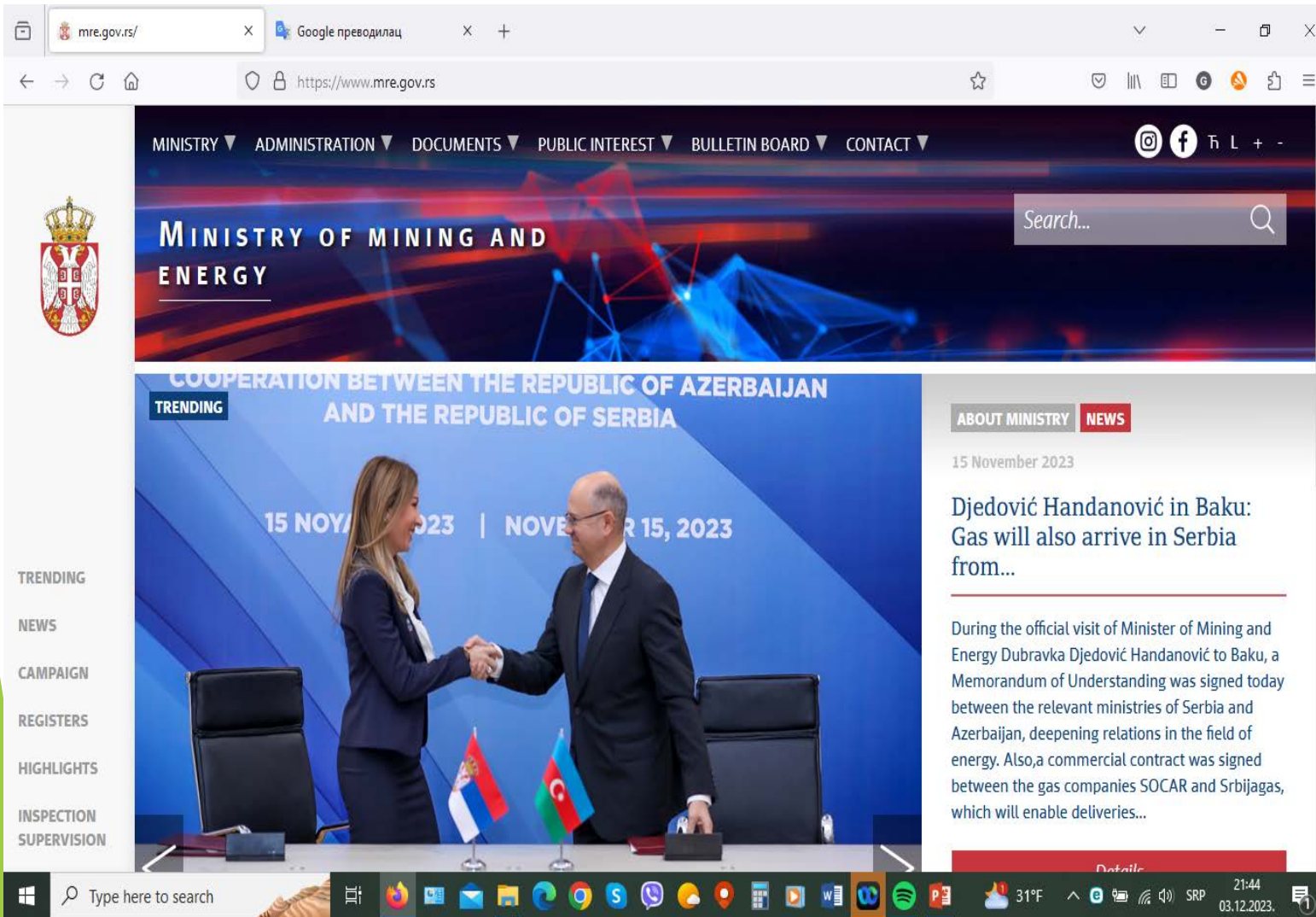
*The European Union has adopted a set of documents that provide guidance to the member states for a transition from the linear to circular economy. **The Green Deal and The Action Plan for Circular Economy** are the last in this set. As the Republic of Serbia is on its way to membership in the Union, it will be complying with the recommendations in this regard in the forthcoming period involving a series of activities including, inter alia, a draw-up of the Roadmap 2.0 for circular economy.*

Roadmap for the circular economy, the first step of the transition in the Republic of Serbia  
<https://www.ekologija.gov.rs>

## 5. THE STRATEGIC GOAL OF THE STATE IN ENERGY TRANSITION

### GOALS

1. Independence at the lowest price for citizens and the economy,
2. Implementing a green energy transition while ensuring the stability of the energy system and security of supply
3. It is necessary to invest about 15 billion euros in the energy sector of Serbia in the next decade
4. Priorities are defined through the Energy Infrastructure Development Plan and Energy Efficiency Measures for the period up to 2028 with projections up to 2030
5. The most important investments in the hydro sector, RES (OIE), transmission and distribution network are defined.



<https://mre.gov.rs>

<https://www.bos.rs/rs/projekti-ekz/231/61/civilno-drustvo-za-energetska-tranziciju.html>

## 6. INTEGRATED NATIONAL ENERGY AND CLIMATE PLAN (INEKP)

- ❑ The Ministry closed the public debate on the Integrated National Energy and Climate Plan of the Republic of Serbia (INEKP), which refers to the period up to 2030 with projections up to 2050.
- ▶ INEKP's recommendations to Serbia:
  1. to increase the goals related to the share of RENEWABLE ENERGY in gross final consumption,
  2. to start reducing the use of coal for electricity production before 2030 and
  3. is going to introduce measures for a fair energy transition in the document so that the whole process is carried out in accordance with the needs of citizens and the economy
- INEKP does not overlook reaching climate neutrality by 2050, and that the most ambitious scenario foresees a reduction of GHG emissions by 75% compared to the level of emissions from 1990.
  1. detailed measures and policies for preparing society and the economy for the complete abolition of coal production and the transition to energy production from renewable energy sources generally do not exist.
  2. it is necessary to take into account the opinions of the interested public collected during the public discussion,
  3. that the correlation of the Serbian integrated plan with the plans of neighboring countries should be described

<https://www.bos.rs/rs/projekti-ekz/231/61/civilno-drustvo-za-energetsku-tranziciju.html>



## 7. PROJECT : CIVIL SOCIETY FOR ENERGY TRANSITION

### THE CIVIL SECTOR IS A NECESSARY IN THE ENERGY TRANSITION

#### ► Expected results of project:

1. Provide a comprehensive approach in monitoring the implementation of energy and climate policy
2. Improve the participation of civil society organizations,
3. Trade unions and energy cooperatives in the development and monitoring of energy and climate policy at the national and local level
4. Improve communication and cooperation between different actors in the energy transition process
5. Increase the availability of information on the development of domestic energy and climate policy

The project is being implemented in the **period from December 1, 2022 to March 31, 2024** with the support of the British Embassy in Belgrade.

<https://www.bos.rs/rs/projekti-ekz/231/61/civilno-drustvo-za-energetsku-tranziciju.html>



## 8. MAIN CHALLENGES OF ENERGY TRANSITION IN SERBIA

- ▶ The biggest challenges of the energy transition in Serbia: in the medium and long term

- here are **two main reasons** for the long delay in the transition:

1. The first stems from global trends regarding climate change and increasingly demanding international strategies
2. The second is the current situation in the energy-economic complex of Serbia, especially in the sector of environmental protection and natural resources

<https://doi.ub.kg.ac.rs/2020/10-46793-eee20-1-2-010dj>

- ▶ Energy transition is important for citizens' lives

[https://www.politika.rs\(sr/clanak/572873](https://www.politika.rs(sr/clanak/572873)

1. Serbia has established the necessary legal and strategic basis for the energy transition and air pollution protection, but the implementation of the newly introduced solutions is very slow
2. That process must be accelerated and improved, above all at the level of local self-governments and in terms of citizen involvement
3. More expensive, cleaner and socially accessible energy means higher income and quality of life, but it also requires a new energy culture of citizens, the economy and the state

- ▶ Is the energy transition fair

<https://klima101.rs/da-li-je-energetska-tranzicija-pravedna>

1. Non-departure from coal in the Western Balkans - a problem for a just transition In order to improve the situation in this region, cooperation between state actors is necessary in order to solve the problem

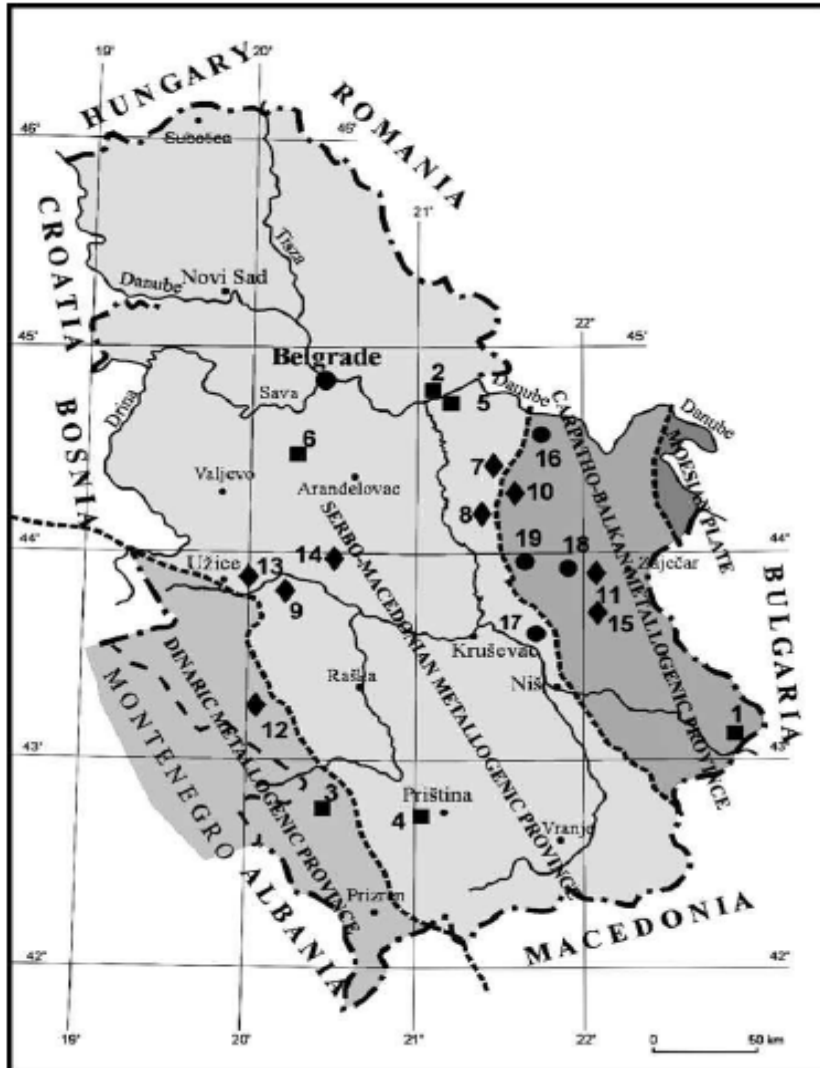
## 9. ENERGY INDEPENDENCE IN REGION AT THE LIGHT OF GLOBAL DISTURBANCE – CONFERENCE ENERGY 2023

- ❑ Strategic planning in the conditions of energy transition
- ❑ GOLAS
  1. fair energy transition
  2. analysis of the current crisis in the energy sector
  3. new possibilities of financing the energy transition with the specificities of regulation in the energy sector
  4. modern power systems and smart technologies modern technologies in the use of coal, oil and natural gas and in the production of heat and
  5. electricity analysis of energy systems (modern analytical methods and tools for modeling energy systems (surveys, analyses, results)
  6. connection between **environmental protection**,
  7. energy efficiency and optimal energy **development environmental, economic and social effects** of using renewable energy sources
  8. sustainable energy development from the perspective of reducing the impact on climate change
  9. software tools in the service of increasing the speed and quality of design, construction and exploitation, as well as the energy efficiency of energy and process equipment and plants
  10. modern scientific research, **technical-technological improvements and innovations in the energy sector and**
  11. modern control systems and automatic regulation in energy and process technology

# 10. GEOLOGICAL COAL POTENTIAL OF SERBIA

## Genetic-industrial classification of brown coals in Serbia

Marko Ercegovac a,\*, Dragana Životić b, Aleksandar Kostić b - DISTRIBUTION COAL DEPOSITITS



### LEGEND:

----- Boundary of Metallogenic units (modified, Dimitrijević, 2000)

#### ■ Soft brown coal (Low-Rank C):

- 1. Mazgoš, 2. Kovin, 3. Metohija, 4. Kosovo, 5. Kostolac, 6. Kolubara.

#### ◆ Dull brown coal (Low-Rank B):

- 7. Mlava (Melnica deposit), 8. Despotovac, 9. Dragačevo (Tijanđe deposit), 10. Krepoljin, 11. Lubnica, 12. Sjenica (Štavalj deposit), 13. Požega (Rasna deposit), 14. Zapadna Morava, 15. Soko Banja.

#### ● Bright brown coal (Low-Rank A):

- 16. Zvižd (Derezna deposit), 17. Aleksinac, 18. Bogovina (East Field), 19. Senjc-Resavica.

### SAVIC-Underground coal mines

1. Coal mine "VRŠKA ČUKA" (anthracite)
2. Coal mines "IBARSKI RUDNICI" (hard coal)
3. Coal mine "REMBAS" (brown coal)
4. Coal mine "SOKO" (brown coal)
5. Coal mine "ŠTAVALJ" (brown coal)
6. Coal mine "BOGOVINA" (brown coal)
7. Coal mine "JASENOVAC" (brown coal)
8. Coal mine "LUBNICA" (lignite)
9. Coal mines "ALEKSINAČKI RUDNICI"

## 11. LAW CONDIDTION FOR THE IMPLEMENTATION COAL MINE CLOSURE PLAN

1. The Governement and Ministry of Mining and Energy of the Republic of Serbia are responsible for mine closure
  2. STRATEGY development of the energy sector of the Republic of Serbia until 2025 with projections until 2030 "Official Gazette of RS", number 101 of December 8, 2015.
  3. In Law of Mining and Geology exploration (2021): the mine closure, i.e. permanent suspension of work, is carried out according to the legally prescribed mining technical documentation
- ✓ The impact of global energy supply conditions on the adopted state program of consolidation at public company, and the plan of closure coal mines



## 12. SOME CHALLENGES OF CLOSURE UNDERGROUND COAL MINES IN TRANSITION PERIOD OF MINING SECTOR OF SERBIA

1. CONSIDER THE POSITIVE EXPERIENCES OF OTHER COUNTRIES WHEN PLANNING THE CLOSURE OF COAL MINES ACCORDING TO THE SOCIAL-ECONOMIC-DEMOGRAPHIC CONDITIONS OF THE MINING AREAS
2. PREQUALIFICATION OF WORKERS IN ANOTHER DEVELOPED ECONOMIC SECTOR IN THE MINING FIELD
3. POSSIBILITY OF DEVELOPING NEW INDUSTRIES IN MINING AREAS WHERE MINES ARE CLOSING
4. DEVELOPING NEW SKILLS IN ACCORDANCE WITH MODERN LABOR MARKET CONDITIONS
5. ENVIRONMENTAL MONITORING PROGRAM AND FOND

# 13. PLANNING FOR THE CLOSURE COAL MINES

## 1. REASONS FOR MINE CLOSURE PLANNING - at PUBLIC COMPANY RESAVICA 2018 and 2022

- Exhausted coal reserves or remaining small quantities, without potential for further development
- Unprofitable current underground exploitation of coal
- Outdated technique and technology of coal mining
- Safety risks of coal mining in current natural mining-geological conditions (mountain shocks and methane)

## 2. PROBLEMS OF CLOSURE

- Closing costs - financial resources for the realization of the gradual mine closure program
- The safety of closing the mine and "conquering new activities for the survival of people, overqualified workers in that area" in the future,
- Solving the problems of the local mining community after the closure of the mine (water supply, electricity, road infrastructure that was destroyed during coal mining and transport,
- Social protection mechanisms for the protection of workers who lose a job (redundant workers, retraining of workers, development of other profiles of workers
- Monitoring the condition of environmental factors
- Geochemical monitoring around mine and conversion for the purpose of future land use
- Rehabilitation of the field surface, costs and persons responsible for rehabilitation...

## 3. PHYSICAL CLOSURE

- Physical closure of the mine starts with development of technical documentation regarding:
- Disassembly and recovery of underground equipment, including steel support
- Isolation of all mine accesses – backfilling of shafts and construction of concrete slabs on shafts entries and construction of isolation dams on drifts entries
- Demolition of surface facilities and Rehabilitation and reclamation of mine industrial estate

# 14. GENERAL CONCLUSIONS

## SOCIAL ASPECT OF ENERGY TRANSITION IN SERBIA

- ❑ Energy security and green energy transition are strategic goals of the state
- ❑ Energy transition in Serbia with energy strategy plan, laws, book regulations, programs, ...
- ❑ THE MINISTRY OF MINING AND ENERGY SAID (26 Sept 2023, Novi Sad):
  1. the strategic goal of the state is to achieve energy independence at the lowest cost for citizens and the economy, as well as implementing green energy transition while ensuring the stability of the energy system and security of supply,
  2. in the next decade, it is necessary to invest about 15 billion euros in the energy sector of Serbia
  3. priorities up to 2028 or 2030 are hydro, RES-OIE, Energy efficiency, ..
  4. it is certain that we will be using coal in electricity generation for some time because we cannot change the energy mix overnight
  5. we strategically and long-term plan the decarbonization of the energy sector
  6. Studies show that Serbia has 30 percent more solar potential than Germany, which is the leader in the production of electricity from solar panels
  7. In the future we will also make certain decisions when it comes to basic energy sources, based on which solutions are best for Serbia and its energy security and independence, financial costs and environmental protection.

*Thank you for your attention!*

*Questions?*

16. MEĐUNARODNI FORUM O ČISTIM ENERGETSKIM TEHNOLOGIJAMA

**PERSPEKTIVE PRIVREDNOG RAZVOJA  
KROZ PODRŠKU SEKTORU ENERGETIKE**

16th International Forum on Clean Technologies

PERSPECTIVES OF ECONOMIC DEVELOPMENT  
THROUGH SUPPORT TO THE ENERGY SECTOR

Novi sad, 26-27 September 2023



Novi Sad, 26-27. septembar 2023. godine