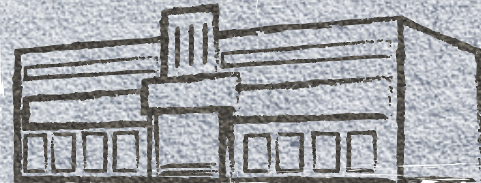
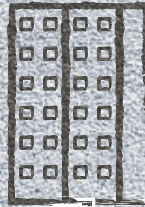
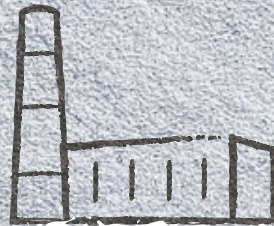


ENERGY TRANSITION
**BUILDING
BY BUILDING**



#Engage!

Energy transition: Building by building

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Energy transition: Building by building!



Have you ever found yourself faced with a huge challenge that at first glance seems so big and unachievable that it discourages you from taking the action you know is necessary?

Did the uncertainty of the outcome scare you? The time, effort, and money that you need to invest? Faced with such great challenges, people usually fall into two groups. Some decide that instead of taking action, instead of fighting for the necessary change – it is far easier to simply add their voice to the clamor of skeptics arguing against taking even the first step, against the fight for an uncertain and long-term change, thereby justifying a lack of faith in their own strengths and abilities.

This is a collection of stories about the second group, **about the agents of change** who refuse to settle for the status quo when it is unsustainable, who know that **a journey of a thousand miles begins with a single step**, that we must take our own steps, instead of those of others, and that we do not need to make excuses for the status quo, but to promote the participation of as many people as possible in a common victory.

Instead of resigning themselves to the dangers of climate change, meet the people who are challenging the climate of pessimism throughout Serbia, proving through their initiatives i) that **the energy transition from fossil fuels to renewable energy sources and energy efficiency is possible**, ii) that it is not an impossible mission but an **unprecedented opportunity for development**, but also iii) that we can and must all get involved in this global challenge, **starting with our local community: house by house, building by building, factory by factory**.

The following stories describe local initiatives undertaken by citizen associations from several cities in Serbia within the project "**Civil Society for Energy Transition in Serbia**". The project is jointly implemented by the Belgrade Open School (BOŠ) and the Renewables and Environmental Regulatory Institute (RERI) with the financial support of the British Embassy in Serbia. The project calls for active participation in reaching difficult but attainable goals: zero greenhouse gas emissions, energy independence, and democratic and decentralized management of energy and climate policy, through greater participation of civil society in implementing the necessary changes.

While most eyes are focused on the forums of the United Nations, the European Green Deal and the EU Energy Community and its contracting parties, as well as the development of the Integrated National Energy and Climate Plan (INEKP) of Serbia – the stories that follow should serve to inspire you to join the energy transition in your own house, your building, neighborhood, street, in your factory, workplace or municipality, in your community:

**Let's go, building by building!
Engage!**



Hospital by hospital: The New Way of Health, Kraljevo

The special rehabilitation hospital "Agens" in Mataruška Banja near Kraljevo provides its services to patients in a building constructed in 1974 with dilapidated fixtures prone to heat loss. This situation puts the hospital's operation in jeopardy because it annually needs to consume about 100 tonnes of heating oil, one of the most harmful fossil fuels, to the tune of about RSD 20 million. Additionally, the hospital annually spends up to RSD 12 million on electricity.

The Kraljevac energy transition specialists from the aptly named citizens' association **Novi put** (*t/n: New Way*) joined forces with the team of the special rehabilitation hospital "Agens", this time to jointly design the energy rehabilitation of the hospital itself and thus improve its operations, ensuring the quality of service to users, drastically reducing the hospital's contribution to the already significant air pollution in Kraljevo and its surroundings, and preventing **the unnecessary emission of about 500 tonnes of carbon dioxide per year**.

Thanks to the "Civil Society for Energy Transition" project, **an investment study was carried out** and a project was prepared to replace the boiler for burning heating oil with thermal energy from the geothermal site of the hot spring itself. However, the project did not merely "invent hot water" for heating the hospital. The project will be completed with the installation of two new heat pumps based on the air to (hot)water principle with a power of 270 kW and 240 kW, which will be powered by renewable, locally available, and clean solar energy obtained through a new photovoltaic power plant with a power of 142 kW to be installed on the roof of the hospital.

The rehabilitation of the hospital does not end there, because the **windows and other fixtures must be replaced** to increase energy efficiency.

The first steps have already been successfully taken. The city administration of Kraljevo was mobilized and joint and coordinated access to **project funds was provided**, such as those implemented by the Ministry of Public Investment, the United Nations Development Program (UNDP), and other development partners dedicated to innovation in the green transition.



The energy transition in Serbia, that challenging journey of a thousand miles, begins with a single step in Mataruška banja - i.e. with a single hospital. It will be a **case study for other hot spring facilities** throughout Serbia that also have access to geothermal sources of renewable, clean, and locally available energy. It will be a new way - **a new way of health**, hospital by hospital.

TRANSITION METER



1 0 0	tonnes of fuel oil, annual consumption for heating
2 0	million RSD, annual cost of heating
1 2	million RSD, electricity costs
0 2	number of required heat pumps (270 kW and 240 kW)
1 4 2	kW, the power of the new photovoltaic plant on the roof of the hospital
4 5 0	thousands of euros, investment
0 4	years, return on investment
- 5 0 0	tonnes, annual reduction of CO2 emissions



Novi put, Kraljevo

Stove by stove: Local agreement on heating in Valjevo

Air pollution, primarily with particulate matter ("PM") with a diameter of up to 2.5 and 10 micrometers, is a **"burning" problem in the city of Valjevo**. Measurements show that the air in Valjevo is polluted between 150 to 180 days of the 356 days in a year. The dominant source of particle pollution are so-called individual furnaces, or more precisely - household heating devices burning solid fuels, raw lignite from Kolubara, or firewood. In addition, citizens often need more knowledge and awareness about how to properly and responsibly use these devices, i.e., about the choice of fuel, the method of timely preparation (e.g. the drying of firewood), and the operation of the device itself. The obsolete design of the devices also contributes to the burning problem of air pollution from individual furnaces, as well as the inadequate maintenance of buildings, including chimneys, fixtures, and insulation of buildings.

Only 12 percent of households in Valjevo are connected to the district heating system out of nearly 40,000 households, even though in addition to the hot water network that passes through the city streets, there are 78,000 square meters of residential and commercial space that could be heated with the help of JKP Toplana.

The Citizens' Association **Lokalni odgovor** (t/n: *Local response*) from Valjevo joined the project "Civil Society for Energy Transition" having realized that the way the residents of Valjevo heat themselves needed to change. After consultations with tenants of residential buildings, managers of residential communities, independent experts, and representatives of JKP Toplana, Lokalni odgovor activists presented a proposal to enable free connection to the district heating system during the public debate on the Draft Decision on the Budget of the City of Valjevo for 2024, which ended on November 15, 2023.



At the end of last year, the City of Valjevo decided to allow citizens to **connect to the Toplana for free**, which abolished the fees for switching to the district heating system. The decision stipulates that citizens who wish to connect to the district heating system **during the next two years, i.e., to use the services of JKP "Toplana", will be exempt from the obligation to pay for connection to the district heating system**. This should contribute to an increase in the number of Valjevo citizens who heat their homes with the help of this public company, but also to a reduction in the amount of dust and other pollutants in the air that come from these households' chimneys.

This decision is the result of an almost year-long **advocacy campaign** by *Lokalni odgovor* and proof of what citizens can achieve when they are active. A new **local agreement on heating** was reached. Citizens should now be informed about the necessary investments in fixtures and equipment, about how to pay for heating, and what the expected costs are. Let's get a move on, stove by stove, house by house, apartment by apartment. **Valjevci, join in!**

TRANSITION METER

**LOKALNI
ODGOVOR**

1 5 0 - 1 8 0 days of polluted air per year

4 0 0 0 0 households

4 8 0 0 connected to the remote heating system

7 8 0 0 0 m² that could be connected

0 0 the price of connection to the district heating



Lokalni odgovor, Valjevo

Prosumer by prosumer for improving the environment!

As the sun tirelessly shines down upon us, so too do the solar panels on our roofs throughout Serbia work tirelessly, converting natural light into clean energy. In the homes of so-called "prosumers", i.e., those who produce and consume at the same time, not only do these panels power daily activities, but they often generate more electricity than the household needs. That excess energy is transferred to the distribution network and withdrawn from it when there is a need for more electricity than is being produced.

Following the adoption of amendments to **the Law on the Use of Renewable Energy Sources**, households in Serbia can install power plants up to 10.8 kW, whereas legal entities will be able to operate generation facilities with an installed capacity of up to 5 MW up to June 1, 2024, after which the limit will be lowered to 150 kW.

In 2023, the number of new prosumers more than doubled, and today there are **around 2000 of them!** The initial dissatisfaction of prosumers has been overcome - changes to the Law's provisions on financing have made it possible for prosumers to become more profitable! The conditions should be made even more favourable, seeing as citizen microinvestors have invested almost **€20 million** in the grid so far! Now we know that small solar power plants (5-6 kW) pay for themselves in ten years, while the slightly larger ones (about 10 kW) pay for themselves in seven years!



Despite the difficulties in the initial phase of the application of this and related regulations, it is often forgotten that the concept of prosuming implies that solar capacity should primarily cover one's **own energy consumption** and that the construction of solar power plants in excess of one's needs is a financial burden that will extend the return on investment period. Therefore, let us first think: how can we use these surpluses more wisely, if and when we have already built a power plant that is larger than necessary?

The first and most obvious move by a potential prosumer can be to look at the investment from the point of view of the integration of the project with the other energy needs of the household, and primarily with how it is heated. Maybe it is the right moment to switch **the heating system to heat pumps** powered by our own electricity, i.e. the energy from one's own solar panels? Perhaps those who have a garden can turn on **the irrigation system**, and use the excess energy to make bigger and juicier vegetables, or to replace the old gasoline lawnmower with an electric one? Maybe we should charge up our **electric scooter, bicycle, or car**, or start some creative hobby in the garage and workshop?

More and more households are deciding to become prosumers. They are being enthusiastically aided by **the Environment Improvement Center**, which continuously scanned the regulations in this area and organized a series of expert forums within the project "Civil Society for Energy Transition in Serbia", aimed on one hand at potential prosumers, and on the other, at the Government of Serbia, which is still **tweaking the regulations** to popularize prosuming in our country.

If you missed one of these forums, or if reading laws, regulations, and proposals for changing them is not your idea of a good time, the Center has also produced a **series of podcasts and interviews for you as part of this project** to inform you about all aspects of the application of the concept of prosuming in simple and practical language. See you at the YouTube channel of the Center: www.youtube.com/@cuzs !

zorica.radic@gmail.com

TRANSITION METER



Environment Improvement Center, Belgrade (CUŽS)

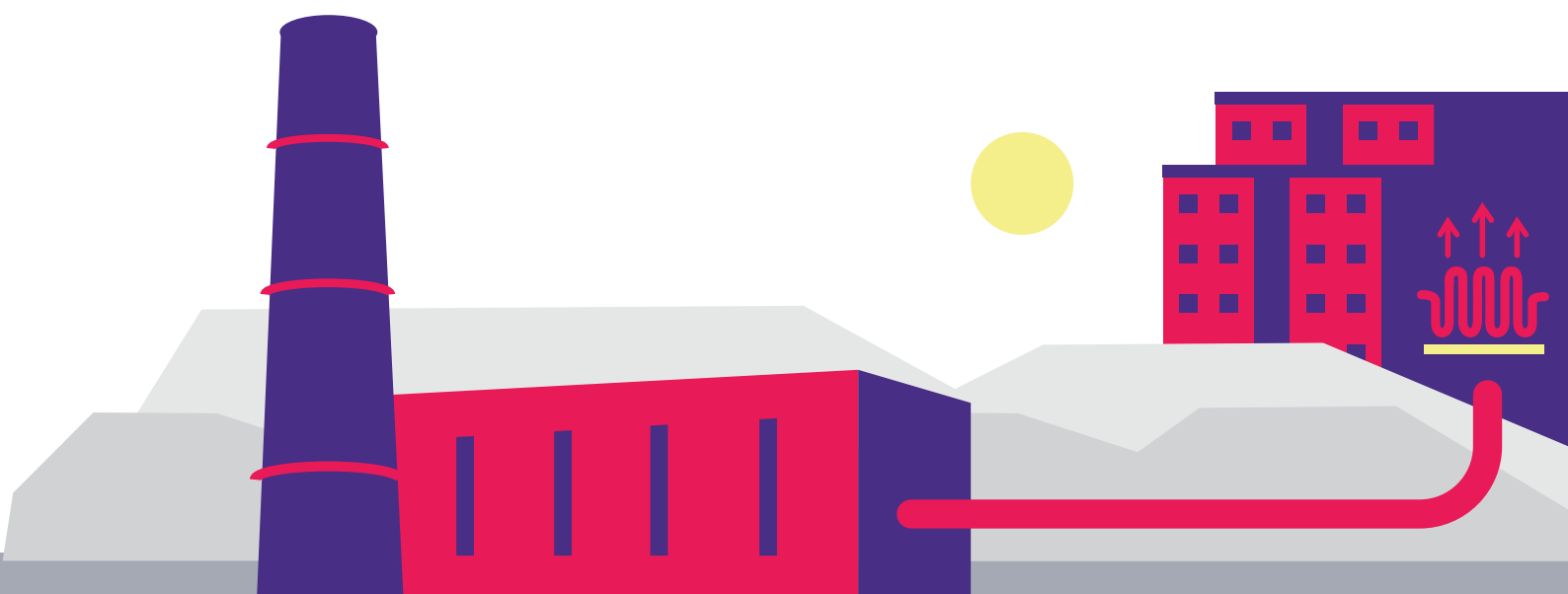
For warm apartments in a cleaner Bor: Association of Young Researchers Bor

The facilities of the mining and smelting basin (**RTB**) of Bor have dominated the panorama and the economy of this city in Eastern Serbia for more than 100 years. During that time, it has created economic opportunities for the growing number of inhabitants of Bor, but also headaches related to environmental protection, which include concern for **air quality**.

A successful energy transition in Bor cannot even be imagined without **a functional partnership** between the city administration of the City of Bor, its citizens, and the company Serbia Zijin Copper, the current owner of the RTB. That is why the Association of Young Researchers Bor used the opportunity created by the implementation of the project "Civil Society for Energy Transition in Serbia" to launch an advocacy campaign aimed at **recycling waste heat from metallurgical plants within Serbia Zijin Copper** and using it for the needs of the district heating system in Bor. This waste, or secondary heat, in addition to the facilities of the company Serbia Zijin Copper itself, could heat an additional **1,300 apartments** in this city.

Previously, the steam produced in the steam boilers in the copper smelter had also been used for the technological needs of the smelter, for electrolysis, for heating the industrial part of RTB Bor and the city of Bor during the heating season, and outside, it was used for the production of electricity in a thermal power plant which used to run as part of RTB Bor.

The connection between the smelter and the city's heating plant existed until 2002, which is why the citizens of Bor had the most affordable central heating for years, used by **96 percent of apartments, businesses, and institutions**.



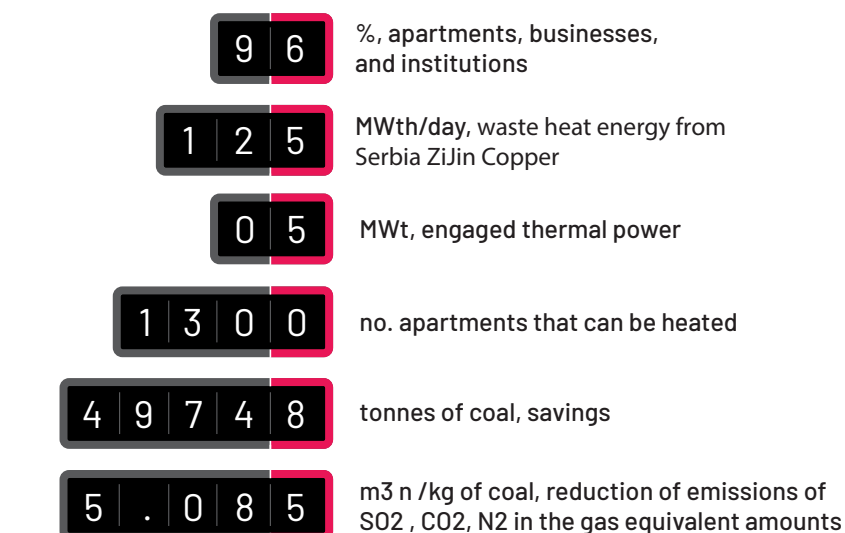
The current investment cycle in the company Serbia Zijin Copper is an opportunity to use the modernization of production equipment for the reuse of waste thermal energy, which is estimated at 125 MWth/day (engaged **thermal power** of about 5 MWt), which is enough to heat 1300 standard apartments.

49,748 tonnes of coal can be saved, and the emission of key pollutants such as sulfur dioxide (SO₂), carbon dioxide (CO₂), and nitrogen oxides (N₂) can be reduced, in the gas equivalent amount of 5.085 m³ n/kg of coal.

Industry, local self-government, and the citizens of Bor are invited to jointly look at the technological and technical possibilities of using part of the waste heat from metallurgical and chemical plants of Serbia Zijin Copper for heating the city to sustainably develop the local community. Additionally, **in the development plan and other plans**, as well as in the spatial and urban plans of the City of Bor, energy and climate issues should be addressed with a focus on activities and measures intended for the use of **photovoltaic and geothermal energy**.

Citizens of Bor, **engage!**

TRANSITION METER



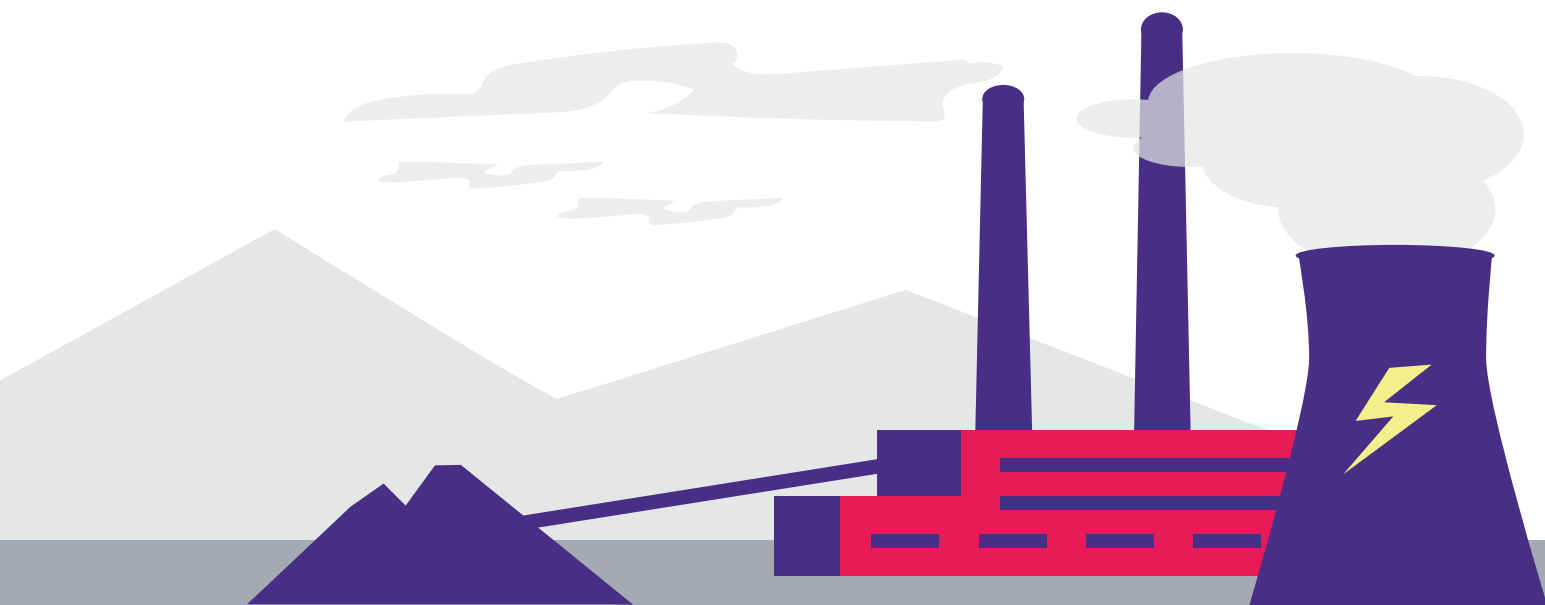
Association of Young Researchers Bor (DMI)

Just transition, thermal power plant by thermal power plant: UGS Nezavisnost

In the future, Serbia **will no longer use coal** for the production of electricity. This is a big challenge for Serbia, because today approximately 70% of electricity is generated from coal, and in certain regions of the country, the majority of residents directly depend on the exploitation of coal.

How **lignite will be extinguished**, i.e., how thermal power plants that burn this type of coal will be phased out has not yet been precisely determined. The draft of the Integrated National Energy and Climate Plan (INEKP), whose belated adoption is expected in 2024, states that **coal use is expected to cease by 2050**. Meanwhile, by 2030, this plan should reduce the use of coal "up to 2%". What does this mean for the nearly **30,000 workers employed** in coal extraction, i.e., in the Public Company Elektroprivreda Srbije (EPS), as well as for their families and local communities, which today depend primarily on coal extraction for their livelihoods?

Firstly, through the draft INEKP, the Government has articulated a policy to **maximally delay** putting up the "no smoking" sign in the Serbian energy sector, i.e., phasing out coal. This is **a disservice** to the people and local communities whose livelihoods depend on coal, because instead of a gradual and organized change, i.e., a transition, which could be managed over a long period in such a way as to enable adequate **preparation, reskilling, opportunities to access alternative jobs or sources of income, and above all the participation of the affected communities in managing these changes** - this kind of policy leads to more drastic, sudden changes in the period after 2030, and therefore risks making the process unfair. Instead of a just transition, this kind of policy portends later shock therapy, wherein **everyone would have to fend for themselves** in local communities burdened by a polluted environment, high costs of public health, and the emigration of young and educated personnel.



The United Branch Trade Unions (UGS) "Nezavisnost" saw its role in the implementation of the project "Civil Society for Energy Transition in Serbia" in **initiating an urgent dialogue** between all interested parties on the necessity of a fair energy transition, i.e., one that will ensure that employees, their families and local communities do not remain stranded and abandoned in the cul-de-sac of coal exploitation, but provided with the opportunity to participate in the economic opportunities of the future carbon-neutral economy. Workers must not be made to "foot the bill" for the transition to green renewable energy sources by losing their jobs in coal mines, thermal power plants, and related activities without timely access to skills and jobs in that same green economy.

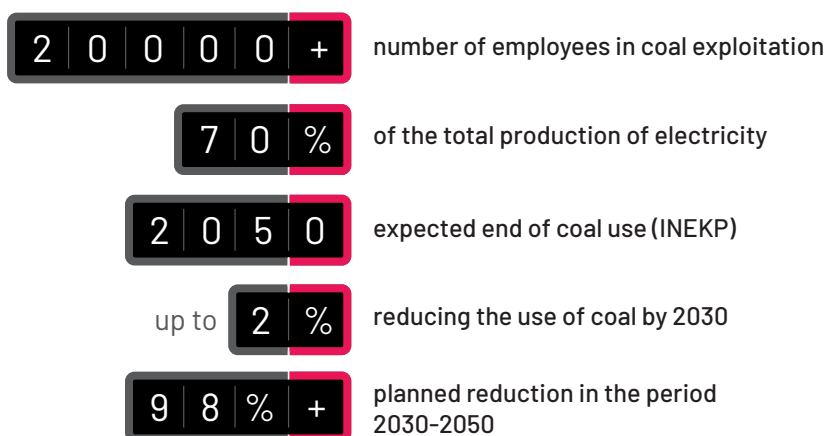
A series of dialogues, forums, and panel discussions in Belgrade, Lazarevac, and Zaječar brought together miners, workers, trade unionists, economic experts, and experts in the fields of energy, social protection, and employment with the aim of i) introducing the interlocutors to the effects of the draft INEKP, ii) identifying the risks and opportunities that the energy transition process holds for employees and local communities and iii) preparing workers and trade unions for informed participation in upcoming discussions on managing a just transition.

The fact that the transition is necessary and inevitable is not disputed, but the transition must be gradual and planned out in order to find favorable solutions for workers in the energy sector. Experiences with the previous transition, the transition towards private ownership, when the privatization of social enterprises left workers without work *en masse*, have left a very bitter taste.

UGS "Nezavisnost" has created a strategy for its activities on the transition to a low-carbon economy after numerous talks with workers, employers, and representatives of local governments in Lazarevac, Zaječar, Bor, and other areas where the country's energy capacities are key. Despite regular invitations, representatives of the competent ministry failed to attend any of those meetings, which indicates a lack of political will to reach fair solutions to transitional challenges through social dialogue.

The big challenges set by the upcoming just energy transition can no longer be pushed under the rug. Employees will participate in its detailed and timely planning, thermal power plant by thermal power plant.

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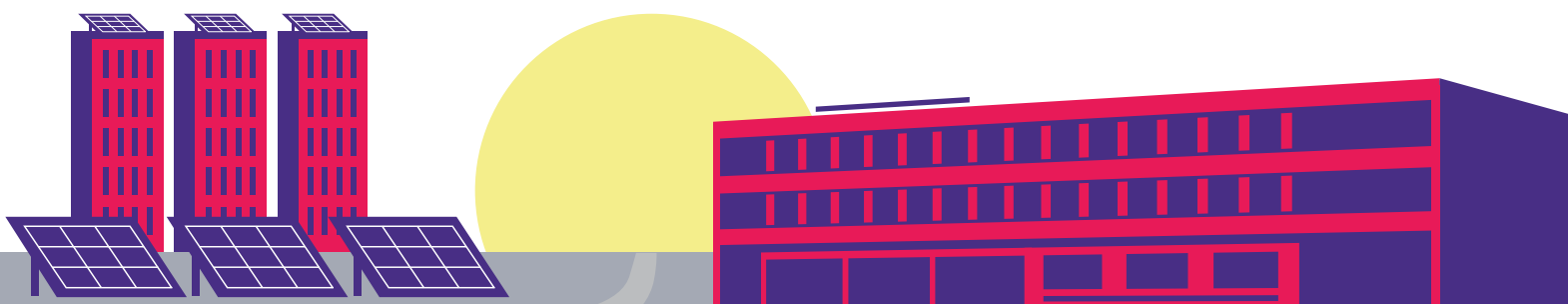
UGS Nezavisnost, Belgrade

Faculty by faculty: Electropioneers of energy cooperatives in Kragujevac

Energy cooperative *Elektropionir* is one of only two registered energy cooperatives in Serbia. It was created to empower "ordinary" people to participate more actively in the transition of the Serbian energy sector to renewable energy sources. The goal of this persistent group of pioneers is to demonstrate an ecologically and economically sustainable model of producing electricity based on the principles of democratic cooperative management. In a cooperative, **each member has one vote** in decision-making and helps set the direction of further action. The cooperative is also working on establishing **a network of decentralized rooftop solar power plants and solar parks** collectively owned by citizens throughout Serbia.

The *Elektropionir* cooperative joined the project "Civil Society for Energy Transition" by raising interest in the concept of energy cooperatives among **Kragujevac students of technical faculties** by organizing well-attended **forums at the Faculty of Engineering in Kragujevac**. Public discussions introducing students to the challenges of the energy transition, especially the decentralization and democratization of energy, were an opportunity to animate hundreds of participants and comment on the Government's draft Integrated National Energy and Climate Plan (**INEKP**), but also to recognize **the gender dimensions of the energy transition**, i.e., the potential challenges for a gender-equal, just transition.

***Elektropionir's* several years of experience** in paving the way for energy cooperatives through vague and inadequate regulations, and the insights gathered in the dialogue with Kragujevac students, provided the basis for two important contributions to the development of energy cooperatives in Serbia and the region. Firstly, more than 30 draft amendments and comments on the Government's draft INEKP were systematized, which was followed up by publishing a pioneering article in the international professional journal **Energy, Sustainability and Society**, which presents the results of **an initial survey of the interest and attitudes of the citizens of Serbia towards energy cooperatives**, which are recognized as an extremely important training ground to restore and practice a fading sense of unity and trust in local communities.



Despite the great potential **of citizen participation in the energy transition** to renewable energy sources, the energy transition in Serbia, as well as in the rest of the continent, is dominated by large corporate investors due to several economic factors, which are often justified. This situation, however, ignores the role of energy cooperatives **in building broad co-ownership of the energy transition and social cohesion and connection**. In Serbia, energy cooperatives, as an incomplete legal form, were nevertheless introduced into the legislative framework for energy, but the existing Law on Cooperatives has remained the basic regulation defining the work of cooperatives.

The research showed that **the public's awareness of the energy transition is increasing**. Respondents who participated in the Elektropionir survey had balanced views on this topic. **One-third of respondents are ready to participate** in the energy transition by participating in energy cooperatives, and additionally, another third are ready to consider doing so.

Elektropionir's research found that, when considering energy cooperatives, one-third of respondents in Serbia, **do not prioritize making a profit** or achieving the fastest possible return on investment. The most common motives for potential investment in individual production capacities are environmental protection and reduction of own costs, only then followed by financial profit. With cooperatives, however, the primary motive of respondents is saving through a model similar to pension funds, followed by profitability and participation in the energy transition, as secondary goals.

Most of the participants in the research are willing **to invest savings or a combination of savings and land** in potential energy cooperatives. In contrast, respondents **are not prepared to take on debt** to participate in energy cooperatives.

Finally, the research points to an important caveat. Respondents **questioned the transparency of** energy decision-making, expressing serious **concerns that corrupt practices could prevent greater investment** in the development of renewable energy sources or favor fossil fuels.

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Energy cooperative Elektropionir, Kragujevac

Factory by factory: Smederevo industrialists for a better flow of information

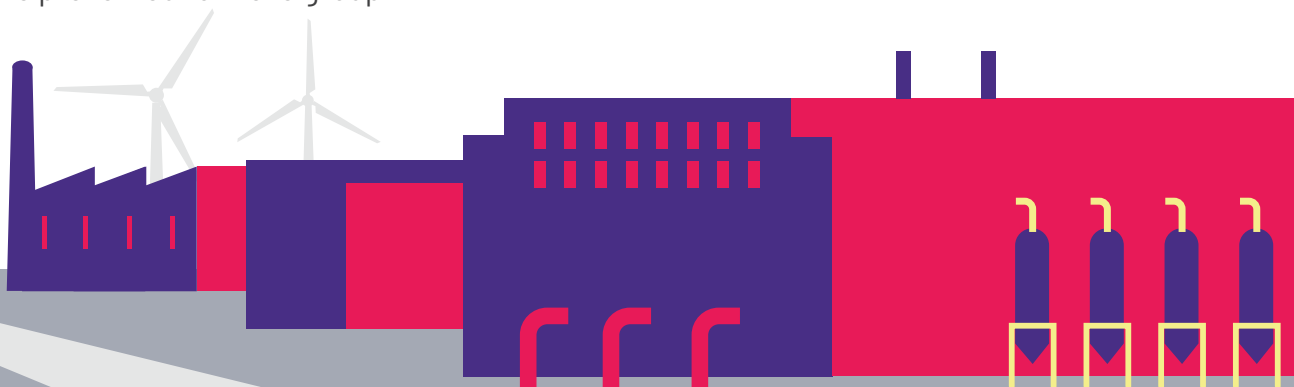
The organization **Pro.Tok21 from Smederevo** conducted an extensive **opinion poll among Smederevo entrepreneurs and industrialists** regarding the energy transition from fossil fuels to renewable energy sources and energy efficiency. The consultative process for the development of the Integrated National Energy and Climate Plan (INEKP) of Serbia was an opportunity to see how aware the industrial sector is in Smederevo, primarily **in the new industrial zone in this city**, about the importance of using renewable energy sources and creating conditions for accelerating the energy transition.

According to the results, **a substantial majority of Smederevo companies (70%) are not familiar with the INEKP**. However, the poll showed that there is room for improving the level of information and engagement of companies regarding environmental protection and the use of renewable energy sources. Although some companies have already recognized the potential of these sources and shown **a willingness to invest** and adapt to the changes, there is also a significant number of companies that have not yet recognized or are not fully prepared for these changes. Industrialists in Smederevo are most informed about energy efficiency, but they have yet to implement this knowledge into an energy-efficient business policy within their companies.

Employee training, support for cooperation between companies, and education about the economic benefits of the energy transition are seen as key factors for the successful transition to renewable energy sources in industry. Creating a favorable **legislative framework and subsidies is a priority**, as these can accelerate the energy transition at the local level and improve **the competitiveness** of companies on the market.

Local self-government should present the advantages of energy efficiency to companies and participate in financing energy efficiency projects. It is imperative that the issue of energy transition is dealt with by professional, educated **staff who should be employed by the city of Smederevo**.

These results indicate the need for further research, information, and awareness raising about the importance and benefits of using renewable energy sources in industry. To facilitate improved **information flow (Pro.Tok, t/n: Protok (srb.) - flow)**, a series of consultative meetings and panels were organized, first with the industrialists themselves, then with journalists and media representatives, and the results of the poll were presented to these groups.

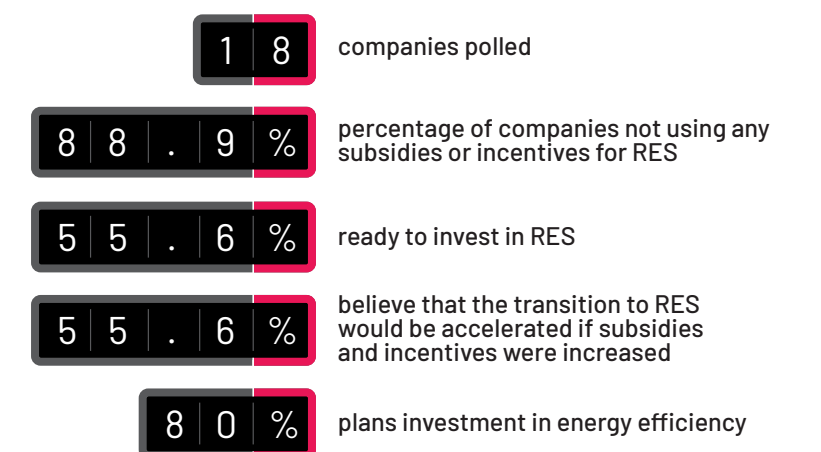


Additionally, **Smederevo's potential for renewable energy production** from sources such as thermal water basins (geothermal energy), the location of the city in the Košava region (wind energy), and a large number of sunny days in a year (solar energy) were presented.

Even though many businessmen, journalists, and activists of civil society organizations seem to be counting on the public sector, and primarily on the city administration of the City of Smederevo, **the views and opinions of the representatives of the City were not heard at the round tables**. The Office for Local Economic Development, the representative of JVP Srbijavode, the director of the Free Zone, and even the energy manager of the City failed to respond to invitations to participate in these important discussions on key topics from their portfolios.

This indicates the need for a continuation of advocacy activities and further promotion of intersectoral cooperation in Smederevo.

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Pro.Tok21, Smederevo

Civil Society for
Energy Transition
in Serbia



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