



# ENERGY PORTAL MAGAZINE

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**MARIA VIRGÍNIA MENDES  
DA SILVA PINA**  
Ambassador of Portugal  
**Evaluate, Participate and Act!**

**DANIJELA ISAILOVIĆ**  
Manager of the Association of RES in Serbia  
**New Regional Player**

**PROF RATKO RISTIĆ PHD**  
Dean of the Faculty of Forestry  
**Serbia Isn't a Water-rich Country**

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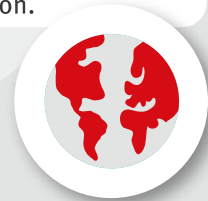
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**e-mail of the editorial board:**

info@energetskportal.rs

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**EDITORIAL BOARD**

**Editor-in-Chief:**

Nevena ĐUKIĆ

**Journalists:**

Tamara ZJAČIĆ  
Jovana CANIĆ  
Milica RADIČEVIĆ  
Milena MAGLOVSKI

**Translator:**

Ivana KOSTIĆ

**Graphic design and text wrapping:**

Maja KESER

**Technical realization:**

Dragoljub ŽIVANOVIĆ

**Financial and administrative service:**

Jelena VUJADINOVIĆ KOSTIĆ

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Dear readers,

Hot summer days and somewhat more favourable conditions for travelling have arrived, so we hope that if you haven't already, you will pack your bags as soon as possible and enjoy the beach.

As people are always looking for "salvation" from high temperatures in the water, we have decided to dedicate this summer issue to that. Sustainable water management is an indispensable part of the fight against climate change, but this front is full of obstacles and challenges for many countries, including ours.

Fortunately, we always have someone to learn from. During a conversation with Maria Virgínia Mendes da Silva Pina, the Ambassador of Portugal to Serbia, we found out that the preservations of the oceans and the seas and the development of the blue economy are the most important topics for this "green" country. We also peeked into the image of Portugal in 2030 and discovered how much the Portuguese would rely on renewable energy sources.

You will also learn more about water resources in our country. In the section Opinion, you are greeted by Prof Ratko Ristić PhD, who opens our eyes by saying that, although many think that Serbia is a water-rich country, we are one of the poorest countries in the Balkans.

We also discussed the draft of the Water Management Plan on the territory of Serbia for six years and what it brings and what measures we are taking to protect against floods, and how we can stop water pollution. We talked about these and many other topics with the acting Director of the Republic Water Directorate, Nataša Milić.

Cheerful stories will come in handy for your afternoon vacation on the beach. In the section Beacon, we present Ražanj, one of the most organized municipalities in Serbia. In contrast, the section People and Challenges will inspire you with stories about inventors who can even make something valuable and profitable out of waste.

We also give you an insight into a solution for one of the biggest environmental problems in the world, which a group of students from Svrljig developed. You will also find out why the experts and professors in environmental protection have formed independent professional institutions and what they will do to realistically present everything that needs to be done to overcome the problems in this very important field.

We hope that you will enjoy skimming through this issue of the Magazine as we have made sure to prepare interesting and current topics in the field of ecology and renewable energy sources.

*Nevena Đukić*  
Nevena Đukić,  
Editor in Chief



**6 MARIA VIRGÍNIA MENDES DA SILVA PINA**, the Ambassador of Portugal to Serbia

It's Time for Europe's Green and Digital Recovery

"Currently, our main challenge is dealing with the consequences of coronavirus pandemic, but it will not stop us from responding better to environmental challenges because it permeates. Moreover, how resilient we will be in the future will depend on achieving a successful and sustainable recovery," says the Ambassador of Portugal, emphasizing the importance of climate and digital transition in the process of European recovery.



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We Want to Be the Greenest Municipality in Serbia

They did not assign the determinant of the ecological municipality to themselves. It is probably how the others see them when they visit by comparing the situation in Ražanj with the situation in some other municipalities. Dobrica Stojković says that they have already done everything possible with their available staff and resources. They have adopted the Waste Management Strategy. They hope to obtain the funds for equipping the recycling centre and expect the realization of the project for wastewater treatment during the year.

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Good Energy for Renewable Energy Sources

The newly founded Association is a business association, and Danijela Isailović says that they are open to everything; they are trying to respond to all inquiries, as well as to be available to media. "We nurture high respect of local municipalities and local media. Renewable energy resources are primarily the concern of an ordinary man, and climate change must be stopped for his health and survival", says our interlocutor with a desire to use more clean, green energy in the future.

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The Modern Ice-Cream Factory for the 21<sup>st</sup> Century

During the last year, the company Froneri Adriatic reduced the consumption of water by six percent. This year, they are planning to reduce it by five percent. Municipal waste is reduced by a fifth, while entirely recycled waste reached 1,450 tons in 2020. Well-known ice-cream brands Milka and Oreo will refresh you this summer, and it is important to know that all surpluses of ice cream from the production process will be recycled and turned into the renewable energy source.

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# EVALUATE, ANTICIPATE AND ACT!

**These are three major principles of Portugal's Air Strategy, one of many adopted by the government of this country to mitigate climate change consequences and safeguard the environment. We talked to the Ambassador of Portugal to Serbia about renewable energy sources, energy efficiency, and Portugal's green inventions that can be applied in our country**

Portugal has taken the six-month presidency of the EU Council in January, in the middle of the coronavirus pandemic. It didn't interfere with their resolution to be an example of protecting the environment and offer a crucial contribution to the European leadership in combating climate change. The pandemic effects served only as an additional incentive on their path. The Ambassador of Portugal to Serbia, Maria Virgínia Mendes da Silva Pina says that our future resilience depends on how successful we recover from this crisis. It is time for Europe's green and digital recovery. Portugal's experience will be precious, as they expect a significant rise in temperature by the end of the 21 century. So, they will be closing all coal-fired power plants by the end of this year and reducing greenhouse gas emissions by 55 per cent by 2030.

**EP** *According to the last year (2020) EPI ranking, Portugal has been at 27<sup>th</sup> place. So what are the major environmental challenges Portugal faces today?*

**Maria Virgínia Mendes da Silva Pina** Right now, I would say that facing the pandemic impact is our main challenge. But



it will not get in the way of improving the response to the challenges in the environment, as the two are intertwined. In fact, our future resilience will depend on achieving a successful and sustainable recovery. This objective reflects one of the priorities of the Portuguese Presidency of the Council of the European Union, the promotion of Europe's recovery, leveraged by the climate and digital transitions, that will be developed along the Green Europe action line, in which Portugal wants to act as an example contributing to Europe's leadership in climate action, having, as an essential main goal, the approval of the First European Climate Law.

Portugal will focus on implementing both an efficient circular economy and well-designed public policies for assuring energy transition to undercut the dependence on fossil fuels and continue the efforts to reduce CO<sub>2</sub> emissions. This also means adopting strategies of mitigation and adaptation to climate change and addressing the loss of biodiversity, as it is also a challenge that worries us. Last but not least, let me stress a most important topic for Portugal: the preservation and sustainable use of the resources of oceans and seas and the development of the blue economy.



Maria Virgínia Mendes da Silva Pina, the Ambassador of Portugal to Serbia





VIRTUTIBVS  
MAIORVM

VT SIT OMNIBVS DOCUMENTO. P. P. D.



**EP** *In accordance with the World Health Organization's guidelines, the air quality in Portugal is considered safe. But available data indicates that Estarreja, Almada, Faro, and Lisbon can experience high levels of air pollution. What are Portugal's primary air pollution sources, and how do you cope with them?*

**Maria Virgínia Mendes da Silva Pina** According to the State of the Environment Report, transport, industrial, and energy production are Portugal's most extensive air pollutants. These sectors release some of the most seriously harmful compounds to human health, ecosystems, and materials into the atmosphere. The geographical areas

mentioned in the question are extremely urban or industrial, which means their air quality is more influenced by the above pollution problems.

environmental policies that contribute to the fulfillment of national and international objectives and commitments, namely those related to climate change, water resources, waste and the conservation of nature and biodiversity.

The first program is PART (Public Transport Tariff Reduction Support Program), a financial support program designed to fight negative externalities associated with mobility, namely congestion, greenhouse gas emissions, air pollution, noise, energy consumption, and social exclusion, and to reduce public transport costs by attracting passengers. The PART supports the Transport Authorities



mentioned in the question are extremely urban or industrial, which means their air quality is more influenced by the above pollution problems.

Nevertheless, things are changing. For example, the most pollutant compounds in the Portuguese atmosphere have decreased approximately 38 percent since 1990. And Portugal's National Air Strategy (ENAR2020) aims to improve air quality, protect human health, the quality of life of citizens, and the preservation of ecosystems, based on three axes: "Evaluate," "Anticipate" and "Act." The measures that are recommended within the ENAR 2020 framework are, therefore, thought out to achieve the air quality objectives proposed in the Clean Air Program for Europe and contribute to the Green Growth Commitment, in line with the national instruments of climate policy so that we can expect further improvement in that chapter.

**EP** *What are the original Portugal green inventions you are proud of in the last few years?*

**Maria Virgínia Mendes da Silva Pina** I would stress two programs, supported by our Ministry of Environment and Climatic Action (MAAC), that we can classify as "green examples" and that can be pursued in other countries, launched within the scope of our Environmental Fund, a financial tool created in 2016, an essential instrument for

**We were one of the first countries to rely alone on renewable energies in the past years, and our latest record was 111 hours between December 24<sup>th</sup> and 28<sup>th</sup>, 2020.**

with an annual budget, which allows them to operate better tariffs while adjusting its offer. PART also intends to be a tool for territorial cohesion by creating a financing model that guarantees equity between the Metropolitan Areas of Lisbon and Porto and the rest of the territory.

The second one, the Support Program to more Sustainable Buildings, implemented in 2020, aims to ensure interventions in buildings aiming at their sustainability and energy rehabilitation and can be considered a measure that has a potential multiplier effect on the economy, generating employment and wealth at the local and national level. This Program finances, throughout Portugal, all the interventions in buildings built up to 2006 that promote rehabilitation, de-carbonization, energy efficiency, water efficiency, and circular economy, contributing to the improvement of the energy and their environmental performance.



**EP** *How is climate change affecting the life of Portuguese people and the whole Portugal environment?*

**Maria Virgínia Mendes da Silva Pina** All scenarios predict a significant increase in average temperature in Portugal until the end of the 21st century, together with an increase in the frequency and intensity of heatwaves, that can generate droughts, increased risk of forest fires, with the alteration of land use and occupation capacities.

Considering this scenario, Portugal adopted two national strategies. First, the National Adaptation to Climate Change Strategy (ENAAC2020) envisions a country adapted to the effects of climate change by implementing a solution based on technical-scientific knowledge and good practices. Second, ENAAC 2020 defines an organizational model where coordination between the various sectors and stakeholders is promoted, pursuing priorities in thematic areas and considering the three objectives of the strategy: improvement of the level of knowledge about climate change; implementation of adaptation measures, and promotion of integration of adaptation in sectoral policies.

Second, the National Program for Adaptation to Climate Change (P-3AC) that complements and systematizes the work carried out in the context of the ENAAC 2020 and develops its second objective, the implementation adap-

tation measures, and that is thought out to cover several steps such as prevention of rural fires; conservation and improvement of soil fertility; efficient use of water; resilience of ecosystems; prevention of heat waves; diseases, pests, and invasive species; flood protection; coastal protection, without forgetting training, awareness, and tools for adaptation.

**EP** *How far have you gone with the implementation of the green infrastructure in different cities?*

**Maria Virgínia Mendes da Silva Pina** This is an ongoing process that is being implemented at different levels. Obviously, the urban projects have special importance, such as the extension of the Lisbon subway or the enhancement of interoperability structures. This means that we are doing a comprehensive assessment that can also take stock of implementing the abovementioned strategies and plans, which need consolidation time. Nevertheless, monitoring all of these realities are being carried out within the aegis of our Ministry of Environment and Climatic Action.

**EP** *Waste can be found at the Portuguese coastline. What are the major efforts the Portugal government has made so far in dealing with this problem?*

**Maria Virgínia Mendes da Silva Pina** The Portuguese Environment Agency, through the Administrations of the Hydrographic Region and in collaboration with some municipalities, the Navy and the Blue Flag Association for Europe (ABAE), established as of January 2013 a Marine



Garbage Monitoring Program on the Portuguese beaches, taking a set of 15 beaches from all over the coastline. The reports since 2013 can be found online, in which you can find the annual analyses of the quality and quantity of the garbage that is found to establish patterns that can help with its reduction and suppression, which can help, for example in the implementation of the 2019 Directive on the reduction of the impact of certain plastic products in the environment.

**EP** *Portugal has suspended garbage imports until the end of 2020 to protect domestic landfills' capacities. Previously, due to the low cost of waste management, a large amount of garbage from European countries had been flowing into the country. In addition, the coronavirus epidemic has resulted in an increase in the amount of plastic waste in many countries. What are the results of this suspension and plans for the future?*

**María Virginia Mendes da Silva Pina** That's correct. The suspension of waste import authorizations, destined for



disposal in landfills, was in effect until December 31, 2020, and aimed to safeguard national sufficiency in terms of waste disposal facilities. As with every other decision in the environmental field, the application of this decision depends on monitoring its application and obtaining data that can adapt the answers in place to the needs/problems detected. This is why, to apply the decision, the National Waste Authority will proceed to the elaboration of a report with the data regarding the volumes of waste deposited, the capacity of the facilities, as well as the needs assessment, with a view to determination of national self-sufficiency in this matter.

Naturally, the waste that was and is being created in the context of the pandemic will be, of course, analyzed in that report and determine answers in terms of its treatment and the capacities that we have to deal with them. It is important not to forget that the pandemic still lasts, and some of its implications cannot still be fully assessed, so I would say that the report must be the stepping stone for further steps and actions.

**EP** *The Sines coal-fired power plant in Portugal has stopped working. The last thermal power plant named Pego will be closed in November, as planned. What are the next steps in the energy transition process for Portugal?*



**Maria Virgínia Mendes da Silva Pina** In 2016, the European Commission presented the Legislative Package “Clean Energy for All Europeans” to promote the energy transition in the 2021-2030 decade, simultaneously complying with the Paris Agreement, ensuring economic growth and job creation. This package foresees that all Member States develop and submit to the European Commission an Integrated National Energy and Climate Plan (PNEC) for the 2030 horizon that addresses Greenhouse gases, renewable energies, energy efficiency, energy security, internal market and research, innovation, and competitiveness, as well as a clear approach to achieving them, making the PNEC the main instrument of energy and climate policy for the decade 2021-2030.

In this regard, Portugal has strong arguments for continuing its strategy towards carbon neutrality and a carbon-neutral economy based on renewable energy sources, focusing on energy efficiency and energy consumers. Therefore, the PNEC has been adjusted with the defined goals to achieve carbon neutrality in 2050 and with the 2030 National Investment as a decisive instrument for determining strategic investments for the next decade in the energy area. Our goals for 2030 imply achieving a reduction up to 55 percent in GHG, an increase of energetic efficiency in 35 percent, reaching 47 percent use of renewable energy, setting the renewables contribution in the

**OUR GOALS FOR 2030 ARE:**

- greenhouse gas emissions reduction by 55 percent by 2030
- increase of energetic efficiency in 35 percent
- 47 percent use of renewable energy
- renewables contribution in the transport sector by 20 percent
- electrifying interconnection between Portugal and Spain by 15 percent

transport sector at 20 percent, and ensuring that the electrical interconnection between Portugal and Spain reaches 15 percent.

**EP** *Serbian Deputy Prime Minister and Minister of Mining and Energy Zorana Mihajlovic and Your Excellence have discussed in January the possibilities for cooperation between the two countries in energy, with particular emphasis on green energy and energy efficiency and renewable energy sources. What will that cooperation include and bring to both countries?*

**Maria Virgínia Mendes da Silva Pina** Portugal has longstanding experience in renewable energies and energy efficiency. We were one of the first countries to rely alone on renewable energies in the past years, and our latest record

was 111 hours between December 24<sup>th</sup> and 28<sup>th</sup>, 2020. Our expertise and knowledge developed, especially in solar and wind power, can be used in Serbia, and some Portuguese companies are already acting in this market. Nevertheless, it is essential to create the conditions to attract more investment and open up the market, respecting competition law and ensuring that the proper legal and regulatory framework is implemented. In that regard, the meeting with Deputy Prime Minister Mihajlovic was quite important, as I was informed of the steps the Ministry is taking, considering, for example, the alignment of Serbia's framework to the European Directives in renewables. The exchange of good practices and experiences considering the frameworks and standards needed for a successful UE integration is also some of the results that can be obtained with increased cooperation between our two countries.

The rest depends more on improving investment, trade, and economic relations between Portugal and Serbia countries. In that area, I am sure that there is interest in finding investment opportunities, not only from the public sector but also from the private sector. In addition, of course, there are some geographical similarities, considering dimensions, population size, and distribution between Portugal and Serbia, that can help develop solutions or approaches that can be adapted to the country in question. But for now, we are focused on approaching both countries and mak-



Photographs: (top left) Unsplash/Louis Droegge; (top right) Unsplash/Yana Marudova; (bottom) Unsplash/Joao Reguengos

ing them aware of each other in economics and know-how terms. This is why we cooperate in organizing a business mission to Serbia with PKS and AICEP, the Portuguese international trade agency.

**EP** *What was your first impression when you came to Belgrade? Is Belgrade an environmentally challenging place to live?*

**Maria Virgínia Mendes da Silva Pina** Belgrade is a lovely city, and it has, like we like to say in Portuguese, “soul.” I was lucky to arrive before the pandemic, so I was able to connect with the city, getting to know not only the highlights but places that make this city unique and special and where, as I often say, I feel at home. Nevertheless, there are some things that I think could improve the quality of life in Belgrade, especially more recycling, that needs to be widespread to instill more environmentally friendly behaviors and less litter, a real breakthrough in water resources treatment and waste management, which can allow the full exploration of the Danube and Sava potential, and less fossil fuel utilization for the heating system, to have less air pollution. Of course, I am aware Serbia knows these shortcomings and has already implemented some projects to tackle them. Still, I cannot stress enough that the EU, with all its financial instruments and its Green Agenda for the Balkans, provides opportunities that should be taken.

Interviewed by: Jovana Canić

**T**he development of rail transport, purchase of electric buses and trams, construction of water waste treatment facility, thermal rehabilitation of buildings, introduction of public bicycle system, bicycle trails expansion, building 10,000 m<sup>2</sup> of green walls and a 10 percent increase of wood areas, those are some of the essential plans which need an investment of 5,2 billion euros so that Belgrade could reach European standards of the Green City in 10 years. We asked the Mayor of Belgrade, Prof. Zoran Radojičić, Ph.D., about this and other plans and activities of Belgrade, which will bring the Serbian capital in line with the goals of the Western Balkans Green Agenda.

**EP** *The countries in the region, Serbia included, have signed the Western Balkans Green Agenda, therefore took an obligation to introduce measures to prevent climate change and pollution, clean energy development, and circular economy. Has Belgrade made the strategy for Green City development, and what are its priorities?*

**Zoran Radojičić** The Belgrade City Assembly has adopted, in the last session, a few critical strategic documents and action plans which deal with the very same questions. First, I would mention The Action Plan for Green City, which we have prepared with the support of The European Bank for Reconstruction and Development and the Government of Japan. The main goal of

IN FOCUS

# GREEN CAPITAL IN 10 YEARS



Prof. Zoran Radojičić, Ph.D.,  
The Mayor of Belgrade



this plan is air quality enhancement. To achieve that, we have set four priority sectors that contribute to air quality enhancement. Those are introducing renewable energy sources and energy efficiency, wastewater and waste treatment, urban planning, mobility, greening, and climate change. In addition, this plan has laid down the projects for the development of rail transport, purchase of electric buses and trams, construction of water waste treatment facility, thermal rehabilitation of the buildings, the introduction of public bicycle system, expansion of cycle lanes network, construction of 10,000 m<sup>2</sup> green walls and enlargement of areas covered by woods by 10 percent in Belgrade. According to the estimation, we need an investment of

5,2 billion EUR over ten years so that Belgrade could reach European standards for Green City.

**EP** *In proportion to some researches, more than half of Belgradians think the biggest problem of their capital is air pollution. Have you established what mostly pollutes the air in Belgrade and how to resolve this problem long-term? Have we set a goal, for example, for how much we should reduce greenhouse gas emissions by 2030?*

**Zoran Radojičić** We have also adopted The 2030 Air Quality Plan, with Short-term and Long-term Action Plans. According to the experts' analysis, the traffic throughout the year is the constant source of pollution. During the winter,





the biggest polluters are individual furnaces, which amount to around 200,000 pcs. The Short-term Action Plan implies the response to increased air pollution. That means we will intensify public transport in the city to prompt citizens not to use their cars and we will regulate traffic thoroughly to prevent bottlenecks and traffic jams. The Long-term measures refer mainly to completing the Belgrade ring road that will enable us to eliminate the transit transport from the heart of the capital. Next, there is the construction of the subway system, development of rail transport, transition to electric and gas buses, and expansion of cycle lanes. Furthermore, we take seriously investments in energy efficiency in buildings, privately or publicly owned, as much as the completion of the program for the shutting down of incinerators and connection to the district heating system and gas line, and the additional greening of the city.

The question of greenhouse gas emission reduction is of high importance, particularly in combating climate change. Upon signing the Global Covenant of Mayors for Climate and Energy in 2018, we have committed to reducing greenhouse gas emissions by 40 percent and making an action plan for sustainable climate and energy. This plan is rather ambitious but can turn our vision of Belgrade as a green and sustainable city into reality by making a joint effort to implement this plan.

**EP** *Belgrade is the only European capital that releases wastewater into the Danube. In contrast, the third of the capital's population isn't connected to the sewage system. Instead, it is bound to use septic tanks whose contents are discharged directly into the rivers. What project under The Green Agenda framework could help remediate the dire state of rivers, and what has The City of Belgrade done concerning this matter so far?*



**Zoran Radojičić** The City of Belgrade, unfortunately, hasn't come to the ultimate solution for the sewage and wastewater treatment system. Still, the great news is that we work continuously on solving this decades-old problem. The project preparation is underway, and the construction of the Veliko selo wastewater facility is expected to start in the fall. This facility will collect wastewater from the old Belgrade's central part, southern (Sremčica, Železnik, Banovo brdo), and western part (Novi Beograd, Zemun). The project will be implemented in two stages, and the facility will be stretched across around 97 ha. The first stage includes the construction of the missing infrastructure, the new sewage pumping station Ušće-Nova, and the reconstruction of the Mostar pumping station. In the second stage, the wastewater treatment is based on a primary and secondary treatment to separate sludge in primary tanks. In contrast, nitrogen and phosphorus will be eliminated in advanced procedures based on activated charcoal. The investment value for the Veliko selo wastewater treatment facility is 271 million EUR. This project is implemented in cooperation with the Ministry of construction, transport and infrastructure, and the



China Machinery Engineering Corporation. Upon the facility construction, almost 80 percent of communal wastewater will be treated before discharge into rivers. The remaining 20 percent of wastewater will be treated in the wastewater facilities in Ostružnica, Batajnica, and Grocka, whose construction has been funded by the City of Belgrade. As for the building of the missing sewage infrastructure, which the



EIB credit line has financed, the project implementation is underway for the sewage construction on the Danube left bank, in the settlements of Borča, Ovča, Kotež, and Krnjača.

**EP** *Circular economy is one of the European Green Deal goals. The most crucial instrument of the circular economy is recycling. Belgrade doesn't have enough recycling garbage cans to start with, so our citizens could fully adopt this behavior model, let alone a sufficient number of cans to completely use this type of waste as a resource. What are the fundamental bases for the development of a circular economy in our capital?*

**Zoran Radojčić** For a circular economy to be adopted, it is necessary to establish an efficient system of primary waste separation, which is determined as a priority goal by the new Local waste management plan 2021-2030 envisaged. The new plan entails placing green islands and underground garbage cans to collect recyclable waste in the city center. The containers for collecting separated waste will be positioned in other parts of the city. At the moment, there are around 730 underground garbage bins for recyclables separation, and it is planned to get additional 300 bins by the end of the year. Across the city parts with individual housing, there are garbage cans for primary waste separation used by around 27,000 households, and this year we will give away additional 25,000 garbage cans. There is a plan to build another seven recycling centers and four transfer stations where the waste will be delivered before being sent to further treatment. The goal is to take only recyclable waste to the Vinča landfill. Also, we want to increase the household recycling rate to 25 percent by the end of 2025 and 35 percent by 2030. One of the goals until 2028 is to reduce the quantity of biodegradable waste disposed to 75 percent compared to the amount from 2008. Also, we want to completely harmonize goals for

collecting and recycling packaging waste by 2028 following the EU Packaging and Packaging Waste Directive.

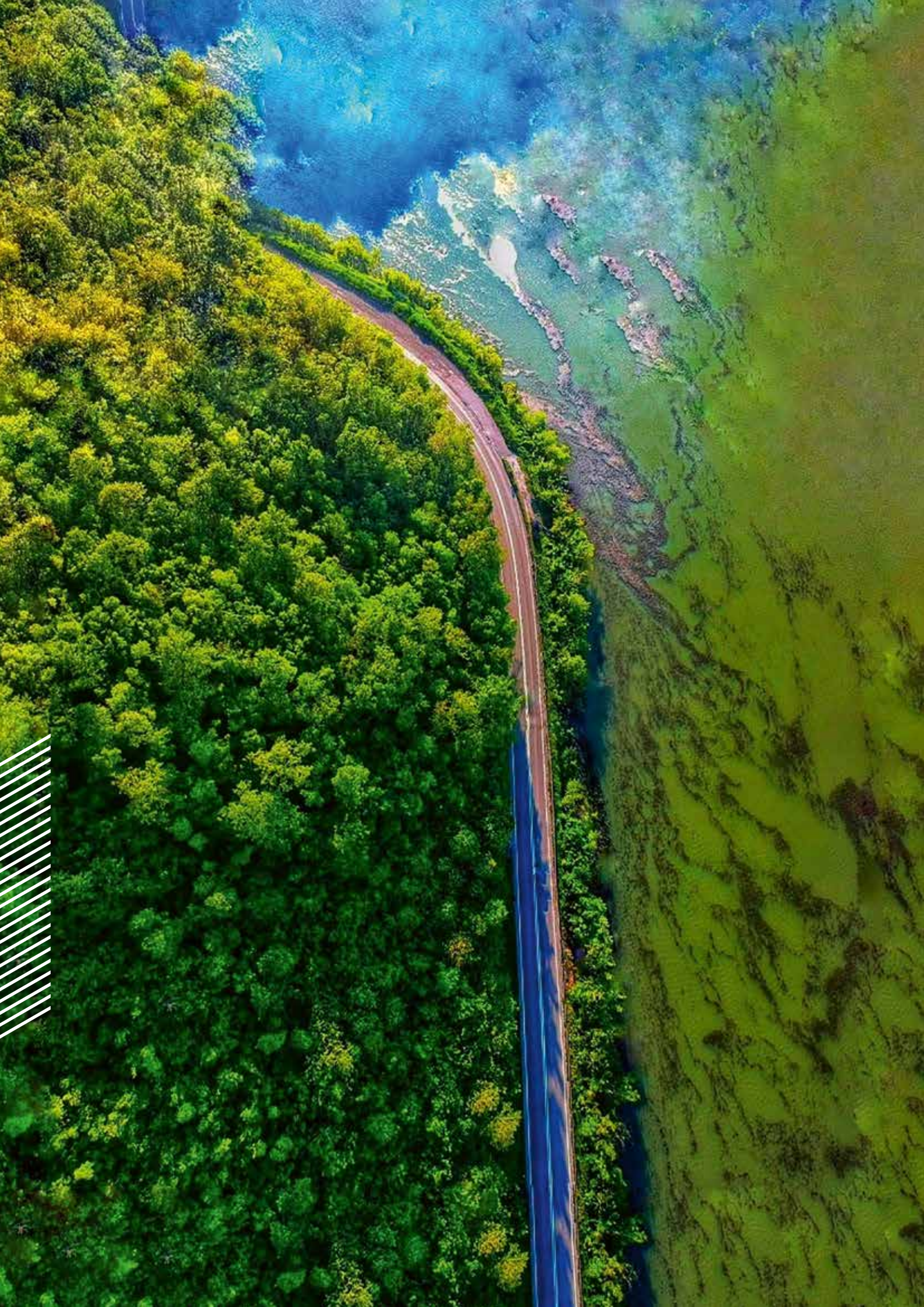
**EP** *If you ask citizens of Belgrade what else disturbs them, aside from air quality, they will surely complain about traffic jams and the small number of parks and green areas in the city center. However, is a metro just the ticket for our first problem, and how realistic is to become a greener city?*

**Zoran Radojčić** Subway system is what citizens of Belgrade dream of, and soon it will become true. The construction of the first metro line will start by the end of this year. According to estimation, the metro will reduce traffic jams by 30 percent, positively affecting air quality. I admit that there is a disproportion of green areas between the city center and other city parts, but we are working on changing that. Around 300 trees have been planted just at the Sava square, and the Sava promenade has been completely arranged and greened. It will follow the Line park project at the Lower Dorćol, which stretches out from Beton Hall to the Pančevvo bridge. In addition, there will be walking trails and cycle lanes, areas designed for cultural and sports events, and, naturally, a lot of greenery. Finally, I want to mention the Tree for Belgrade campaign, which I started with German Development Agency GIZ in 2019. Our idea to include the whole community, companies, donors, and friends of Belgrade in the "greening" of the city, has resulted in the plantation of more than 2,000 trees for two seasons of this campaign. The trees have been planted on the left and right sides of the Sava river, and this fall, we will continue with it. On this occasion, I am inviting all the companies, institutions, and individuals to participate in this Tree for Belgrade campaign.

**EP** *Is there a way for the City of Belgrade to help the citizens think, act and live in a greener way in their apartments, buildings, and everyday life?*

**Zoran Radojčić** Let me point out the long-term campaign called Eko-bag for cleaner Belgrade run by Public Utility Company Gradska čistoća. Citizens of Novi Beograd, Zemun, Čukarica, Savski Venac, Rakovica, Vračar, Zvezdara, Stari grad, Voždovac, and Palilula can apply for eco-bags and get 20 percent discount on garbage expenses invoiced by Insfostan. Eco-bags hold PET, paper, and aluminum packages. There are currently 5,500 users of this service, but more citizens will get involved in this campaign. Recently, the Secretariat for environmental protection has announced the public call for citizens to submit their suggestions and ideas about ecological projects in Belgrade. Citizens can apply until September. The City will support the best proposals, and we will calculate the necessary funds for implementation into next year's budget. This is only one of the examples of excellent communication and cooperation between the City administration and citizens, and I believe this is the right way to build a healthy and green city.

Prepared by: Nevena Đukić



**BEACON** THE RAŽANJ MUNICIPALITY

# OASIS OF ECOLOGY

**C**lean streets and well-arranged public spaces, empty garbage cans, recycling dumpster set up, special containers for medical waste ... Benches at parks invite visitors to have a break and enjoy in carefully designed greenery—the same story in the surrounding villages: neat and beautiful environment. There is no sign of unsanitary landfills that pop up throughout Serbia overnight, quicker than any other *culture*, whatever way you happen to sow it. Instead, everything reminds of some charming borough in Europe, far away from Serbia.

However, this lovely place is situated in the region of Niš. We talk about the municipality of Ražanj whose residents work every day on this crucial task. They are determined to make their borough better so that it becomes a green, ecological municipality. They take care of all green spaces in an efficient way, particularly parks and neighboring woods. We talked with Dobrica Stojković, the President of this municipality, about ideas and plans on turning their municipality into the cleanest community and the most recognizable precisely for it.

**EP** *How do you plan to become the first ecological municipality in Serbia?*



**DOBRICA STOJKOVIĆ** was born in 1961. He went to Primary School in Ražanj, completed High School in Aleksinac, and graduated from the Faculty of Law. He has two children and lives in a village Varoš, near Ražanj, where he was

born. He has held the post of the President of the Municipality since 2006.

**Dobrica Stojković** For a start, we spontaneously organized activities to get Ražanj and all villages neat and tidy. Initially, we defined the methodology for landscaping of public areas by placing the required number of dumpsters, selecting environmental attendants, and organizing the work of communal police in two shifts.

We haven't awarded the determination of ecological municipality to ourselves. It is the way others see us when they come for a visit, probably having compared the situation in our community with the circumstances in other municipalities. We have done everything we possibly could with our staff and available resources. We have developed the Strategy for waste management. There, we specified the exact level of development and set the goals for the future. Unfortunately, we lack funds for equipping the Recycling center, waste collection vehicles sufficient for the whole municipality area and the landfill organization. Our target is to dispose only of 15 percent of solid waste





to the landfill by intensive recycling and recycles production.

When it comes to wastewater treatment, the project has been developed, and we expect it to be implemented this year. The funds are provided through the project financed by The Ministry for environmental protection.

**EP** *How did you solve the problem of illegal waste dumps?*

**Dobrica Stojković** We are genuinely trying to prevent illegal waste disposal. Still, if dumps as such emerge, we remove them as soon as possible. The communal police are in charge of monitoring on the spot. We frequently get support from ecological patrols organized by the Green oasis association. Also, all settlements have an outlined area for temporary garbage disposal. This way, waste is collected at one place, and it doesn't get dissipated around the environment. Along the regional and main municipal roads, we have put trash cans emptied on fixed intervals. Thanks to this system, you will have a hard time finding any garbage along our streets.

**EP** *Due to the coronavirus epidemic, the whole world has faced using masks and gloves disposal. You have solved that issue relatively efficiently.*

**Dobrica Stojković** We have dealt with used masks and gloves as dangerous waste, and we provided special containers for their disposal. We empty the containers in cooperation with the local medical center, which is obligated to handle hazardous medical waste. After placing the containers, it



was apparent that precisely there ended up the majority of used masks and gloves.

**EP** *What would you single out as the vital activity in arranging and cleaning streets, parks, and other public areas?*

**Dobrica Stojković** To provide immaculately clean public spaces, you need to hold all available offices at the municipality responsible, as well as to come to a particular agreement with the public utility company. Therefore, during a meeting with the communal police, the public utility company management, and the Center for Social work heads, we outlined each entity's precise obligations. As a result, we organized the work of the communal police in two shifts, the intervals for public space cleaning and container emptying were determined. It was agreed that the social assistance beneficiaries would be engaged in cleaning all

## RECYCLING

The municipality of Ražanj is located relatively far from the Regional landfill in Doljevac, so recycling is essential for solid waste remediation. According to the President of the municipality, housewives in Ražanj separate organic waste in their kitchens, placing it into separate bags of specific color and then into smaller 20 l bins. The waste then goes from the kitchen into special containers for organic waste. Finally, it is taken to the temporary Recycling Center for composting.

“There are containers at the recycling yards for different types of waste such as municipal solid waste, PET packaging, cardboard and paper, glass and organic waste. Our public utility is making an effort to empty garbage cans promptly since the picture of overfull cans makes a wrong impression about the cleanliness of the community.”

The waste is subject to further treatment at the Recycling Center, and it is turned into recyclates. PET packaging is collected from the whole municipality territory, and it is sorted according to color. At the same time, bottle caps are removed, and after that, the waste is taken to the compression unit. The bales are offered as products of the Recycling Center. The same treatment is applied to cardboard and paper. In contrast, the other plastic is sorted into special containers and sent to buyers. Glass is emplaced into specially designated containers and taken for further processing.

“It is very important that we sort plastic packaging from pesticides as this way we prevent that this toxic waste ends up in fields,” points out Dobrica Stojković.

The Ražanj municipality is well-known for organic waste remediation through the aerobic digestion process. However, for optimal work of microorganisms, specific requirements have to be met to proceed in the desired way. The hot composting method enables composting of organic waste in the shortest time.



We decided to cover benches at the parks in case of precipitation. Therefore the benches are completely well-kept.

### **EP** *How many communal attendants and inspectors are there?*

**Dobrica Stojković** Besides three communal police officers and one communal inspector, there is a large number of communal attendants, of which some are full-time personnel of the public utility company. In contrast, others are temporarily engaged as beneficiaries of the Center for Social Work.

I want to note the role of the communal attendants coming from among beneficiaries of the Center for Social Work. They have enabled us to continually keep clean all public spaces in the territory of our municipality, including regional and municipal roads.

### **EP** *How much attention do you pay to the development of agriculture and farm households?*

**Dobrica Stojković** The municipality of Ražanj is with dominant agricultural activity. Its citizens make the most considerable portion of their profits by land farming. Previously, the development of fruit growing was among our strategic goals. As a result, the fruit plants' allocations enabled fruit production (blackberries, quinces, plums, and sour cherries). Still, we didn't accomplish everything we planned since we hadn't been able to find an investor for fruit processing. However, we had developed the entire technological project for processing blackberries. In addition, there is currently a solid quince production, so this fruit is dominant both in growing and processing.

We try to give our farmers all information about public calls for production funding announced by either Ministries or the European Union. Our Agriculture Development Fund has been active for several years now, which enabled us to subsidize the purchase of small-scale agricultural mechanization and crop insurance.

In cooperation with the Divac Foundation and Regional Development Agency South, the Revolving Fund for non-interest, long-term financing of small farmer households this year will be established this year.

Interviewed by: Milica Radičević

public spaces in the whole municipality, with appropriate compensation allowed.

We have intensified the communal police controls at the whole municipality territory. We have authorized the communal police to penalize offenders who haven't taken appropriate measures after the warning. On account of the engagement of all staff, there has been a change in the way the municipality looks in a short time. We have given special attention to the public spaces at the heart of the municipality. The streets and parks have been landscaped.



# RES FOR OUR HEALTH AND SURVIVAL

**T**he Association Renewable Energy Sources of Serbia (RES Serbia) has taken only three months to become a significant factor in Serbia's green market and be acknowledged as a regional player. It is a business association formed to connect economic entities interested in improving the business environment, legal regulations, and private-public dialogue in the renewable energy resources (RES) sector. In addition, particular attention will be given to educate and inform citizens, namely to bring awareness on the relevance of green energy for people's health, environment, energy sector, and economy.

We talked with Danijela Isailović, the manager of RES Serbia, about the Association founded with the support of the European Bank for reconstruction and development (EBRD) and about the investment environment in Serbia.

**EP** *In three months, you have managed to draw the attention of the public and experts?*

**Danijela Isailović** We caught the attention because Serbia needed this kind of Association in Serbia for a long time. The timing was good as we were established at the same time when the Law on renewable energy sources was adopted. The founders are licensed producers of electric power, and the support of The European Bank for reconstruction and development has been of great importance. These are all our references. Still, the sound energy that we contribute to renewable energy is something that helps us stand out. We are open to everyone. We try to reply to all requests and to be available to all media requests too. We pay complete respect to local communities and media. Although this is a business association, renewable energy sources are mainly a concern of ordinary people whose health and survival are reasons for stopping climate change.

**EP** *Who are the members, besides the biggest wind parks, who are the Association founders?*

**Danijela Isailović** Serbia's biggest solar energy producers, such as the MT-KOMEX and Solaris Energy companies, lawyers, consultants, construction and installation companies, have joined in. Soon, at our regular session of the Management Board, we will accept few more members.

**EP** *You have signed the cooperation agreement with the Ministry of mining and energy. What is the content of the contract, and has the implementation already begun? Were there positive reactions to the Association establishment also from other state authorities?*

**Danijela Isailović** RES Serbia and the Ministry of mining and energy share the same values and goals - we want more clean, green energy. Accordingly, we can take steps together to create regulations, organize workshops, conferences, and promote the idea of green Serbia. The agreement implementation has already begun. We have become members of Workgroup for subsidiary laws. I believe that epidemic measures will allow a big RES conference to be held in September. Upon establishing the Association, the most significant public companies for us, such as Elektroprivreda Srbije EPS and Elektromreža Srbije EMS, have positively responded. With both, we have agreed on cooperation.

The Provincial Government of Vojvodina institutions that issued permits for all wind parks built so far have expressed positive views towards the Association, just like other state authorities. We have sent a letter to the Chamber of Commerce of Serbia. We said our wish to improve cooperation and achieve our interests through the



**DANIJELA ISAILOVIĆ** is a graduated politologist for journalism and communicology. She worked as a journalist in the mass-circulation newspapers reporting on highly topical political and security issues for ten years. Then, for two

years, she worked for the Ministry of Justice of the Republic of Serbia as a consultant on the significant international projects organized by OSCE and the European Council. Since 2013, she has gotten into renewable energy sources. She actively participated in developing the wind parks Kovačica, Malibunar, and Alibunar and the wind power plant Plandište 1, whose construction is expected to set about. She is a member of the Renewable energy sources group at the Chamber of Commerce of Serbia and an associate member of the Serbian Energy Law Association. Her passion for journalism is still nurtured by occasional articles (and increasingly more texts about the environment) published in the weekly magazine Nedeljnik.



Chamber. Our members have been very active so far in the Chamber of Commerce of Serbia, and they have been giving legitimacy and green recognition to the Association of Energy at the Chamber. Having founded RES Serbia, the

members who pay a relatively high membership fee at the Chamber of Commerce haven't refused their right or obligation at the Chamber. With this new option, they want to contribute to the RES industry in Serbia.



**EP** *The new Law on renewable energy sources has been adopted. But will it result in an investment boom?*

**Danijela Isailović** The Law is a clear message that Serbia decided to take a green path. After the Law, the following steps are decrees, the introduction of auction model and commercial agreement on electric energy purchase. Then we will see who are big investors, what projects are good, who can buy wind turbines, solar panels, and who has the means and skills to get financed by a bank. No state is a wishing well that provides everything to everyone. The rule of Law and bankable regulations are things that the state should provide. Investors have to take certain risks if they want and have projects.

**EP** *Do you find realistic the announcement that by 2040 we will use 40 percent of green energy in consumption?*

**Danijela Isailović** It's not unrealistic. We have the potential for that, and there are projects too. Naturally, when it comes to percentage, it is interesting to know how the achievement of the goals is measured. In that context, I am more interested in 2030, as we still don't have the targets set for this decade. By the Renewable Energy Directive RED II, the European Union that had made an obligation of 32 percent for their state members till 2030 has made a recast aiming to increase the percentage.

Energy Community Council will set targets in September, based on that decision, for its members, also Serbia.

**EP** *The issue of thermal power plants' future and their closing has recently caused a stir. What is your opinion about it?*

**Danijela Isailović** This issue shouldn't become political and should be addressed systematically and in the long run. Of course, the reduction of fossil fuel usage is something we advocate. However, it can't happen overnight. For example, some blocks at the thermal power plants have to be closed since they are decades old and their lifespan is imminent. As for coal supplies, our reserves are sufficient to cover the needs until the end of this century, but we should think about generations to come yet.

The public shouldn't be polarized. We all know that generations of families from Lazarevac, Obrenovac, and Kostolac make a living from coal. No one is going to take that away from them overnight. However, we shouldn't raise the future generations with the idea that the job at open-cut mining or TENT is waiting for them, but with an explanation about other career options. The state should decide on the need to build new thermal power plants. Indeed, it is advisable to consult the experts, and recently Professor Nikola Rajaković has offered his opinion on this. Apparently, he explained how energy from coal is more expensive





than the one coming from the sun and why RES is crucial.

We don't have anything to add to that. Still, we are here to help EPS. They have been doing great things in terms of green energy, and that needs to be acknowledged and supported. EPS starts with the construction of wind power plant Kostolac. Regional electric power industries (Bosnia and Hercegovina, Montenegro) have already built their wind parks. EPS has obtained all documentation for solar power plant Petka (9.95 MW), and it reconstructed its small hydropower plants. It now starts to build new hydropower plants. Finally, thanks to big hydropower plants, EPS is the biggest producer of green energy. The biggest buyer, too. In addition, EPS is the significant seller of green kilowatts that IKEA, ProCredit bank, and other big companies buy.

**EP** *What are the RES Serbia plans for the future?*

**Danijela Isailović** We intend to continue our cooperation with the EBRD. Also, we will soon admit new members. Furthermore, we will also go through becoming a member and cooperating with diverse regional and global organizations. We want to position ourselves as a single voice. We want to be also the point of contact for investors who are planning to commit their capital to green energy in Serbia. We are making plans to publish a guide for RES

investors so that everyone willing to invest here can be familiarized with procedures and challenging the legislation.

**EP** *There are many authorities and workgroups in RES Serbia, with the Green network of women being the most interesting.*

**Danijela Isailović** We have established four workgroups so far: Legal team, Engineer forum, RES young leaders, and Green network of women.

The Green network of women brings together all women who work in the member companies. It doesn't matter if it is a manager or secretary. What matters is that she shares RES values. The issue of gender equality is significant, and our goal is to include as many women as we can in this sector. For example, while I was working on developing wind park projects Alibunar and Malibunar, we used to give presentations at the local schools. The girls would approach me, asking: "What should I study to work at the wind park as you do?" The green network of women will try to encourage the inclusion of women in the green energy sector. Green jobs are the future. So, we want to inform young girls that they are fully entitled to those job positions if they are appropriately educated, qualified and interested.

**ON THE OCCASION OF WORLD  
WATER DAY 2021**

# ARE WE READY FOR INCREASING FLOODS?

**Floods are a severe problem in Serbia.**

**We clearly remember the state of emergency was declared in 2014 in the whole territory of Serbia due to the floods. The total damage and loss were around 1.7 billion euro. Different resources were available and used for funding response measures in emergencies, namely for reconstruction and recovery. The big floods have affected us even after 2014, mainly in June. By the end of June 2020, the floods have resulted in the declaration of the emergency state in 20 municipalities and caused significant damage to agriculture.**







## Where does all this water come from?

Among other things, the apparent climate change brings about extreme weather conditions as a consequence. For example, heavy downpours of rain and other unusual, even drastic, weather conditions are becoming more frequent, leading to floods and affecting the quality of available water. Sti-



**AMBASADORI ODRŽIVOG RAZVOJA I ŽIVOTNE SREDINE**

**ENVIRONMENTAL AMBASSADORS FOR SUSTAINABLE DEVELOPMENT**

ll, they can also bring about reduced availability of water resources in some regions.

Keeping in mind that greenhouse gas emissions cause climate change, it is evident that by introducing measures for the reduction of climate change causes, the frequency of extreme weather conditions, floods included, can be lessened. However, due to climate change, it is expected that the frequency, namely the flood pattern, will change, and the floods will become more unpredictable and damageable.

## What is the risk factor?

The Sendai framework for disaster risk reduction is an international document adopted in March 2015 by member states of the United Nations at the World Conference about disaster risk reduction, held in Sendai, Japan. The UN General Assembly approved it in June 2015. In the tables, you will find the data that refers to the Sendai framework for natural disaster risk reduction for Serbia, focusing on floods.

Critical effects of climate resources	Climate factors and risks for water	
Health	Causes	Risks
Energy and infrastructure	Rising temperature	Reduced snow layer and amount of surface water coming from snow melting
Agriculture	Reduced precipitations and increased drought frequency	Reduced surface water and lack of water supplies
Ecosystems		Decline in agricultural production
	Increased intensity and frequency of extreme precipitations	Flood caused damage to infrastructure
<b>Water resources</b>		

	Number	Percentage concerning total consequences
The death toll due to flood	55	17
Directly or indirectly affected by floods	317.078	44
Destroyed and damaged houses by floods	59.709	60





## FLOODS AS NATURAL DISASTERS AND CONSEQUENCES IN SERBIA

	Death toll	Injured	Missing	Destroyed houses	Damaged houses	Indirectly affected	Directly affected	Relocated	Evacuated	Damages on crops in ha	Livestock loss
Flash floods	3	101		300	847	7.331	715	20	700	3.956	1.723
Floods	55	393	2	2.234	57.475	273.024	44.054	2.532	49.694	257.813	22.068

In Serbia, The National program for catastrophe risk management was published by the end of 2014. It focused primarily on floods, landslides, and fires, while the Action plan for its implementation (2016-2020) specifies the necessary activities. In addition, the World Bank published a document in 2017 called Comprehensive disaster risk management in Serbia, with a message that “after the disaster, the urgency for help and recovery efforts can lead to confusion and inefficiency, unless strategic laws and institutional capacities are functional.”

In other words, a strategic, legislative, and appropriate institutional framework should exist prior to floods occurrence.

## What can we do to reduce the risk?

In 2018, Serbia adopted the Law on disaster risk reduction and emergency situation management, which is in line with the disaster reduction risk framework adopted in Sendai. However, the question remaining open is whether all strategic and legal frameworks have been applied in 2021, that is to say, whether an efficient institutional framework exists? Also, it is crucial to provide flood risk maps.

On World Water Day, celebrated on the 22nd of May, the Ambassadors of sustainable development and environment organized a major event aiming to emphasize the importance of the lessons learned from the previous floods. Their campaign “Climate change results in frequent floods” occurs within selected Eco-schools to bring awareness

to prevent the mistakes that increase the disastrous consequences such as floods.

Flood risk awareness stands as one of the essential steps towards flood consequences prevention. The watchfulness activities focus on collecting and sharing helpful information to people affected by floods so that they can have access to safe water and sanitation, by which they increase their resilience to the torrent effect. Safe drinking water should be the main priority in case of flood and sewage system performance and waste management. Floods can also lead to an increased frequency of illnesses transmitted by water.

**The analysis was prepared by experts of the Ambassadors of sustainable development and environment, within the project “ENV.net introducing the question of the environment of the Western Balkans and Turkey into the political agenda of EU (Ref. no. 2017/394-372).” At the same time, the analysis specifies the Module B9 of the Curriculum about the development of the Plan for water and sanitation in rural areas - under the WatSanPlan project\***

\*Project: Water and Sanitation Safety Planning in the Balkan Region: Albania, North Macedonia, Romania and Serbia (WatSanPlan), FKZ 16EXI4004A, Förderprogramm „Exportinitiative grüner und nachhaltiger (Umwelt-) Infrastruktur“ BMU



This project is funded by the European Union and cannot be taken to reflect the views of the European Union.



# WATER MANAGEMENT ACCORDING TO EUROPEAN STANDARDS

**T**he draft of the Water management plan on the territory of Serbia for the next six years is in the final stage. Its fundamental goal is the protection and improvement of water resources in our country. We asked Nataša Milić, the acting manager of the Republic Water Directorate, what this strategic framework brings us concerning water management,

the irrigation plans, what measures we take to protect against floods, and how to stop water pollution.

**EP** *The preparation of the Strategy of irrigation of Serbia started last year. What has been done so far, and who will benefit from this Strategy?*

**Nataša Milić** The Republic of Serbia and the European Bank for reconstruction and development signed the Loan agreement in 2019, which included preparing the Strategy for irrigation, with a five-year Action plan, which the grant would finance. Strategy for irrigation is a base for construction and exploitation of the irrigation system in the Republic of Serbia that will provide for sustainable usage of natural resources and their quality improvement. The project involves the preparation of seven technical documents which will analyze different aspects of irrigation: the price of water for irrigation, availability of water resources in the country, irrigation management, etc. In the upcoming time, there is a plan for organizing several webinars and workshops about irrigation, aiming for the full inclusion of the public into the strategy preparation process. We expect the first draft of the Strategy in September, and after that, the five-year Action plan preparation will start.



**NATAŠA MILIĆ** was born in Priština. She graduated from the Belgrade Faculty of Forestry in 1984 from the department for water management of erosion regions. Her career began in the municipality of Obrenovac in 1986, where

she worked as a water management consultant. Between 1992 and 2004, she worked as a republic water inspector at the Ministry of agriculture, forestry, and water management. Later, she was responsible for water protection at the Public Company for water management Srbijavode. In 2015 she was appointed acting manager of the Republic Water Directorate at the Ministry of agriculture, forestry, and water management.

According to the Statistical Office of the Republic of Serbia, the irrigation systems cover 69,695 ha, with precisely 50,366 ha irrigated

**EP** *What size is the land that is irrigated, and in what parts of Serbia? Is the construction of some irrigation system underway, and if so, where?*

**Nataša Milić** According to the Statistical Office of the Republic of Serbia, the irrigation systems cover 69,695 ha, with precisely 50,366 ha irrigated. Therefore, with the Loan Agreement, we created the legal frame for drawing 97 million dollars from the Abu Dhabi Development Fund to construct the water facilities for irrigation that are the public property of the Republic of Serbia.

To proceed with the implementation of the Development of irrigation systems project – Stage I, in 2020, we concluded the agreements for construction, remediation, and refurbishment of the water facilities on the territory of Bačka, Banat, and Srem. This year's plan includes the continuation of financing of the construction works. With ongoing construction, remediation, and refurbishment of the water facilities, the conditions are created to irrigate an additional 67,000 ha of agricultural land.

Based on the Loan Agreement, during 2021 and 2020, the irrigation infrastructure's construction and rehabilitation in Eastern Serbia (The Municipality of Negotin) and central Serbia (The Municipality of Svilajnac) will be financed with 15 million euro.

**EP** *Is the Water Management Plan ready, and what changes it actually brings?*

**Nataša Milić** The Water Management Plan is the fundamental instrument that allows the implementation of the EU Water Framework Directive principles. It is the strategic frame for Integral water management. The Water Management Plan lays down the environmental goals for all water bodies on the surface and under surface waters. We need to achieve this by implementing water resources protection and improvement activities. That means that we will monitor the condition of every water body (water-course segment) and take measures for maintaining its good condition, or provide for good condition by reducing or stopping further pollution. It is the first plan of the kind in our country, created according to all standards of EU legislation in the water sector and stipulations of domestic laws. The finalization of the Water Management Plan draft at the territory of the Republic of Serbia for 2021-2027 is underway. After that, we will go into the process of public inspection and public discussion.

**EP** *According to official information, there is enough water in Serbia. But, do we know how to use it properly and, more importantly, to preserve it? How polluted are our rivers?*



**Nataša Milić** Water supply is satisfactory in the majority of the cities and municipalities in the Republic of Serbia. The modern systems for water supply cover more than 75 percent of the population. In contrast, the remaining percentage is supplied from smaller water systems that don't belong to the public water supply system and carry out regular water quality control. Water pollution can be generally divided into two categories: from concentrated sources and diffuse sources. Concentrated sources mainly are discharge points at the sewage system and industrial facility. The diffused sources generate spatial pollutions coming from households that aren't connected to the sewage systems, from improper farming, leaching from the forest and other areas, livestock, unsanitary solid waste landfills and garbage dump, and other human activities.

The conversation shouldn't be on how polluted our rivers are, so the focus should be on the measures we should take so that human activities don't affect water. Those measures are: primarily collecting and treatment of communal wastewater and treatment of industrial wastewater, the implementation of the good agriculture practice, including systematic monitoring and control of the usage of fertilizers and plant protection products, sanitation, remediation, and closure of unsanitary landfills/dumps, which are situated in large number by the rivers' bank. One of the most crucial and initial measures is bringing awareness in all participants, the general population included, on

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The modern systems for water supply cover more than 75 percent of the population. In contrast, the remaining percentage is supplied from smaller water systems that don't belong to the public water supply system and carry out regular water quality control

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the importance and need of preservation and improvement of the water quality.

**EP** *Since the beginning of this year, there has been some news on floating waste ending up in lakes and rivers, causing many problems. How to deal with this situation?*

**Nataša Milić** Floating waste that ends up in rivers and lakes is the consequence of inadequate waste management. We are witnessing an ever-increasing amount of waste in seas and oceans, which causes globally unforeseeable consequences, including plastic and micro-plastic pollution. Since it is the question of waste, the authorities responsible for waste management are in charge of this issue.



**EP** *Almost every year, Serbia is affected by floods. What is the Strategy for flood defense?*

**Nataša Milić** It has been estimated that around 18 percent of our country is potentially at risk of floods, as indicated in the Water Management Strategy up to 2034, and primarily at riverbanks of the rivers: Danube, Tisa, Sava, Morava, Drina, Kolubara, Timok. On the territory of Serbia, the flood defense system was built, which contains regulating and protective water facilities. Following the up-to-date information collected to prepare the operational plan, there is 3,506.97 km of dikes, 25,772 km of channel network, and 57 accumulations that are part of the flash flood reduction system. Here we talk about the facilities on waters of the first category.

Although the measures for flood defense are taken, 100 percent protection against floods doesn't exist. Moreover, some enormous impacts could cause flood and damage, despite computational, adopted, and applicable hydrological-hydraulic effect used to dimension the water facilities for protection.

Investing in water facilities for flood protection is a continual process. The built systems must be maintained and reconstructed if needed, and we should make new ones. Each year the fund is allocated in the budget for this purpose.

impact on water quality and the environment, keeping in mind that the terms are strict regarding parameters and limit values of the emissions of the treated wastewater. The Republic Water Directorate isn't responsible for wastewater analysis. The legal entity, namely an entrepreneur who discharges or disposes of materials that pollute water, is obligated to monitor wastewater.

**EP** *What are the changes that the Water Law Amendments have brought?***EP** *It was announced that 65 municipalities in Serbia would get their problem with wastewater solved in the upcoming period. But, how many wastewater treatment facilities do we need to build in Serbia to resolve the issue permanently?*

**Nataša Milić** We prepared the planning document to construct the system for the collection, disposal, and treatment of communal wastewater in the territory of the Republic of Serbia. It offers a comprehensive analysis of the current situation and future needs and activities, so it was broadly suggested to build 359 facilities. We shouldn't question the

**Nataša Milić** The Water Law Amendments have harmonized our legislation on the water with the EU laws. We have created an environment for water management to achieve good water status. In contrast, human water needs are met in compliance with limitations imposed by the necessity to preserve natural balance. Furthermore, the Law provides the transparency of the procedure for renting water land and efficient exercise of the rights and obligations of the citizens and the satisfaction of their needs.

Interviewed by: Milica Radičević



# FRONERI ICE-CREAM – pleasure with an environmental protection touch

**T**hanks to the Fronery Adriatic company and its continuous investments, once a little local plant in Stara Pazova was turned into an advanced ice-cream factory for the 21 century. Today, this is where more than 200 of the most prominent world brands' products are made. Besides the Froneri products, which are well recognized in the Serbian market under the Nestlé brand, there are also ice-cream brands such as Milka, Oreo, Nesquik, Cadbury, and Daim.

The investments amount to 50 million euros. Production capacities are increased by 400 percent, allowing the Froneri Adriatic factory in Stara Pazova to become prominent as the leading ice-cream manufacturer in South-Eastern Europe.

This plant currently exports its products to more than 25 countries, from Israel and Great Britain to the United States of America, South Africa, and almost all countries in Europe, so everyone with a sweet tooth worldwide will enjoy ice-creams made in Serbia.

Additionally, there are plans for regular investment in environmental protection technology and recycling. That will help furthermore the development of Stara Pazova and the Serbian economy, which lead us to our conversation with Cristian Doxan, the general manager of the Froneri Adriatic Company, whom we asked about the company strategy for sustainable growth and environmental protection.

**EP** *Since sustainability and environmental protection are among the company's priorities, tell us something about the techniques applied for the water usage reductions?*

**Cristian Doxan** During the last year, which was packed with challenges concerning the scale of the global pandemic, our company has cut water consumption by 6 percent. This year, we intend to reduce water consumption furthermore by another 5 percent. One of our techniques is optimizing water consumption during the production process, calculated by the unit of produced ice-cream quantity. That way, we get to, along with increased ice-cream production, save even more water year by year.

## ABOUT THE COMPANY

Froneri operates in 22 countries, employs around 15,000 people, and makes sales worth approximately 3.97 billion euro. The company is based in Great Britain, with branches around Europe and the Middle East, North America, Argentina, Australia, Brazil, the Philippines, and South Africa. For more information, go to [froneri.rs](http://froneri.rs)



**CRISTIAN DOXAN** started to work for Nestlé in 2005, after his previous engagements in several multinational companies. First, he was the general manager at the CPW (Cereal Partners Worldwide) in Romania, a joint venture company of Nestlé and General Mills in the breakfast cereal section. Later, in 2010 he took over the role of executive business manager at the Nestlé Ice Cream Company in Romania, and in 2016 he got to be also in charge of Nestlé Ice Cream Adriatic.

**EP** *What are the results concerning communal waste reduction?*

**Cristian Doxan** Communal waste has been reduced by a fifth, namely 20 percent, last year, while the quantity of entirely recycled waste amounted to 1,450 tonnes in 2020. It has become our practice to recycle even a surplus ice cream remaining from the production process and turn it into a renewable energy source. It is the safest way of



organic waste disposal, with no environmental impact whatsoever, and we do this in cooperation with authorized distributors and companies. Our target is to completely recycle all waste coming from the production in the next four years through the Zero to landfill project, which is underway.

**EP** *What is the Zero to landfill project?*

**Cristian Doxan** As the name suggests, Zero to landfill is a concept of waste quantity reduction that ends up in landfills. The main goal is that companies aim to significantly reduce the disposal of waste at landfills and recycle waste from the production process. Although it is challenging to reach actual zero targets, since we can't recycle all waste, the objective is to attain 99 percent.





## FRONERI ADRIATIC – PREFERRED EMPLOYER AND RELIABLE PARTNER TO THE LOCAL COMMUNITY

The Froneri Adriatic ice-cream factory in Stara Pazova will engage more than 450 seasonal workers this summer as before, besides 330 full-time personnel, among which many are contracted despite the challenges imposed by the pandemic.

“Our goal is to offer a stimulating atmosphere for professional growth in an innovative factory that applies up-to-date processing technology. By investing in the development and competence of the employees, the company gets effective and quality personnel. However, this investment has a wider social impact because it helps the professional skills increase at the whole economy level”, says the Operational manager at Froneri Adriatic Miroslav Micković in the company statement.

The former factory of Delta and Nestlé was significantly modernized in 2018 thanks to 20 million euro investment. The total investments have amounted to 50 million euros to date, and the production capacity was increased up to 400 percent.

The Froneri Adriatic aims to be an active and reliable partner to the local community and establish good cooperation and communication with local authorities. The company takes part in all programs of the National Employment Service. The increase in employment makes a direct impact on local budgets through taxation payments.

In addition, having connected with local institutions and civil society organizations, the company helps various social categories through campaigns and donations. The employees had a chance to participate in diverse charity events, and they always gladly responded.

The Froneri Adriatic will continue to invest in new production methods and employ top-notch professionals to become one of the leading ice-cream producers in South-Eastern Europe, remaining true to its commitment to sustainable production for the benefit of all citizens.

**EP** *What about the plastics in the packaging? Will you be able to replace the plastic for family packs, too, as well as the packaging of the ice cream bar that contains tin foil?*

**Cristian Doxan** When it comes to plastic waste, we are running projects to reduce disposable plastic usage in our ice-cream packaging. For example, plastic spoons have been replaced with wooden ones and this way we have cut the use of plastic for up to 18 million pieces. We intend to reduce plastic usage by 36 tonnes by the end of this year. Furthermore, since we have ongoing projects for the replacement of plastic parts in packaging with paper (cups, lids, and family packs), we aim to cut down the use of plastic by 200 tonnes by the end of 2022, namely for more than 50 million pieces of disposable plastic. Family packs are otherwise made of plastic that we can fully recycle.



# FRONERI

**EP** *The Renewable Energy Sources Law has been recently adopted, which allows companies to install solar power plants for electricity production for their own needs. Do you plan to invest in a project to reduce energy consumption generated from coal, as well as to reduce CO<sub>2</sub> emissions?*

**Cristian Doxan** We have installed LED lighting in the whole facility to decrease the electricity consumption, which we consider a great success having in mind that the entire complex covers 67,000 square meters. Since the beginning of the year and according to our agreement with EPS, we have been obtaining energy generated from renewable energy sources. So we have been using green energy exclusively ever since.

Interviewed by: Milena Maglovski



## The connected EV charging station for smarter charging

EVlink charging stations are easy to use, tough, intelligent and universal.

They are suitable for daily use and compatible with all type 1 and type 2 electric vehicles for public parking, corporate EV fleets, commercial private or residential areas.

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# THE ENERGY HAT-TRICK

**Long before the calendar beginning of the current season, sunny days have defied rainy spring announcing at the same time long hot summer. So recently, insolation and heat have taken over control over our lives. It seems to be a perfect time for various preparations and plans. While someone is planning a vacation, some have planned the solar power plant construction, and the fastest among them have already had it constructed**

**H**ow to introduce energy efficiency, mitigate carbon footprint and reduce electricity bills? And can it be achieved at a single blow? This triple benefit is possible to attain by building the solar power plant. Since Serbia has excellent potential for electricity production from solar radiation and thanks to recently adopted laws in the energy sector, people frequently consider how to use this solar capital. The idea of solar power plant construction is entertained by big companies and citizens, who have now gotten a chance to become prosumers. That means they will leave their usual role as electricity buyers and take on the new part of energy producers.

There are many benefits of using renewable energy resources. The following might be the shortest and simplest explanation that Miloš Kostić offered. He is the manager of the MT-KOMEX company, which has been building solar power plants in Serbia for ten years.

“When we install solar power plant of a roof, we have an opportunity to consume energy we produce and to reduce the amount of energy we take directly from the grid. That

way, the savings are made because all expenses incurred by energy transport are eliminated. In addition, the users gain independence from their suppliers. At the same time, the carbon emissions are reduced as well as the amount on electricity bills. Finally, the awareness on environmental protection is being raised”, notes Kostić.

Guided by these principles, the heads of the Stojanov and Stojanov Auto companies from Novi Sad decided to install solar power plants on the roof of their facilities. They wanted to provide for electricity supply in an ecological, efficient, and cheap way. Thus, in April this year, three solar power plants were commissioned, whose total capacity is 225.3 kW. To implement this project, they relied on the MT-KOMEX company. This enterprise has been in this business for more than 25 years. In its portfolio, it has more than 40 solar power plants constructed in Serbia, among other projects.

The construction on the Renault-Nissan facility took four days. Some 168 photovoltaic panels were installed, with 330 W of individual capacity, all coming from the German company Luxor Solar. The installed capacity is 55.44 kW, while the active power is 50 kW. In addition, the inverters with 20 and 10 kW capacities were installed. The company that made them is the Austrian manufacturer Fronius. For the substructure for all three facilities, the German company K2 was selected, and their special substructure type Multi-Rail. This power plant will generate approximately 64,472 kWh a year, making around 30,267 kg of CO<sub>2</sub> savings a year.

One hundred fifty-six photovoltaic panels were installed on the JEEP facility, with 30 W of individual capacity, coming from the same supplier Luxor Solar. The installed capacity is 51.48 kW, while the active power is 45 kW. For

On the third FIAT facility, 320 photovoltaic panels were installed with a singular capacity of 370 W, produced by the Canadian Solar company. The installed capacity is 117.40 kW, while the active power is 100 kW. The engineers here decided to stick with checked inverters from the Austrian producer Fronius, whose capacity is 20 kW.

The solar power plant on the FIAT facility will generate approximately 139,106 kWh a year. It will also make annual savings up to 111,235 kg CO<sub>2</sub>. It took seven days to build this power plant.

The MT-KOMEX company team isn't only engaged in solar power plant construction. They have expanded their business to the development of e-mobility. Their experts have installed more than 200 EV chargers around the country so far. In addition to that, they constructed several solar canopies so that energy for EV charging could partially come from renewable energy resources.

As leaders of e-mobility in our country, it doesn't seem unusual that they launched the first regional platform charge&GO for billing the use of parking lots for EV charging. Thanks to this platform and mobile application, the owners of electric vehicles can find chargers fast and easily in Serbia and more than 30 countries worldwide. Furthermore, it is essential to say that there is no additional roaming expense for using the chargers in our partner's network.

At the very end, let's get back to the beginning of this story. The electricity bills are higher year after year, and solar energy isn't something we lack across this land. Do you find it is about time you took advantage so that the solar power plant on your roof could work for you?

Prepared by: Jovana Canić



this power plant, the Fronius inverters were chosen with 20, 15, and 10 kW capacity. According to the plan, the solar power plant was built in four days. The annual production of this power plant will be around 61,366 kWh, and CO<sub>2</sub> yearly savings will reach 28,823 kg.

Photographs: MT-Komex



[www.mt-komex.co.rs](http://www.mt-komex.co.rs)  
[Info@mt-komex.co.rs](mailto:Info@mt-komex.co.rs)  
 011 77 04 566

Life Is On

**Schneider**  
Electric

DIGITAL  
PARTNER IN  
THE FIELDS OF  
SUSTAINABILITY  
AND EFFICIENCY

The coronavirus has brought numerous changes in everyday life. It also contributed to the increasing demand for sustainable energy and sustainability in all areas of work. The innovations are introduced, and new technologies are adopted apace.

The measures that were globally adopted to protect people's health and lives, such as lockdowns and movement restrictions, appeared to be also an impetus for changes speeding up the adoption of digital technologies. "I am sure that the high level of their use will persevere in the future," said Dr. Petr Hermann, the cluster president for Southeast Europe at Schneider Electric, in the interview he gave to our Magazine.

"The Schneider Electric company recognizes increasing demands for sustainable energy and also that sustainability is one of the key drivers of efficiency and innovations. We believe that this concept is a powerful source of motivation for people looking for sustainable workplaces. The solutions based upon sustainability are also a great response to greater clients' demands", says Hermann.



He points out that more than 80 percent of CO<sub>2</sub> emissions come from energy production and consumption. In addition, throughout the previous five decades, the global population has doubled. “With the expansion of the global economy and the growth of the global population, our energy needs will rise more than 40 percent until 2040, to be able to supply with electricity our facilities, houses, factories satisfying our need for cooling, transport, and connections.”

Therefore, it is necessary to generate electricity from renewable energy sources and increase the share of electric energy significantly in total energy usage, aiming to reduce CO<sub>2</sub> emissions and slow down global warming. According to Hermann’s prognosis, in the next 20 years, the share of electricity in all our activities will double. “A lot has been said about electricity, but today it makes only 20 percent of all energy we use. In the next two decades, that share will amount to at least 40 percent. And finally, electricity will be substantially different, because today only 6 percent of energy is generated from renewable sources. Expectations are that during that period, up to 40 percent will come from renewable sources. In addition to that, all that we install today and build will also be here in the next 20 years. So, if we want to tackle the climate issue, we have to introduce all those changes now.”



Petr Hermann reflected that the Schneider Electric company was ranked the world’s most sustainable corporation at the beginning of 2021, in a prestigious annual list compiled by Corporate Knights, a media and research company focused on corporate sustainability performance. Also, the same year the company entered Fortune’s 2021 World’s Most Admired Companies list for the fourth year in a row, as the third company on the electronics sector list.

At the Schneider Electric company, they make sustainable development a focal point. Over the last three years, they have saved more than 130 million tonnes of CO<sub>2</sub> emissions for their clients in the sectors of construction, industry, infrastructure, and data centers. “Our mission is clear and unwavering. We want to encourage all to make better progress and use fewer resources. We hope our motto Life



**Petr Hermann**, the cluster president for Southeast Europe at Schneider Electric

is on takes root everywhere, and goes for everyone, at every moment”, notes Hermann.

He says that new trends, which they recognize and work on, concern four types of integrations:

Integration of supply management and electricity usage with automation aiming for better efficiency both in terms of energy usage and remaining business operations

Integration of smart devices with control systems, but also with cloud, to collect data from all company sectors and find the best way to use energy and other available resources

Integrated architecture; from the project design to construction and from operation to maintenance, accomplished through special software, which provides for integrated design, construction, operation, management, and installation maintenance, and the technology implementation such as digital twin for the industry sector, or artificial intelligence

The transition from the maintenance of each installation separately (from location to location) to comprehensive company management

Speaking of the local market, Hermann says that Serbia has a very competent team and an excellent network of partners. “We have ambitious plans for Serbia. But, first, let me remind you that our company has a high-tech Center for the research and development of software for management of the electric power distribution systems located in Novi Sad. There we have more than 1,000 engineers employed”, underlines Hermann adding that the Schneider Electric company’s priority is attracting and training of skillful personnel along with the people development.” ■



# BETWEEN THE MYTH AND RESPONSIBILITY

Is it all that it takes for one product to have labels such as eco, 100 percent natural, or 100 percent bio so that we are assured that buying it would do us and the planet good? How conscientious are we as consumers, and do we need to think thoroughly about what we buy? Although big corporations that control the market are turning to green economy apace, environmental activists make known that not everything is as it seems and that each one of us has rights, opportunities, and obligations to act upon the market and to control big players



We are all familiar with Nestlé products. There is hardly a consumer who hasn't tasted their coffee, chocolate, muesli, or ice cream, and to some consumers, the Nestlé products are their cup of tea. Nestlé has been building up its reputation for 150 years, ever since the Swiss entrepreneur, Heinrich Nestlé has made a successful baby milk formula for the first time in the middle of the 19 century. Soon after that, also the first milk chocolate. Today, Nestlé is the biggest food company globally, the multinational corporation that runs the business in 189 countries, owns 447 factories, and employs 339,000 people. At the same time, it is one of the biggest stock owners of L'Oreal, the largest cosmetics company in the world. No, we are not advertising this famous brand. Instead, this serves as a mere illustration of how much Nestlé products took over the market and to what extent companies with mass production affect our lives and the planet's health. Yet, has this enormous impact one company has, being followed by proportionally large social and environmental responsibility in the way they run business and production?

The people from the Nestlé company will tell you that environmental protection is crucial to them. As a signatory of the Charter of the United Nations, Nestlé has committed to introducing particular measures to fight climate



**Ivanka Stojnić**, the manager for sustainable development at the Nestlé company for Southeast European market



**Milja Vuković**, the founder of Facebook group Zero&Low Waste Serbia

change, aiming that by 2030 it cuts its emissions of greenhouse gases by half. In contrast, by 2020, it should reach zero impact on the environment. "The largest potential of the Nestlé company for that lies in agriculture. We are focused on preserving and restoring the forests, agroforestry, regenerating agricultural practices, and soil protection. Just the last sector, we can make an impact on up to



**What actually grows in our modern societies? Grows the amount of waste, which at rapid speed destroys the planet, the profit since the full human potential is reduced to become consumers**

70 percent of emissions", says Ivanka Stojnić, the manager for sustainable development at the Nestlé company for the Southeast European market.

A green business strategy, such as this one, is something that almost all big companies today take as indispensable. Environmental activists generally accept big companies with a grain of salt, while the ones more radical take them a priori as bad guys. Milja Vuković, the founder of Facebook group Zero&Low Waste Serbia, has critical approaches to big corporations. She tries to put them in perspective, being aware that the companies have an immense responsibility



Factory Nestle in Surčin in 2019 become the first facility reaching Zero Waste to Landfill goal, which means that not even a single gram of waste from the factory goes to a landfill, still, it is recycled and used for other purposes, while the food residues are used for organic fertilizer production



in this historical moment and that it is of great importance they start to change their approaches. As a committed environmental activist with strong beliefs in civil actions, she notes that it is up to us, namely citizens, and up to legislation to make demands, support, and monitor. According to her, the main problem is that, despite all green strategies, we are still stuck in consumerism which has brought us to the global collapse in the first place.

“Consumer capitalism concept, embodied in the big corporation, is based on the ideology of constant growth. That approach is utterly unsustainable. It isn’t a solution to transition to a green economy or regenerative agriculture if we

still remain affixed to constant growth ideology. For, what is the thing that actually grows? Does social justice grow, or the investments in education and art? Do we have a healthier environment, or are the people healthier and happier? What is the thing that grows in our modern societies? The amount of waste grows, which at rapid speed destroys the planet. The profit grows since the full human potential is reduced to become consumer”, says Milja Vuković. She gives one very illustrative example: At the moment, we globally produce 120 percent of food necessary to feed the entire world population. At the same time, we throw away an unprecedented quantity of food that amounts to

30-40 percent. In other words, we produce so that companies make their projected profits, not to feed the people.

Undoubtedly, a green strategy is essential to make production more environmentally friendly, preserve the environment, take care of waste, use more clean energy, and produce packaging safer for the environment. Many big corporations already adopted these targets, including Nestlé, which in 2018 used for its production of 34.5 percent of electricity from renewable energy sources.

“As for Serbia, at the beginning of 2019, we signed the agreement with EPS for purchase of 100 percent green energy generated in hydropower plants. This way, we have already reached the specific goal locally”, says Ivanka

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**If a company singles out one tiny fragment of its production, having applied all environmental procedures there, but advertises it in promotional campaigns as if the whole production was such, it thereby creates a false image of itself**

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Stojnić, offering further details on their factory in Surčin, which has become in 2019 the first facility reaching Zero Waste to Landfill goal. That means that not even a single gram of waste from the factory goes to a landfill. Still, it is recycled and used for other purposes, while the food residues are used for organic fertilizer production.

“And that’s not the end. We keep on reducing the energy consumption in the factory and replacing our packaging by introducing recyclable materials. The question of plastic waste, which can’t be recycled but ends up in our environment, also is one of the critical challenges the world is facing. Therefore, Nestlé has committed to making 10 percent

of packaging produced in factory recyclable by 2025 and reducing virgin plastic usage by a third in the same period. With all investments so far, we have made recyclable 87 percent of our total packaging and 66 percent of plastic packaging. Taking that green path, we continue investing in new technologies and substantial changes of our products and business around the globe”, says Ivanka.

Although this corporative policy is something Milja Vuković advocates for, she mentions that consumers and citizens must follow these processes and buy, if we are environmentally aware, exercise self-control. “Being informed buyers, we can support the product with environmentally friendly packaging, namely the naked ones. That means they have no packaging, or they were made of recyclable materials or materials from renewable sources. We need to know and control the percentage of collection and recycling of that specific material in our country. Otherwise, it ends up on landfill again, despite the theoretical possibility for its recycling”, she says and adds that the same goes for green energy use and that we should demand the transparency of production process and sale of this kind of energy.

“Is it correct to give a green label to the energy generated in hydropower plants of small hydropower plants? Anyone familiar with this production process knows that there are many gray areas, even black ones, in the interpretation of this concept. The fact is that big companies in our country are well ahead of when it comes to numerous aspects of production process improvements and introduce certain high standards. However, it is up to our country, mainly a body of inspectors and legal system, whether all those processes will be subject of scrutiny and punishment”, Milja points out.

One more thing we can do as an interested party, she adds, is to follow and support activist organizations that do researches and file charges against big corporations. For example, we should follow those who are particularly against children labor or illegal exploitation of water resources, inhumane working conditions, environmental pollution, and if the charges keep repeating. “We should consider if we want to support with our money the business of those companies. The response might range from the smallest reaction such as boycotting certain products, to the more powerful counteraction such as protest, etc.” Milja Vuković explains.

That was just the activism that exposed the Nestlé company to public ridicule, which had been accused of using children labor for the need of cocoa picking at the plantations in the Ivory Coast. Nestlé refuted the controversial accusations by showing the actual evidence, without shying away from the fact that children labor is a reality in many countries, especially in agriculture, since children work with their parents at the farms. Still, the company made it clear it is their goal to deal with the problem wherever it emerges at any point of their distribution chain.



“If we receive reports on children labor, we investigate and take strict measures in case there is evidence on illegal practice. Any supplier shouldn't employ anyone younger than 15 or those who haven't reached the age for compulsory education. Our company was first to introduce in 2012 the comprehensive system for monitoring and rehabilitation of children labor. It helped us identify children at risk, raise awareness and offer rehabilitation according to each case and family circumstances. That includes constructing and renovating schools, obtaining birth certificates, providing school supplies and other training material. Since 2012 we have made significant progress, namely we monitor almost 80,000 children at risk of child slavery, and we helped more than 40,000 children access the education”, Ivanka points out.

As much as big corporations try to raise awareness of the environment and social responsibility, Milja Vuković thinks we should aim even more at controlling them. It might seem like a mission impossible, bearing in mind that

few people own corporations in question, and they possess 75 percent of world wealth. However, it is our duty, she notes, to be aware and not to let ourselves fall for fake green advertising, namely greenwashing. For example, a company singles out one tiny fragment of its production, having applied all environmental procedures there. Still, in a campaign, it is promoted as if the whole production was carried in such a way, giving the company a false image. “It happens all the time, certain window dressing. Many buyers also take part in that process, as not everyone wants to plunge into environmental problems. It is green, it says eco, so I help protect the environment, and I am a good person. However, that is not enough whatsoever”, she says, explaining it is high time we, as intelligent species, changed the game where we satisfy, instead of life's necessities, big profit's needs, while destroying the planet at the same time.

At the Nestlé company, you will hear that environmental protection and improvement of life quality on the planet



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Nestlé was first to introduce in 2012 the comprehensive system for monitoring and rehabilitation of children labor

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are also their primary goals. In cooperation with their partners, scientists and experts, they are trying to create permanent and powerful changes. Acting as the world leader in food and beverages production, they claim to have the capacity to influence other companies and encourage them to find solutions for the most prominent global challenges, such as climate change. Being also one of the most favorite brands in the food sector, they try for much as they can to bring awareness to buyers. “We noticed a great response to digital environmental campaign #NestleCuvaPrirodu where we challenged young people so that they showed us how they sort the waste, save water, etc. Not only that they provided feedback, showed how they used pieces of advice in their lives, but they ended up motivated one another to continue with environmental habits”, says Ivanka Stojnić.

One of the environmental habits that young people will soon develop is to monitor how big corporations protect nature. For all our sakes.

Prepared by: Jovana Canić



# SERBIA ISN'T RICH IN WATERS

**According to estimations, subterranean waters provide approximately 70 percent of water needs for households and industries in Serbia. On the territory of Vojvodina, they are exclusive water supply. Based on available statistics, 34 water bodies (23 percent) are at risk, or probably at risk, while 119 water bodies (around 77 percent) are considered out of risk or probably out of risk**

**S**erbia is the poorest country in the Balkans in autochthonous surface water (runoff module  $q=5.7 \text{ l.s-1.km-2}$ ) and is among the most impoverished region in Europe. Neighboring countries have significantly higher runoff module than Serbia, so in Montenegro, it reaches 44, Albania 30, Bosna and Herzegovina 23.4, and North Macedonia 7.8. In addition to this, we should expect the aggravation of the hydrologic regime in the next few decades because Serbia is situated in the part of southeast Europe, which is hugely affected by ongoing and projected climate change. As such, it is registered on the global level. Furthermore, surface outflow on the territory of Serbia has prominent spatio-temporal variability, resulting in drinking water shortages in some areas. South, South East, and West parts of Serbia are more affluent in water than Central and East parts. At the same time, the least copious supply is registered at the territory of the Autonomous Province of Vojvodina and confluences of the left tributaries of Kolubara and Velika Morava.



The amount of available water at some territory can be of autochthonous origin (formed from rainfalls and snowfalls in one region) or flows from another area (transient waters). For example, at the territory of the Republic of Serbia, a certain amount of surface outflow is formed. Still, much more significant amounts come from neighboring regions and later flow towards the Black, Aegean, and Adriatic Sea. The share of transient and other waters is the biggest, which go through the Danube to the Black Sea.

The quality of underground waters throughout Serbia is relatively uneven. That happens to be the result of the various mineralogical-petrographical contents of water layers, the genesis of subterranean water and aquifers, waters' age, different intensity of water exchange, etc. The quality of underground waters ranges from extremely good, which means there is no need for treatment, to the poor, where the complex procedure of water conditioning must be applied before its usage in the public water supply. The status of subterranean waters is determined based on quantity and chemical status



**PROF. RATKO RISTIĆ**, Ph.D. Dean of the Faculty of Forestry at the University of Belgrade, teaches at the Department of erosion and torrent control. He has published 100 scientific papers: 32 in scientific journals, 20 of which have been published in international journals. In contrast, 68 have been presented at national and international scientific conferences. As an author or co-author, he has published ten articles in monographs of international and domestic importance. He wrote a university textbook entitled: "Hydrology of torrential flows." He participated in the development of 115 projects and studies as a responsible designer or associate designer.

The excellent quality of an underground water body is accomplished when the average perennial abstraction of subterranean waters doesn't exceed the available source of subsurface water and when there is no trend of the level lowering and no risk of pollution from surface waters.

The dominant pressures, considered to cause the poor chemical status of water bodies, include agricultural activities and disorderly sewage systems in populated areas. However, other pressures shouldn't be disregarded,

such as communal and industrial landfills that can cause severe pollution of subterranean waters locally.

In general, Serbia isn't rich in waters. Therefore, only a careful and sensible approach to this resource can satisfy present and future needs.

I want to say something about the ban on the construction of small hydropower plants in the zones of protection of the first, second, and third degree, as stipulated by the new Law on renewable energy resources. No one will be relieved until we see a decisive demonstration of the application of the adopted Law, especially towards those who even now act contrary to Law. Therefore, the fight against the construction of small hydropower plants with derivation pipelines is going to last.

The living world in watercourses has suffered significant damage. The leading causes are the reduction of ichthyofauna (by weight and number), as well as other species,



## FLOOD RISK

The government has invested enormously into flood remediation after 2014, above all in the technical work sector. Still, little was invested into biotechnical and biological works. These include afforestation, melioration of degraded meadows and pasture, remediation of ditches, terracing of the land, etc. That tells us that the risk of repeating the catastrophe is still high.

intensification of erosional processes, removal of forest vegetation, disruption between surface and subterranean waters, even due to the endangerment of the system for water supply of some settlements (Vlasotince).

Unfortunately, we haven't reached the turning point which would allow for the priority of the Law on nature protection over other laws. Also, we aren't fully aware of the environmental protection imperative, so we hear platitudes being repeated for the sake of appeasement of the public. An example might be the recently adopted Law on mining and geological research (RS Official Gazette, No 40/2021) that favors mining activities and unconditionally protects the rights and interests of investors while minimizing the importance of applying other laws which are crucial for efficient environmental protection.

Only a sharp penal policy can bring some polluters to senses and control them. Due to the small fines or non-compliance with Law, they keep on with their unacceptable activities. It is necessary to clearly demonstrate the political will for reinforcement of inspection services and prevention of any support that might be given to polluters and investors known for malpractice.

Finally, today citizens are much better informed, environmentally aware, and willing to fight for a healthier environment. They have realized that no one will make an effort unless they make a move and express their will for things to change. Therefore, every regime, the ruling one, and the future will have to act following the demands coming from the voters with a higher sensibility for environmental protection.



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# The protection of the oceans and seas is indispensable for the planet survival

**A**t the beginning of May 2021, the preparation started for the 15th gathering of the states that signed the UN Convention on Biological Diversity CBD. The main topic was the development of a ten-year strategy for biological diversity protection after 2020. Ocean protection is considered to be one of the most vital points of this strategy. Experts worldwide call to adopt the goal by which at least



30 percent of the ocean surface would be protected until 2030 (30 by 30 initiative). If the law protected certain areas, it would prevent excessive exploitation of oceans' resources, especially many endangered marine species. In addition, it would lessen the pressure of pollution and enable recovery of the eco-system, which sustains life on the planet.

The health of the oceans and seas is what the living conditions depend on, namely the survival of the species,

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## Eastern European and Central Asian countries agree on priorities for preservation of the living world of the seas and oceans, with the goal to protect at least 30 percent of the ocean surface until 2030

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including humans. Therefore, ocean and sea protection mustn't become an issue that only coastal countries deal with. Still, this topic should be of global public interest. As a result, more and more countries are involved in working on improving marine world status.

The International Union for Conservation of Nature (IUCN), through its Regional Office for East Europe and Central Asia and the Pew Charitable Trust, had precisely that in mind. So they organized in April a two-day regional workshop about 30 percent ocean protection by 2030. The workshop participants included the representatives of many countries from the region who don't have access to the sea. Although often left out of the marine initiatives and programs, these countries have an equal interest in preserving ocean health. The eco-system services that the ocean provides are critical. They include climate regulation, carbon removal from the atmosphere, food production, etc. The workshop offered vital idea exchange to the government representatives from Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia, the Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Serbia.

One of the most important questions discussed was the need to identify protected areas type, including protective measures prescribed for different classes. According to the IUCN definition and criteria for protected areas, every marine protected area as common good would have to be "clearly outlined geographical space which needs protection,

and that is managed with a view to long-term environmental protection, eco-system services, and cultural values."

According to the IUCN guidelines, there are different forms and levels of protected areas, both marine and terrestrial, with various protection zones and allowed activities. Still, the first characteristic of one protected marine area has to be biodiversity preservation. At the same time, it is advised to use established standards of the IUCN Green list for protected areas for good management. Besides the outlined problems of pollution and marine biodiversity loss, participants have concluded that one of the significant challenges is the impact of tourism, as much as the exploitation of oceanic basins. They pointed out that these risk factors weren't sufficiently taken into consideration.

While making a speech, Boris Erg, the manager of the IUCN Office for East Europe and Central Asia, noted we

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**The health of the oceans and seas is what the living conditions depend on, namely the survival of the species, including humans**

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need that higher expectation setup for sea and ocean protection. That means setting new goals for the conservation of 30 percent of areas. Therefore, we have to make a serious effort to reach them.

The workshop participants, particularly those from the Balkans, were glad to hear that the area of Platamuni Nature Park was officially declared the first protected marine area in Montenegro.

These efforts and solutions are necessary for contribution to the global goal. It will improve the total amount of protected areas. Most importantly, it helps to adopt an earnest approach to find solutions for pollution and waste disposal, unsustainable or illegal fishing, regulation of marine life traffic, etc.

## GROWING UNDERWATER NOISE IN THE ARCTIC PUTS WHALES AND OTHER ANIMALS AT RISK

Until recently, the Arctic Ocean's ice cover made it a natural "acoustic refuge" for marine animals for much of the year. Many marine animals, including narwhals, belugas, and bowhead whales, rely on clicks, whistles, songs and other noises to locate food, raise calves, and find mates for survival.

But melting sea ice has led to expanded shipping routes and increased oil and gas exploration in the Arctic. As a result of new shipping routes, the type and amount of noise underwater has significantly changed, and that traffic is expected to quadruple by 2025.

This activity puts whales and other species at tremendous risk and there is an urgent need to understand the impacts on these animals, upon which many coastal and Indigenous communities depend. Human-driven noise affects the animals' ability to locate food, find mates, navigate, communicate, and evade predators, and can cause commercial fish species to abandon their habitats. And noise travels further underwater than above, further underscoring the threat to marine life.

Ship propellers, seismic booms, and construction are just some of the man-made noises that disrupt life under water—and their frequency is growing. A new report released by the Arctic Council—an intergovernmental and stakeholder forum for the Arctic—outlines the extent of disruption.

In just seven years, underwater noise has doubled in some areas of the Arctic. This is an incredibly rapid and concerning increase that puts wildlife in danger.

Source: World Wildlife Fund



## HOW COMPOSTING CAN REDUCE OUR IMPACT ON THE PLANET

Every year, across the world, 1.3 billion tonnes of food is either lost or wasted, says the United Nations Environmental Programme (UNEP) Food Waste Index.

With world hunger on this rise due to the COVID-19 pandemic, the need to reduce food waste is becoming increasingly urgent.

A report published in July 2021 by the Food and Agriculture Organization, the World Food Programme, the World Health Organisation and other UN agencies shows that one-tenth of the global population – as many as 811 million people – were undernourished in 2020, up 118 million from 2019.

In addition to exacerbating hunger and food insecurity, food loss and waste contribute to the three planetary crises that threaten our collective future – climate change, biodiversity loss, and pollution.

But while loss and waste occur across the entire food system, individuals and households are not powerless. In fact, with almost 570 million tonnes of loss and waste produced in homes, their action is critical.

Guidelines issued by UNEP and the Institute for Global Environmental Strategies (IGES) show the practice of composting is one of the best options for managing organic waste while also reducing environmental impacts.

Proper composting of the organic waste we generate in our daily lives – inedible or unused food – can reduce the dependence on chemical fertilizers, help recover soil fertility, and improve water retention and the delivery of nutrients to plants.

Source: UNEP

## INDIGENOUS COMMUNITIES IN DANGER OF BEING ERASED FROM THE MAP IN BRAZIL

After living on and fighting for their lands for centuries, the rights of Indigenous Peoples in Brazil are endangered by a legal loophole called Marco Temporal that could legalize theft of their lands—unless the Brazilian Supreme Court stops it.

The profit-hungry forces behind Marco Temporal want to deny Indigenous Peoples' rights to their lands unless it can be proven that they occupied them at the time of Brazil's 1988 constitution—which was supposed to have guaranteed their land rights. Meanwhile, a bill (PL 490) being considered by Brazil's Congress seeks to open Indigenous Lands for industrial agriculture, mining, and other extractive activities.

This legal loophole is a brazen attempt to trample over Indigenous rights by land grabbers who have been emboldened by Brazilian President Jair Bolsonaro and his anti-environment administration.

For safety reasons, many Indigenous communities in Brazil do not explicitly state the locations of their dwellings, and, therefore, they have not directly participated in the land demarcation process that could soon be used to steal their lands and livelihoods from them. The impact would be most heavy on the most isolated Indigenous communities.

In June, hundreds of Indigenous People from all across Brazil came to Brasília to protest against the land invasions they all face and stand united. Their peaceful protest in Brazil's capital – which included children and elders – was met with violence.



Source: Greenpeace

## NEW YORK ON THE WAY TO ITS 6 GIGAWATTS BY 2025 SOLAR POWER GOAL

New York's solar growth has climbed 2,100 percent since the NY-Sun initiative was launched in 2011. The cost of solar dropped 69 percent in that same period.

Naturally, there are large global trends driving these results, but they are great for New York nonetheless. They're also helping New York Governor Cuomo to easily approach his goal of six gigawatts (GW) of solar power by 2025 – a mandate from the Climate Leadership and Community Protection Act.

New York is 95 percent there when you look at projects that have already been installed and connected to the grid as well as projects that are currently under development. Four years to add the other 5 percent doesn't seem too hard. One of the great economic benefits is that this solar power growth has created 12,000 jobs across the state.

"Solar energy is a key component in New York's transition to a clean energy economy as we work to reduce harmful emissions across the board and address the dual challenges of fighting climate change and rebuilding stronger post-pandemic," Governor Cuomo said. "The success of NY-Sun demonstrates we are on track to meeting our nation-leading energy goals while stimulating green job growth and economic recovery in communities across the state as part of our comprehensive plan to reimagine New York following the pandemic."

Easy comments for the governor to make. Clearly, he has the whole global solar market and also policies around the world to thank for enabling the solar cost drops and more mature solar ecosystem.

Source: Clean Technica



## NTPC WINS APPROVAL FOR INDIA'S LARGEST SOLAR PARK

In a major boost to its aggressive plans to increase renewable energy generation, India's largest power generation company has secured approval to set up a solar park in Gujarat.

The Ministry of New and Renewable Energy recently gave a go-ahead to NTPC to set up a 4,7 gigawatt solar power park at Rann of Kutch in Gujarat. The park will be around twice as large as the Bhadla solar park in the neighbouring state of Rajasthan.

Solar power generated at this park will also be used for production of green hydrogen, the company revealed. The Indian government recently announced that it would mandate industries to use hydrogen produced from renewable energy. The obligation would be implemented in a manner similar to the renewable energy mandates.

The company first announced plans to set up this solar park in 2019. The size of the solar park was initially proposed to be 5 gigawatts with an estimated investment of Rs 200 billion (\$2,8 billion). The company was reportedly considering setting up a similar solar power park in neighboring state of Rajasthan.

NTPC has around 66 gigawatts of power generation capacity, nearly 92 percent based on coal and gas. It plans to have 60 gigawatts of renewable energy capacity by 2032. Over the few months the company has been aggressively participating in solar power auctions, it has done so through its new subsidiary – NTPC Renewable Energy Limited.



Source: Clean Technica

## WARMING STRIPES SHOW THAT CLIMATE CHANGE IS HERE AND NOW

Broadcast meteorologists and climate scientists united on June 21 – the Summer/Winter Solstice – for Show Your Stripes day to raise awareness of the urgent need to act on climate change.

UN Climate Change, the World Meteorological Organization and the Intergovernmental Panel on Climate Change were backing the campaign, which was also designed to build momentum for a strong outcome of the UN Climate Change Conference COP26 in Glasgow in December.

The campaign was inspired by data visualizations from Prof. Ed Hawkins, a climate scientist at the University of Reading in the United Kingdom and a lead author of the Intergovernmental Panel on Climate Change's Sixth Assessment Report.

He has spearheaded the creation of "warming stripes" graphics, which are visual representations of the change in temperature as measured in each country over at least the past 100 years. Each stripe represents the temperature in that country averaged over a year and is based on internationally recognized datasets.

"The Warming Stripes are a simple and compelling way to visualise that the world is warming and that every country is warming. The graphics can help start local conversations about the increasing risks from climate change wherever you live, and the necessary actions to avoid the worst consequences", said Prof. Hawkins.

For virtually every country or region, the stripes turn from mainly blue to mainly red in more recent years, illustrating the rise in average temperatures in that country. The most dramatic change is in the Arctic, which is warming more than twice as fast as the global average.

Source: World Meteorological Organization



## WESTERN INDIAN OCEAN REGION HAS DECLARED 550,000 SQUARE KILOMETERS AS PROTECTED, A 63 PERCENT JUMP SINCE 2015

The Western Indian Ocean region has declared 143\* marine and coastal areas as protected – an area covering 553,163 square kilometers, representing 7 percent of the total Exclusive Economic Zone (EEZ) for the region – according to a new publication by the UN Environment Programme (UNEP)-Nairobi Convention and the Western Indian Ocean Marine Science Association.

The Marine Protected Areas Outlook indicates that almost half of the total area – an estimated 63 percent of the overall square kilometers – was brought under protection in the seven years since the 2015 adoption of Sustainable Development Goal 14.5, which committed countries to conserving at least 10 percent of their marine and coastal areas by 2020.

In 2019 alone, Seychelles brought 30 percent of its Exclusive Economic Zone under protection, safeguarding the habitats of 2,600 species, while South Africa declared 20 new MPAs – enabling both countries to exceed the 10 percent target. Comoros has developed new MPA-specific legislation, while over three hundred Locally Managed Marine Areas – i.e., areas in which coastal communities shoulder the mantle of conservation – have been declared across the region.

“A well-managed MPA can bring significant economic, social, and environmental benefits to a country,” said Yamkela Mngxe, Acting Director of Integrated Projects and International Coordination in South Africa’s Department of Forestry, Fisheries and the Environment. “They can increase food security by preventing the overexploitation of fish stocks; create and protect jobs in the tourism and fisheries sectors; build resilience to climate change; and protect species and habitats.”

Source: UNEP



## GLOBAL ELECTRICITY DEMAND IS GROWING FASTER THAN RENEWABLES, DRIVING STRONG INCREASE IN GENERATION FROM FOSSIL FUELS

Renewables are expanding quickly but not enough to satisfy a strong rebound in global electricity demand this year, resulting in a sharp rise in the use of coal power that risks pushing carbon dioxide emissions from the electricity sector to record levels next year, says a new report from the International Energy Agency.

After falling by about 1 percent in 2020 due to the impacts of the Covid-19 pandemic, global electricity demand is set to grow by close to 5 percent in 2021 and 4 percent in 2022 – driven by the global economic recovery – according to the latest edition of the IEA’s semi-annual Electricity Market Report.

The majority of the increase in electricity demand is expected to come from the Asia Pacific region, primarily China and India.

Based on current policy settings and economic trends, electricity generation from renewables – including hydropower, wind and solar PV – is on track to grow strongly around the world over the next two years – by 8 percent in 2021 and by more than 6 percent in 2022. But even with this strong growth, renewables will only be able to meet around half the projected increase in global electricity demand over those two years, according to the new IEA report.

Fossil fuel-based electricity generation is set to cover 45 percent of additional demand in 2021 and 40 percent in 2022, with nuclear power accounting for the rest. As a result, carbon emissions from the electricity sector – which fell in both 2019 and 2020 – are forecast to increase by 3.5 percent in 2021 and by 2.5 percent in 2022, which would take them to an all-time high.

Renewable growth has exceeded demand growth in only two years: 2019 and 2020.

Source: IEA



## 5 THINGS TO KNOW ABOUT THE FUTURE OF ELECTRIC VEHICLES

While global car sales took a pandemic-related hit last year, electric vehicles (EVs) bucked the trend.

The number of EVs registered across the globe expanded massively in 2020, according to the International Energy Agency (IEA) – and this is set to continue over the next decade.

- 1. There were 11 million registered electric vehicles on the road at the end of last year**  
10 million of these were cars. The total number of electric cars, buses, vans and trucks is projected to rise to 145 million, or 7 percent of road transportation, by the end of the decade under governments' existing energy and climate policies.
- 2. Electric car buying remained high in the face of the pandemic**  
Electric car registrations were up 41 percent in 2020, despite a 16 percent drop in overall car sales across the world.
- 3. Consumer and government spending on electric cars rose in 2020**  
A rise in the number of different EV car models available in the market to 370 and the falling cost of batteries saw consumers spend 50 percent more on electric cars in 2020, to the tune of USD 120 billion. Governments also continued to encourage the move to EVs, spending USD 14 billion on direct purchase incentives and tax deductions – a 25 percent rise year-on-year.
- 4. Electric bus and truck registrations also increased within the world's largest markets**  
Across China, Europe and North America these rises were mainly due to municipal governments imposing greater emission reductions on commercial vehicles operating within their towns and cities. China, for example, commands a 27 percent share of all electric bus sales, where new registrations were up 9 percent in 2020.
- 5. Widespread EV adoption could significantly reduce greenhouse gas emissions**  
The IEA says mass adoption has the potential to cut emissions by more than one-third by 2030 under the existing 'stated' green policies.  
Up to two-thirds of emissions could be slashed in that time if countries endorse more ambitious 'sustainable development' targets.

Source: World Economic Forum



## CLEAN SEAS CAMPAIGN PROMOTES THE RIGHT TO A HEALTHY ENVIRONMENT, INCLUDING PLASTIC-FREE OCEANS

On World Oceans Day 2021, UNEP's Clean Seas Campaign renews its global efforts to tackle marine litter and plastic pollution, now with a focus on how individuals can use both national and international laws to push for change.

The campaign aims to break humanity's addiction to unnecessary and avoidable plastic, nearly 11 million tonnes of which end up in the ocean annually. It was launched by UNEP in 2017 to help curb the flow of marine litter and plastic waste entering lakes, waterways, and oceans. Since then, 62 member States – covering 60 percent of the world's coastlines – have joined the campaign with ambitious pledges and commitments.

The right to a safe, clean, healthy and sustainable environment is legally recognized in 155 countries. Actions to protect oceans and seas must include a human rights-based approach, according to UNEP's recent report: *Neglected: Environmental Justice Impacts of Marine Litter and Plastic Pollution*. The actions should also build upon the obligations and responsibilities of governments and businesses under international environmental law and human rights instruments.

The Clean Seas Campaign is calling on citizens across the world to reduce their plastic footprint and speak up for their right to a healthy environment, including pollution-free oceans using the hashtags #BeatPlasticPollution for #CleanSeas.

Source: UNEP



## EMPOWERING “SMART CITIES” TOWARD NET ZERO EMISSIONS

The world’s cities can play a central role to accelerate progress towards clean, low-carbon, resilient and inclusive energy systems.

New technologies and increased connectivity, as well as the sheer scale of the world’s metropolises, are opening up massive opportunities to optimise urban planning, improve services and extend access, while at the same time creating revenue streams, jobs and business ventures. In this context, the International Energy Agency developed a report at the request of the Italian G20 presidency to showcase the opportunities and challenges facing cities, and the actions that can be taken to support progress.

The IEA’s Empowering Cities for a Net Zero Future builds on extensive consultations with over 125 leading experts and organisations, and presents case studies from 100 cities in 40 countries. The examples illustrate the wide range of opportunities and solutions that can help city-level authorities make full use of efficient and smart energy systems.

And with growing urbanisation trends, the central role of cities will keep increasing. Cities today account for more than 50 percent of the planet’s population, 80 percent of its economic output, two-thirds of global energy consumption and more than 70 percent of annual global carbon emissions. By 2050, more than 70 percent of the world’s population will live in cities, resulting in a massive demand growth for urban energy infrastructure.

From smart street lamps to self-cooling buildings to smart electric car chargers, investing in city-level action can provide the biggest carbon-mitigation return on investment and accelerate inclusive clean energy transitions.

The new report contains a set of high-level recommendations to accelerate energy transitions and leverage the full potential of cities to reduce emissions thanks to digitalisation.



Source: IEA

## EU SUPPORTS THE CLEAN ENERGY TRANSITION IN EASTERN PARTNERSHIP COUNTRIES

The European Commission and its partners, the Council of European Energy Regulators (CEER), the Energy Community Secretariat (EnCS) and the International Energy Agency (IEA), are working to foster the low carbon and clean energy transition in the six Eastern partnership countries through evidence-based energy policy design.

On July 8, 2021, the European Commission marked the launch of the second phase of its EU4Energy programme – “Promoting the Clean Energy Transition in the Eastern Partnership Countries: EU4Energy Phase II” – which will run until December 2024. The Programme will contribute to the development of sound legislative and regulatory frameworks for energy, to support the region’s transition to clean energy and the liberalisation of

the energy market. It will also address new challenges and opportunities, such as the gradual embedding of digitalisation in all energy-relevant market segments while promoting cost efficiency. The citizens of Eastern partner countries will benefit from a more stable and resilient energy market, empowering consumers and increasing energy security and promoting the development of clean energy.

EU4Energy is funded by the European Union with a total budget of EUR 8.5 million. The Programme highlights the importance of collaboration and cooperation between the EU, implementing partners and beneficiary institutions in implementing reforms and bringing concrete benefits to citizens. The Programme will promote the engagement of EaP citizens in its activities and reforms through consultations and roundtables, as well as a series of campaigns to empower and engage citizens directly. A particular focus of the Programme will be on gender equality, emphasising the importance of women’s engagement in the energy sector and their potential to take on leadership roles.

Source: Energy Community





**PEOPLE AND CHALLENGES** THE STUDENT COMPANY BIOFILTER

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# HOMEMADE BIODEGRADABLE CIGARETTE FILTER AS A SOLUTION TO THE GLOBAL PROBLEM

There is an expression “the children of today are the adults of tomorrow,” and the tricky students of the High School Dušan Trivunac Dragoš from Svrlijig, happen to prove it is not just another platitude. These young people decided to tackle waste which we often leave behind in nature and public areas. In fact, they gave a good try to solve the problem of one specific kind of waste. We talk about the most minor and most widespread garbage, which is also the hardest to remove. If you guess was cigarette butts, you were right.

No matter where you go, you will find at least one cigarette butt. More than 75 percent of smokers worldwide throw out cigarette butts in rivers, parks, streets, and beaches, but a few only know that these miniature enemies of nature will remain there for another 25 years. In most cases, it is the question of true negligence, although some smokers are deluded by the idea that all cigarette filters are biodegradable. It might seem they are made of cotton, but

actually, they are made of plastic fibers that make them fall within the biggest source of pollution.

Since little attention is paid to this world’s problem, students from Svrlijig found the solution and presented the invention which can literally save the planet.

## Evan cigarette butt can turn green

It is about the biodegradable cigarette butt, which contains a plant seed. The patent called BioFilter is made of unbleached cellulose, and four plant types can sprout from these stubs: clover, grass, chia, and basil. However, in six months, what once was a stub is nowhere to be found, while it serves to seed as a water reservoir until the plant gets rooted in soil. Even if not every seed sprouts, one thing is sure – every cigarette filter will soon be disintegrated.

At the BioFilter company, students have distributed the tasks to develop the idea further and create a final product. Thanks to their revolutionary invention, they appeared

at the regional competition for student innovations. They managed to show how much BioFilter is crucial for our environment, so they entered the national finals.

The students confirm that people are amazed, finding it hard to believe that high school students are capable of coming up with this kind of invention. They are all astounded. This way, the students describe the positive response, which was inevitable.

It suffices to say how damaging cigarette smoke is to health. Almost 70 percent of chemicals in cigarettes are carcinogenic, and some estimations confirm that smoking is a cause of 15 percent of death cases a year. Unfortunately, the student team can't address this problem.

Despite many campaigns in view to raise awareness on the health effects of cigarette smoke and reduce the number of smokers, there are still a billion people who don't give up this harmful habit. It seems impossible to deal with the globally most widespread addiction because sometimes not even poverty or associated diseases can be a plausible cause for quitting smoking. Still, we can put a stop to stubs.

The purpose of biodegradable cigarette butt certainly isn't a promotion of smoking and tobacco products, but

prevention of the negative effect of this toxic waste on the environment.

"If this is the way things are, with people throwing out stubs with great frequency, then we want to reduce the pollution to a minimum", that is the message coming from the team.

The stubs are toxic, chiefly for animals that happen to swallow them by accident. Moreover, since stubs contain arsenic and other harmful chemicals, their accumulation in large amounts can put biodiversity at risk and pollute water and soil to a large extent.

Someone might think that nothing good could ever come out of the story about the cigarettes, and that is




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**It seems impossible to deal with the globally most widespread addiction because sometimes not even poverty or associated diseases can be a plausible cause for quitting smoking. Still, we can put a stop to stubs**

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where BioFilter comes in to reassure us. Had all the tobacco companies completely turned to BioFilter, 6 billion of seed would have been dispersed around every day, and each stub tossed away would have been a chance to make the world greener.

Those who roll cigarettes by hand soon could get a chance to use BioFilter. As it has become something to talk about, there is a hope that world companies will recognize the significance of this innovation and include it in their assortment.

Since the innovators are still high school students, the possibility of getting the product patented isn't available. But, who could tell? Maybe in the upcoming years, they might get it done. The good spirit is something they have, as much as the consciousness of numerous benefits of their invention.



**IN FOCUS** THE DANUBE TRANSNATIONAL PROGRAM INTERREG

# THE 165 MILLION EURO EUROPEAN INVESTMENT IN THE DANUBE REGION

**Participation in this Interreg program will be allowed to universities, institutes, chambers of commerce, regional developmental agencies, clusters, non-profit organizations, small and medium enterprises, and the budget for an individual project will be 1.5 to 2.5 million euro**

**I**n the next six years, it will be invested 165 million euro into The Danube region through the Danube transnational program (known as Interreg). The aim is to integrate this region better socially, economically, and territorially.

On the occasion of the final conference of the Danube Energy+ project called Innovation eco-system in the Danube macro-region, this investment was presented by Amir Kalajdzini, the representative of the Danube Transnational Program for Germany. As he explained, the program's priority is to make this region smarter by enhancing research, increasing innovation capacities, and embracing technologies that will impact industry transformation and entrepreneurship.

The second priority is reducing carbon dioxide discharges by promoting renewable energy sources, nature conservation, and green infrastructure in cities. Also,

it is vital to have ecological water and wastewater management. Finally, as a third and fourth goal, he named better social inclusion and access to education, development of lifelong learning concept, and improvement of cooperation between the governments and other state authorities in the region.

“The participation will be allowed to universities, institutes, chamber of commerce, regional developmental agencies, clusters, non-profit organizations, small and medium enterprises. The programs should last from 30 to 36 months, with 8 to 15 partners from at least eight and the most 15 countries, and the budget for each project will range from 1.5 to 2.5 million euros. Of course, this will vary according to the project size so that some projects might get even 3 million, but this is an average”, explained Kalajdzini.

The funds will be donated to projects for the following

purposes: to help the development of institutional capacities, promote further investments, support the development of the standard framework for implementation of politics in different fields as well as their harmonization, and finding innovative solutions for common issues. Therefore, projects must include partners from various sectors, aside from regional networking. The European Commission is expected to adopt this project by the end of this year, whereas the launching is planned for spring 2022.

The Danube region comprises Germany, Czechia, Austria, Slovakia, Hungary, Ukraine, Moldova, Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Romania, and Bulgaria. Through the earlier project Danube Energy+, which has been running for three years, Serbian Startit was working on transforming the regional eco-system with their partners from 9 countries. They have orga-

nized 3,732 visits and have given birth to 25 young innovators. Apart from that, they founded hubs in Serbia and other countries for young leaders in these fields. Within Startit, the hub was established to enable support to the development of young innovators.

The Danube transnational program DTP is a financial instrument of a specific frame and with an independent decision-making body. It supports the consolidation of policies in the Danube region in selected sectors under the standard EU provisions and regulations of the European Bank for reconstruction and development (EBRD) concerning the EU Strategy for the Danube Region (EUSDR). Transnational projects should make an impact on national, regional, and local policy. To achieve a higher level of territorial integration in the heterogeneous Danube region, DTP acts as a policy engine room, tackling common challenges and needs in specific policy areas. ■



# SOLAR POWER PLANT WITH A LITTLE HELP OF CEEFOR

**For the successful transition to renewable energy sources, it is crucial to have a reliable partner in our corner, the one who will help us overcoming all difficulties and accomplishing our energy goals**

**M**ore than 500 companies from Serbia and the region have made an unerring choice by entrusting the experts of the Center for Energy Efficiency and Sustainable Development **CEEFOR** with a task to design their solar power plants whose total capacity, at the moment, amounts to 40 MW.

If you think solar panels might be the perfect match for the roofs of your houses and facilities, now is the best



The maximum production is expected during the summer, such as 8,259 kWh in July and 7,488 in August

moment to make those ideas true, as the procedure for installing solar panels has never been easier.

The once tedious process with a lot of paperwork today will take you only four steps. Apart from the permission of the local authority, you won't need to get any other permit, including the building permit. It is stipulated in the new Law on renewable energy sources that from the moment of decision to build a solar power plant to agreement signature, it doesn't take longer than two or three months.



With favorable Laws and a well-coordinated team of the **CEEFOR** company, anyone can become a pioneer of energy transition in Serbia and be among the first to enjoy all the benefits of renewable energy sources.

## The good calculation for lower electricity bill

An average household can satisfy their energy needs with a solar power plant with 10 kWp of projected output power. However, it will be ideal for smaller enterprises or somewhat bigger farms to have a solar power plant with 50 kWp power.

For those to whom 50 kWp sounds like a perfect number, **CEEFOR** suggests installing 148 solar panels with individual power of 370 Wp, distributed on a surface covering 273.8 m<sup>2</sup>. This power plant would have an installed capacity of 54.76 kWp DC, and energy losses would be minimized thanks to innovative inverters under the Fronius brand name.

If you plan to put panels on a pitched roof, there is no better solution than inverters Fronius Symo with MPP trackers, and for a power plant of 50 kWp, you will need three inverters of the kind.



Two trackers inside every Fronius Symo inverter will provide for the maximum output power of the solar power plant, even in unfavorable weather conditions, which is not the case with other inverters.

A power plant with 50 kWh capacity will generate even 64,454 kWh of electricity a year and will significantly reduce your need for electricity purchase from the grid. The maximum production is expected during the summer, such as 8,259 kWh in July and 7,488 in August. In the winter, it is the least when monthly production reaches 2,368 kWh in December and 3,445 in February.

Although the investment in this power plant amounts to 43,800 euros, the return on investment is guaranteed in just 6.5 years.

In the end, the impact of these projects on environmental protection shouldn't be overlooked. For example, if you

decide to install a solar power plant with a 50 kWh capacity, you will be glad to know that your contribution to the reduction of CO<sub>2</sub> emissions is 51.54 tonnes a year.

So far, we have talked about solar panels and inverters as constituents of solar power plants. But what about batteries?

For those who want an off-grid system, the battery is an essential element, even though we need to say that it is a costly part of the equipment, which might be redundant if we consider all the benefits of an on-grid system.

## You can't make mistakes with an on-grid system

Our country is going the right way for green energy popularization, and that is what the new Law on renewable energy sources testifies. This Law introduces the possibility of net metering and the concept of prosumer too.

The newly introduced category of prosumer gives us an opportunity to become a buyer and producer of electricity so that all surplus of generated electricity we give into the grid. As for net metering, the owners of solar power plants will sell a surplus of energy according to feed-in tariffs. Then, in the winter, and whenever it is needed, they could reduce their electricity bills. Apart from that, preparations for introducing the auction systems are underway and should enter into force by the end of 2021.

Prepared by: Milena Maglovski

An average household can satisfy their energy needs with a solar power plant with 10 kWp of projected output power. However, it will be ideal for smaller enterprises or somewhat bigger farms to have a solar power plant with 50 kWp power

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# THE MAGIC OF OLD-FASHIONED BICYCLES

**The battle for healthier air is fought in many fields. The traffic that causes more than 10 percent of the world's emissions is indeed one of the crucial global arenas. Luckily, vehicles on batteries are becoming more popular, and the number of electric scooters on streets worldwide is increasing. Still, with all this modernization, we shouldn't forget the good old bicycle. This transportation vehicle has been in vogue for two whole centuries. Moreover, Miloš and Tamara Đuričić from Loznica have fallen for bikes from the '70s and '80s. They brought them to life, made them all colorful and refreshed, and then they put them back on the streets**

**A**s with all strong passions, Miloš also fell in love with cycling when he was just a child, and it was partially caused by the fact that he wasn't very talented for group sports. Soon he was using this ecological two-wheeler for everyday reset from engagements. Eventually, short distances turned to mountain biking. In 2015 he founded with his friend Zoran Bogičević the Association for Mountain cycling BicikLO to promote highlands tracks in the area of Loznica. Later, they organized MTB tours to show cyclists his birthplace's natural, cultural, and historical values.

The Belgrade open school first recognized this Association's activities with whom they successfully worked on several projects, including biking. The support of the Belgrade Open School helped the higher visibility of the Association, which today can enjoy recognition on the MTB map of these lands.

Apart from recreational purposes, Miloš notes that the Association intends to popularize city cycling to put

While Miloš is in charge of harsh repairs and parts assembling, Tamara has to give every bicycle unparalleled beauty



this ecological means of transport at its rightful place in urban transport. The connection between bicycle and ecology in the developed part of Europe has been long recognized and applied. However, according to Miloš, it is still at a relatively low level in our country. Therefore, he believes that further efforts are essential to promote this type of vehicle and support infrastructural investments around the country.

## How LWC bicycles are made

Along with engagement in the Association, Miloš was repairing his bicycles and his friends' bikes too in his garage workshop called Cyclo-garage. Over time, the number of customers increased, and then the wife Tamara suggested getting every bicycle uniquely colored. So that is how bikes Lucky Wolf Cycles were made in a little workshop. The massive support for this idea's development came to the Đuričićs from the Trag foundation through the program Green ideas.

The LWC bicycles feature simplicity of usage, which is rarely seen in everyday city bicycles, and the unique design of each model that comes out of this creative garage. While cruising on them, cyclists have a complete pleasure out of a one-speed bicycle ride and a feeling of riding a modern and new two-wheeler. Besides, bicycles are very light. Their weight often doesn't exceed 10 kilograms. That makes them an ideal choice for those who have to carry it afterward to the apartment.

Tamara notes that customers can have the model they have always wanted, made from their old bicycle, which they can't get by purchasing a commercial bicycle. On the other hand, Miloš says that more and more people eagerly wait for their old bikes to get a new look.

## When hobby and profession join together

Teamwork in Cyclo-garage is on a high level. While Miloš is in charge of harsh reparations and parts assembling, Tamara has to give every bicycle unparalleled beauty. She also keeps a special place in her heart for this ecological two-wheeler. Riding a bike was something she has genuinely enjoyed ever since she was a child.

I have always loved drawing, painting, everything that has to do with colors and decoration. There, I can enjoy it truly. Yet, the education Miloš and I received directly concerns environmental protection. So hobby and education joined together. We make reparations of old frames, help to save the environment, and love what we create. The bicycle is one of the most excellent guardians of air", says Tamara, an engineer for environmental protection.

When Tamara finishes giving the bicycle a distinct combination of colors and patterns, Miloš comes in and

assembles all parts with frame making exclusive means of transport.

"From the moment a bicycle comes to our workshop, it goes through several stages," adds Miloš. "The first is paint and corrosion removal. After that, there goes preparation for painting, and then we paint it and put glossy coating. While that is being taken care of, parts are being repaired, which involves full mechanical assembly service. Finally, the parts that are completely worn out are replaced with the new ones."

Those emotionally attached to their two-wheelers weathered by time can bring them back faded colors and performances at the couple's workshop. Miloš says that



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The LWC bicycles feature simplicity of usage, which is rarely seen in everyday city bicycles, and the unique design of each model that comes out of this creative garage

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those clients usually express their requirements with a precision of a surgeon. Some are familiar with the work of Cyclo-garage, so they leave the design to this creative couple giving them a free hand.

"Customers have unrestricted freedom to take part in the design of their frame, from picking up the color to the way the frame is painted. More often than not, they get inspired by my very ideas, which are woven into our bicycles", Tamara explains.

For this couple, the feeling of getting shabby bicycles in proper condition, giving them entirely new, vivid looks,



is the most beautiful part of the business. They love to take photos of their work by phases, and one of the best scenarios is taking pictures before and after repair. The satisfaction they feel for having bicycles repaired, painted, assembled, and brought back to life is a singular experience. But, of course, that serves as a motive to back to the workshop with a smile on their faces.

## Old bicycle, new chance

This unmatched business safeguards the environment, although Miloš and Tamara use the terminology very precisely distinguishing recycling from reuse. For each ragged item, there are two solutions. The first is to become another prop at some landfill after having served its purpose,



apparent contribution to environmental protection”, Miloš says.

We also wanted to know how old bike find their way to the Cyclo-garage. The Đuričić's told us that they are usually donated. However, sometimes this couple ends up buying a bike that they consider to have a potential for upgrade.

“We are often surprised by the quality of abandoned bikes. Generally speaking, bicycles from the '70s and '80s are made to last. However, the property of their frames opens many possibilities for creativity.”

Aside from safeguarding the environment, reducing noise levels and traffic jams, the bike also protects our health. Scientists affirm that those who get to pedal regularly live six months longer on average than those who choose other means of transport. So we have many reasons to turn to our reliable two-wheelers this summer and make activities like commuting, doing errands, or going to school a perfect exercise. And if the corrosion here and there has eaten into them, or paint has peeled off, and parts have worn out, don't worry. The Đuričić couple is there to turn an old bike into the new and more beautiful one.

Prepared by: Milena Maglovski



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AS A SHARED RESPONSIBILITY  
FOR SECTOR DEVELOPMENT**

# FREE SCHNEIDER ELECTRIC EXOSTRUXURE POWER DESIGN SOFTWARE

**T**he rapid digitalization process of buildings, households, and business processes places in the forefront the concept of leadership in every sector and the ethical codex of the leader. Those who are first in innovations, anticipating and always being one step ahead of the trends, can't be alone in front, keeping the knowledge and skills for themselves. Furthermore, according to new business ethics, they are expected to share their accomplishments and insights.

Having that in mind, we are presenting an encouraging and significant example in the energy sector for Southeast Europe. We are talking about free user software EcoStruxure Power Design developed by Schneider Electric, the leader in the digital transformation of energy management and automation.

EcoStruxure Power Design software was specially developed for design engineers of energy systems. It allows more accessible, faster, and more reliable design and sizing of low voltage and medium voltage networks, with the possibility to process these two voltage levels independently and integrally within the project. New solutions can define the way of supply and support load by diesel generators and uninterrupted delivery of energy. This innovative solution includes drawing single-pole schemes in .dwg format while generated calculations are exported into pdf and word data. EcoStruxure Power Design software makes calculations in



real-time, with timely database and automated updates. It saves time and simplifies work for design engineers of energy systems.

“Today, we need more than ever connectivity – online and remote, IoT and smart technological solutions,” noted Ksenija Karić, the manager at Schneider Electric for Serbia and Montenegro. “In cooperation with clients and partners, we have managed very quickly to adapt to dynamic changes in the social and economic environment, offering our high technology solutions, automation, and opportunity to access remotely to necessary resources and systems. We are sure that providing innovative and free digital instruments is great practice, and our business will go that way”, says Karić.

Apart from offering free software EcoStruxure Power Design, the Schneider Electric company provides free training to give users a chance to get familiarized with the application's functionality. However, it has been available for nine months, and the software was downloaded only in Southeast Serbia approximately 1,300 times.

EcoStruxure Power Design is based on the IoT EcoStruxure Platform by Schneider Electric company. This solution allows you to connect devices from different systems according to the network size, collect and manage data, and use tools for monitoring and preventive maintenance.



**Download free software EcoStruxure Power Design at the Schneider Electric portal here**

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# DIY WIND GENERATOR

**Now it is very much clear that, while we are combating climate change, the use of fossil fuels is slowly passing into history, and they are being replaced with green and clear sources**

**T**he flexibility of renewable energy sources RESD facilitates global energy transition. So solar panels are installed on vast roofs of big companies and on small roofs of houses and buildings, while wind turbines turn day and night at the hills and offshore.

Still, this is not a story about gigantic projects in the RES sector that can supply the whole companies or even

towns. Instead, we want to introduce a man who has shown us that everything becomes possible with a little help of imagination, a lot of skills, and strong faith in a greener future.

It's not all about the money. There is something in the waste

The key to success in life is love for what you do. Ever since he was in high school in his birthplace Podgorica, Vladimir Tošković has developed a great interest in electronics, and the mandatory courses soon became a hobby. However, out of the prosperous career that Tošković has, wind generator stands out, which he designed and made from, surprisingly enough, waste.

"Frequent power cuts and deteriorated distribution network are the main reason for the beginning of this little endeavor in my village Bratnožiči. I wanted to provide constant supply and better conditions for living in the country", Tošković starts his story about this uncommon enterprise.

When persistence and skills join together, construction material is the slightest problem. For constructing wind

generator, Vladimir used everything that he got his hands on: waste iron, bearings with truck axis, metal profiles and pipes, alternator, and later even a high voltage generator with ceramic magnets that are temperature resistant.

“My goal was to make a construction that will last and be resilient to strong wind blows which are prevailing in these areas, but with minimal maintenance. Therefore, certain adjustments (tearing, welding and soldering) and concreting of strong foundation and girders for an axis of wind generator which was adjusted to easy mounting and dismounting, were all inevitable”, Vladimir explains. He adds jokingly that the villagers were watching him in amazement while working on his invention, asking him what that scrap heap is.

His effort soon paid off, and the wind generator brought 2 kW of free energy. However, the best way to furnish the most considerable profit and constant electricity supply is to provide several renewable energy sources. There is no mistaking with a hybrid system, explains Vladimir, and the combination of solar panels and wind generator has proved to be a winning formula. Therefore, apart from the wind generator, solar panels generate an additional 4 kW of electricity at his estate.

## Hybrid systems for stable electricity supply

In layman’s terms, nature offers energy free of charge. Therefore, it is up to us to use natural resources wisely to provide enough energy for our needs and safeguard the environment for the generation to come.

He didn’t want his children to grow up in a world contaminated with exhaust fumes, so he decided to show by an example the best way to generate green energy.

“Hybrid systems offer a higher efficiency level as they don’t depend on weather conditions that affect the system supplying exclusively from one renewable source. Instead, several available sources might be included such as the energy of sun, wind, tides, and waves, as well as geothermal energy, where we the green electricity is generated in this hybrid kind of connection”, Tošković explains the advantages of the hybrid systems.



**Vladimir Tošković,**  
DIY wind generator constructor

His choice is the off-grid system which accumulates electricity in batteries, in contrast to the on-grid system that has to be connected to the grid. The required equipment for off-grid systems includes batteries and inverter so that direct voltage of the batteries, with accumulated energy received from solar panels and wind generators, can be transformed into alternating voltage for households. Conversion reduces heat losses and increases efficiency by converting the voltage for the inverter’s operation.

“I would always go for high-voltage DC systems due to fewer heat losses, higher efficiency of voltage conversion, and durability of batteries in such systems. Let me explain. We have a low-voltage 12-48 V DC system that uses solar panels for inverter’s operation and charging off-grid system batteries. Suppose we keep taking a large amount of declared power of inverters. In that case, a tremendous amount of heat is released, which reduces the service life of inverters and batteries as electronics work with high amperage.

Moreover, in AGM or GEL batteries for solar systems, the structure of grates is distorted, and the battery’s lifes-

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**The law in Montenegro allows citizens to accumulate electricity that they produced in spring and summer when the insolation is the highest and production is the largest**

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pan shortens due to exposure to high discharge. I am telling you this because we all want more kW. Still, with the best deal when it comes to an investment in the solar system”, this inventor says and adds that solar system needs to be appropriately sized and used, mainly because there are many products available and a variety of equipment’s quality.

The system that he modified for his own needs uses super condensers combined with batteries he employs for inverter’s operation with output power 10 kW and working DC voltage 240-350V.

When it comes to super condensers, they act like batteries, although they don’t have the same features. Depending on the producer’s specification, they can accumulate electricity and have 500,000 to one million cycles of charging and discharging. Even though temperature resistant (operating temperature ranges from -40°C to +80°C), they can charge fast and give large electricity discharge, while the drawback is, according to Tošković, high price, and self-discharge.



Solar system needs to be appropriately sized and used, mainly because there are many products available and a variety of equipment’s quality





He didn't want his children to grow up in a world contaminated with exhaust fumes, so Vladimir decided to show by an example the best way to generate green energy

The truth is that transition to RES sometimes takes huge finances, but that is one of few investments with a return you can be sure. So we asked Vladimir if maintenance of the hybrid system is demanding and who the transition to RES can be more affordable.

“Maintenance includes occasional technical checks and solar panel cleaning, and thanks to my hybrid system, I have less need for electricity from the grid.”

For the best value from RES, it is essential to make the right decisions, and Vladimir has a piece of advice for those who want to use clean resources. He suggests that those who don't need a more expensive off-grid system should use an on-grid system without batteries and calculate household consumption accordingly. That way, they can plan how much electricity they need to produce on the surface appropriate for that purpose. That energy is guaranteed to be purchased, and the electricity bill is reduced, or they will have prepayments for electricity on their accounts by the explicit rules of the country.

The law in Montenegro allows citizens to accumulate electricity that they produced in spring and summer when the insolation is the highest and production is the largest. Therefore, stored energy comes in handy during the fall-winter season, and consumers can distribute that energy and use it whenever it suits them.



Thanks to the detailed research of hybrid systems and significant commitment, Vladimir will soon earn his Master of Science degree. The thesis he will defend will draw attention in the upcoming years. We talk about charging the entire data centers, which are among the biggest electricity consumers globally, by using exclusively clean resources so that the harmful gas emissions can be significantly reduced.

Prepared by: Milena Maglovski

# New mobility as a solution for decarbonization of transport in Serbia

The Covid-19 pandemic has shown the essential role and necessity of transport, especially when the movement of people, goods, and services is severely limited. Before the crisis, continuous economic growth wasn't harmonized with climate change, considering that today's market economy was built on the dominant use of fossil fuels. For a significant cut of this dependency of the economy on coal, it is crucial to make alternatives widely available and establish appropriate incentives for sustainable solutions. The new way of thinking about public policy recognizes green mobility as the only way to transition to a green economy in approach and at the necessary scale.

In December 2020, the EU adopted The Strategy for sustainable and smart mobility\* by which were established guidelines for sustainable and smart solutions in transport, aiming for at least 30 million vehicles with zero emissions of harmful gases to be on roads throughout Europe by 2030. Furthermore, the EU Green Deal calls for even a 90 percent reduction of greenhouse gas emissions that come from transport, with a view to reaching a climate-neutral economy in the EU by 2050.

\* <https://ec.europa.eu/transport/themes/mobilitystrategy>

Decarbonization of the transport sector is also one of the main pillars of the Green Agenda for the Western Balkans that has been supported by the leaders of the Western Balkans countries in November 2020 on the summit organized in Sofia within the Berlin process.

The essence of e-mobility is promoting climate-neutral ways of transport. Although technological innovations, costs optimization, and favorable regulatory environment in more developed economies accelerated the expansion of e-mobility, in countries in development, that process is still just emerging.

Undoubtedly, e-mobility comes with certain drawbacks such as higher prices of electric vehicles, initial capital expenses for electric charging, a longer time for battery charging, problems in traveling long distances, etc.

and Norway, is leading the way to transition to electric mobility. However, other countries face challenges due to many factors such as limited regulations, low level of state aid to this sector, lack of infrastructure for EV charging, etc. Also, decision-makers don't show a coherent vision about how electric mobility should be promoted. In order to make powerful economic arguments about the transition to electric vehicles supported, it is necessary to understand better the Total Cost Of Ownership TCO, which shows that electric vehicles are more economical than vehicles with an internal combustion engine. Furthermore, considering the monetary value of greenhouse gas emissions and air pollutants (shadow price), the rationale for the transition to electric solutions becomes even more evident.



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**The City of Belgrade announced replacing old fleet with new buses on CNG, which might bring certain financial, economic, and ecological gains due to higher fuel efficiency, lower expenses for maintenance, and reduced carbon emissions**

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Given that, the economy of scale is vital for the extensive implementation of e-mobility. At the same time, the price of electric vehicles is closely connected to the expenses of lithium-ion batteries, which make for approximately 30 percent of the production costs. Due to the drop in batteries costs, the price of electric vehicles has significantly reduced over the last decade. On the other hand, the difference between electricity price and fossil fuels' price has also become relatively small.

It is not surprising that on a global level, electric vehicle demand is expanding. China, along with Netherland

## How to encourage the implementation and usage of electric vehicles?

First, we need a straightforward course of public policy supported by powerful appropriate regulations to enable participation of the private sector, and that way to provide sufficient means to policy implementation with the following goals:

1. Stimulation of individual transition toward electric vehicles in the field of private cars and light commercial vehicles in urban areas (for example, financial subsidy for electric vehicles owners, perks in toll payment and parking favoring electric vehicles, possibility to use the bus lane, etc.)
2. Stimulation of commercial transporters for the economy of scale (introducing electric buses with batteries, promoting trams and trolleybuses with or without charging solutions, etc.)
3. Introduction of EV charging infrastructure.

Secondly, the key element for the development of electric mobility is promoting market economy principles and innovations. It is necessary so that the private sector can

adjust and offer new innovative solutions in vehicle production and related supply chain. At the same time, besides electric vehicle production, we should work on other environmental issues such as investments in waste management and lithium-ion battery recycling. In addition, it is vital to improving the grid to support the needed infrastructure for electric vehicle charging. The strategy for increasing electricity production from renewable energy sources will also require significant investments in the distribution network capacity that has to be sufficient enough for the projected growth in demand.

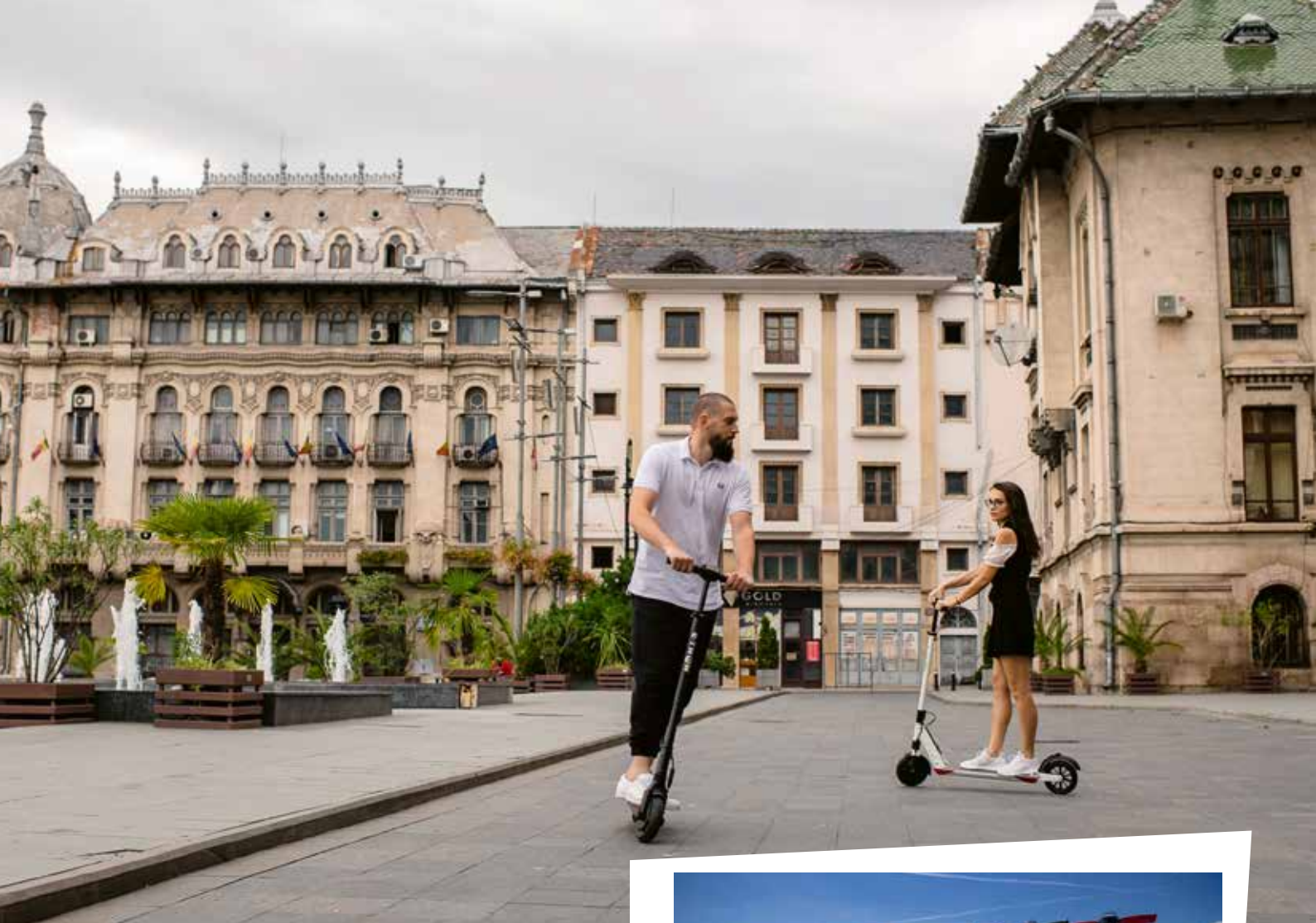
More than 100 electric vehicles in Serbia and around 1,500 hybrid vehicles have been registered by March 2019. To boost this number, in March 2020, the Government introduced subsidies for the purchase of electric and hybrid vehicles as part of measures for improving air quality. However, what's missing are the progressive legal framework and clear direction of policies focused on increasing the market share of electric vehicles.

Serbia has an active role in the EBRD Green Cities program, currently preparing the Green City Action Plan GCAP in Belgrade and Novi Sad. The increasing usage of vehicles on alternative fuels and electric mobility are highlighted in these action plans.

To support the introduction of electric mobility in public transport, in 2016, the City of Belgrade brought in five electric buses. During this year, additional ten buses will be in use according to the plan. Initial analysis of TCO costs suggests that electric buses in Serbia are already more cost-effective than their diesel equivalents, even without considering the economic externalities, further improving long-term economic benefits. Moreover, street trams and trolleybuses in Belgrade offer additional potential for optimization of available technological solutions in the field of battery charging in the move, namely for usage of hybrid trolleys or those on batteries. On the other hand, the City announced replacing the old fleet with new buses on CNG,







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A good example might be a bike-sharing service that allows users to rent bikes for short distances, expanding the city tourist offer

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which might bring certain financial, economic, and ecological gains due to higher fuel efficiency, lower expenses for maintenance, and reduced carbon emissions. Still, this solution isn't a desirable long-term method for decarbonization and can lead to future limitations caused by a present technology application.

Aside from electric mobility, GCAP aims to promote public micro-mobility services, which shows a tendency to become a crucial alternative to public transport and a key for flexible passenger transport for shorter distances. Such measures were successfully implemented in many European cities anticipating the introduction of flexible transport (shared scooters, bikes, motorcycles, and cars) in the public transport system of passengers as an alternative for the betterment of the present system. A good example might be a bike-sharing service that allows users to rent bikes for short distances, expanding the city tourist offer.

The pandemic aims to change the face of mobility, and the answer to the crisis requires a new way of thinking and approaches that turn ambition into action. It is needful to clearly identify challenges and possibilities and define the policies and incentives for their application to support the application of new and sustainable forms of mobility and flexible transportation concept instead of the personal vehicle approach. Moreover, priority regulatory reforms and incentive schemes should offer explicit market signals and encourage investment decisions, both in the public and private sector, towards further adoption of electric mobility and the development of necessary accompanying infrastructure. We expect the broader strategic approach through the EBRD Green Cities program to bring numerous benefits, including setting the priorities to respond to identified challenges.

Prepared by: Dejan Zlatković, the regional economist at the EBRD for the Western Balkans

**IN FOCUS** EPARK 011

# WHERE TO CHARGE AN E-BIKE OR E-SCOOTER?

**A safe place for parking and charging**



The past year has shown us the importance of being ready for significant changes. Since many people have worked from home, with limited mobility and restricted use of public transport, the need for alternative solutions has arisen. It has opened the space for the breakthrough of the favorite two-wheelers. Bikes and scooters, especially those electrically powered, became a real urban hit.

They are economical, practical, and don't pollute. They can provide us a faster ride to a destination. We don't have to worry about where to park them. There is enough parking space for them everywhere. Free one.

All of this is very important, mainly if e-bikes and e-scooters help us cut down the emission of harmful gases. However, people avoid the ride on the central streets because the participation of e-scooters in traffic has not been regulated. The Road Traffic Safety Agency (ABS) has already been working on the new Law on Road Traffic Safety. So, it is expected that this traffic area would be regulated soon, improving the safety of the e-scooters owners and other participants in traffic.

According to announcements, we will rely on the experience of other countries when enacting regulations in this area. The Slovenian law regulation is the closest one to Serbia. It limits the ride of e-scooters to pavements and bike paths. The speed is limited to a "walking speed" of 6 kilometers per hour. The penalty for breaking the speed limit is 40 euros, which can be applied in our country. The speed limit provides more safety since the risk of injury increases with a faster ride.

However, it seems that provisions of the law that will be enacted won't affect much the popularity of two-wheelers. Easy managing, possibility to avoid traffic jams and safety of e-scooters are predominant reasons for choosing this means of transport, especially among younger generations.

## What bothers the owners of bikes and scooters?

There are places in Belgrade provided for parking bicycles, but things are not so great when speaking of safe and secure parking and charging e-bikes and e-scooters.

Lately, the citizens of Belgrade and visitors with electric two-wheelers may relax and relieve. They can park and charge their favorite e-scooters and e-bikes at the special parking place.

The Smart City station represents the joint of safe parking and place for charging electric "wheels" and is located in the Little Kalemegdan Park, between the staircase and the Tsarigrad Road. Charging is free for everybody. With this station, Belgrade joined a few prominent world cities, which enabled the citizens the advantages of parking this type of eco-friendly vehicles.



To unlock the parking space, you need a Bikekeep app on your smartphone or RFID card. There are four security levels so you can leave your vehicles parked or on charging without stress. The two-wheelers are secured with steel construction, video surveillance, alarm, and signal forwarding in case of an attempt of stealing.

When you get to the parking place, place your card on the reader or unlock it using the app. Then you park your scooter or bike and lock it. Red light signals it is locked. To unlock it, you do the same – tap your card or use the app.

Marko Arambašić, the initiator of this project, says that the idea is to enable the users' free mobility while commuting and make them feel secure that their vehicles are well-kept and charged at every moment.

Marko runs the eco-startup ePark 011, founded during the COVID-19 pandemic when many newly established companies have been shut down. He started the initiative for the green station from his resources, with the consent of the Institute for the Protection of Cultural Monuments of Serbia and the Public Enterprise Belgrade Fortress.

"This project is so important to me. Not only because I am the investor but because I am a citizen of Belgrade, where I live with my family. The first station proves that something like this is possible as teamwork of private and public sector. But the greatest challenge is ahead of us – to make green stations come to life", Arambašić points out.

He wishes that as many entrepreneurs and companies as possible would join the green initiative and make stations available throughout the city to create a positive change and improve the quality of life in our town.

Prepared by: Milica Radičević

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# A SUCCESSFUL FIGHT FOR A HEALTHY ENVIRONMENT NEEDS COURAGE

**T**he experts and professors in the fields of environmental protection and preservation founded the National Ecological Association (NEA) this April. It might not be breaking news except that, despite the activities of many different institutions and associations that insist on fighting for a healthier environment, there is still a real need for an independent problem assessment in this field. The founders of the association say that they will represent the necessary professional institution that will realistically present everything that should be done to overcome mistakes and failings in environmental protection.

Our citizens have shown great interest in sorting out air, water, and soil pollution problems. They have demonstrated readiness for changes and wish to participate and contribute to making these changes implemented. NEA is here to direct, advise and help them solve the problems, say smeteorologist Milenko Jovanović, one of the cofounders of the association. However, what is the real help NEA offers?

“Accomplished people, experts in this field and of personal integrity, who don’t chase positions and affection of superiors, have decided to take place in the expert sky of ecology and give selfless, at least modest, contribution

in the situation of inaction and status quo. We refuse to politicize our future actions in the field, which, because of the decades-long wrong politics, seriously came to a dead-end when speaking of the exercise of legal and constitutional rights of the citizens to have an acceptable level of the quality of the environment. In other words, we have put professional reasons first”, Milenko Jovanović explains.

Since the reactions of decision-makers about the continuous deterioration of the quality of the environment are missing or late, Milenko thinks that in the National Ecological Association, they didn't have much choice. “Serbia must be a healthier and cleaner place for citizens to live,” he says. He also points out that the mission of the National Ecological Association is constant, persistent, and common fight through institutions, activism, and, most of all, with professional support, for less pollution of our only and most beautiful country.

There are no examples in nature, among animals, of cases when a single animal or a group endangers a living space, like human species do. Therefore, if we see the envi-

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**Milenko suggests we look up to Slovenia, Croatia, Romania, or Hungary, where dealing with the environment is the democratic rights of citizens.**

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**Milenko Jovanović,**  
one of the founders of NEA

explain the impact of excessive pollution on people's health, especially one of sensitive categories like children.

Each year 7.500 people die in Serbia because of excessive air pollution (according to WHO methodology). Therefore, there is no greater priority than to cut that number down using known, achievable, and expertly justified measures.

The founders of the association have great plans. They will sign a Memorandum of Cooperation with dozen organizations dealing with environmental protection. They want to strengthen the information exchange network and help the associations with expert interpretation of the problems and solutions.

“For each case of endangering the environment and people's health, there is a solution, often complex, expensive and unplanned. Nevertheless, the common thing for each situation is the non-recognition of the problem and lack of determination to take action. It is exclusively in the domain of institutions that act like they are not ready to recognize past omissions. And as a matter of fact, they should enter into a battle that they must win for the sake of

### HOW WILL NEA HELP US?

The National Ecological Association will be organizing the following activities:

- all sorts of youth education because the more familiar they are with the challenges of environmental protection, the more efficient activities would be
- expert round tables where there would be offered ways to solve dire conditions in the field of air and water pollution, lack of drinking water, soil pollution, and the treatment of contaminated locations.

ronmental contamination only as an endangerment of the natural habitat of human species and not as a collective impact on people's health, it can be an alibi for incompetent decision-makers to continue not dealing with these problems properly, Milenko says.

NEA gathers a large number of responsible experts from different segments of environmental protection. However, the key trait of those people is courage, the increasingly rare feature, Milenko points out. “There are many physicians among the members, professors who can help analyze and

the citizens”, Milenko says. He suggests we look up to Slovenia, Croatia, Romania, or Hungary, where dealing with the environment is the democratic rights of citizens.

As a rule, the reaction of our competent institutions comes only after the pressure of citizens and associations, though reluctantly. “It remains unclear who are the advisors who suggested certain measures,” Milenko says. “I want to underline that it is unreal to expect politicians to be experts as it is inadmissible that they make decisions in the name of experts.”





**PEOPLE AND CHALLENGES****TEAM CONFLUENCE BELGRADE**

# A SOLAR-POWERED CATAMARAN

**The Faculty of Mechanical Engineering students of the University of Belgrade, shipbuilding engineers to be, gathered in the Confluence Belgrade team, have found the solution for a bunch of waste that, unfortunately, ends in our rivers and lakes. For some time, this group of young people has been developing advanced, energy-efficient, and ecological vessels. Their Sava Eko project represents a solar-powered catamaran that should contribute to removing the waste out of our water streams, as obvious evidence of our negligence and unconsciousness.**



The Confluence Belgrade student team was founded in 2017 to help students apply and upgrade their knowledge and gain the needed experience to further develop their professional careers.

The students already made significant results at the first competition in Saint-Tropez in 2017. The Sava ship won second place in the light cargo ships category, while the Dunav ship won third in the heavy cargo ships category.

Floating islands of waste are real ecological disasters since they endanger water streams, the function of the hydropower plants, and the safe water supply. Moreover, they have a devastating impact on all the living world in the water. That problem initiated the idea of a vessel that could make the environment healthier and the whole society.

Nemanja Ilić, one of the Confluence Belgrade student team members, has had the great pleasure of joining this project. They have started with the support of the professors of the Shipbuilding Department and the Faculty of Mechanical Engineering management. “We wanted to come up with a solution that would slow down and cut down the pollution of the river and other water surfaces in our country as well as worldwide. Nature is given to us, but we have to take care of it if we want it to repay us with its beauties and benefits”, Nemanja says.

## The conceptual design

The base of the Sava Eko vessel is the hull of the Sava 1 ship, which was used at the Hidrocontest competition in Saint-Tropez in 2018. The vessel should consist of two hulls connected with stiffenings, making that way one vessel, a catamaran. The dimensions of the prototype of this two hulls vessel should be 2,54 x 1,48 m. The ship is supposed to be steered by a remote control system. The operator would navigate the catamaran from the land towards the critical points in the water streams where the waste is held. The cameras and video links would provide a good overview of the situation. Nemanja says they plan to build a large vessel (6 × 2.5 m) that a pilot would steer. “The idea is to set up solar panels to supply the electromotors with energy. We will also need a battery for energy storage and a backup when there is no sunshine.”

The realization of this project requires significant financial support, so Nemanja invites all the sponsors who recognize the idea and the vision of the Confluence Belgrade team to join and help, contributing that way to the process of nature conservation.





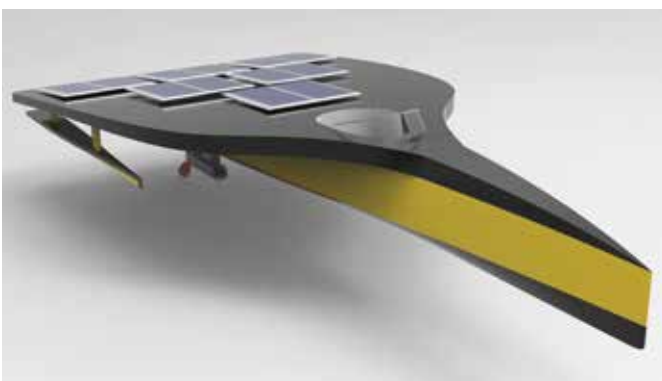
## The challenges of the craftwork

While they were working on the Sava Eko project, the students could roll up their sleeves for the first time. They got down to making the catamaran hull like real artisans.

“We had to commit ourselves to the practical work too so we could gain the sense of the way the ship construction itself breaths. We had to learn that what was written on the paper doesn’t have to be performed the same way and that we needed time, work, and effort to coordinate these two parts of the project”, Nemanja says. He points out that the students managed to handle work in the workshop, where they checked all the ideas and calculations from the pre-project.



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The conceptual project for the competition in Monaco in 2022



A solar-powered catamaran should contribute to removing the waste out of our water streams, the operator would navigate the vessel from the land towards the critical points where the waste is mostly retained

The team is incredibly proud of the reactions from their colleagues, professors, and the public. However, they are not stopping here. They are planning a new project instead. It is a solar-powered vessel with more energy efficiency, which will create less pollution. The project is being prepared for the Monaco Solar boat challenge competition held in Monaco in 2022. To meet the criteria, they will have to come up with an 8 meters long and 2,5 meters wide vessel with a pilot who will steer it directly.

“We are aware that this competition requires much more working hours, investigations, creative work, all the resources. However, we already have the conceptual project of the vessel for this competition, so we are going to practice model testing to define the optimal concept and the form of the ship”, Nemanja reveals.

Prepared by: Milica Radićević

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