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# ENERGY PORTAL MAGAZINE

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**YAHEL VILAN**
Ambassador of Israel
**Land of Technological Innovation**

**OGNJEN BJELIĆ**
Provincial Secretary
**When the Plain Grows Green**

**SANJA STOJKOVIĆ**
Head of Business British Motors
**Future of the Automotive Industry**


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Dear readers,

The New Year started very successfully in our company, and the new changes came with it. Our colleague Tamara Zjačić left our well-coordinated team and is now part of new projects, but she is still great support for our refreshed team.

Even though she is with us for a short period, my new colleague Milica Marković who is also my deputy, managed to make a real contribution with her energy, work and dedication. It was already decided that this issue will be about electric vehicles, the subject that Milica feels very comfortable with, considering that she comes from the automotive industry.

In addition to articles that usually come from our small but valuable editorial office, we bring you news from Israel. In conversation with our journalist, H.E. Yahel Vilan, the Ambassador of Israel to Serbia, among other things, told us about the deadline for the suspension of electricity production from coal, the development of infrastructure for electric vehicles charging and economic cooperation between Israel and Serbia in the last 30 years. "Israel has become a leader in water treatment and efficient use of this resource out of pure necessity. As you know, 60 per cent of the country is a desert, so we had to overcome the lack of water and think about ways to use our resources in the best manner," said Ambassador Vilan.

The real star of this issue is if you allow this little bias, the Jaguar I-PACE and the experience that pushes the boundaries like the title itself says. I can only imagine what the new model that will soon arrive in Serbia will be like when its predecessor is so good. We talked to Sanja Stojković, the Head of Business, about further plans of the British Motors company.

A larger number of electric vehicles in Serbia cannot be expected without expanding the network of EV chargers. There are already renowned manufacturers of electric chargers in our market such as ABB, Schneider, and Siemens, with whom the company charge&GO cooperates. If you haven't heard of this company by now, you may have already read about the first regional charging platform for electric cars that they made. In this issue, you can find the text about charge&GO and the chargers themselves.

As a key player in the derivatives market, NIS Gazprom Neft is the first oil company to equip its gas stations with fast chargers for electric vehicles. They have also been developing energy-efficient projects for many years.

The story of the electrification of its islands comes from neighboring Croatia. We talked with Maja Jurišić, the president of the Island Movement, and Hrvoje Prpić, the president of the Electric Circuit, about why the electrification of the island is important and the conditions for such a project to be successfully implemented.

I am very proud that we also have articles about two large European organizations that deal with green energy in this issue. We talked to WindEurope and Solar Europe directors about developing the renewable energy sector, and I would warmly recommend you read their forecasts.

Finally, I would like to point out that the 30 texts of this issue offer a good insight into the RES and electromobility sectors in our country and the region and Europe. If you have not thought yet about building a solar power plant or installing a home charger, I believe you will get a clear idea of all the reasons and benefits to join these trends.

Nevena Đukić,
Editor in Chief

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A country of technological innovation and water scarcity

**This year, Serbia and Israel mark 30 years since the renewal of diplomatic relations, which various activities will accompany. A significant step forward in economic relations was the opening of the Serbian Chamber of Commerce Representation in Jerusalem, which greatly contributed to the expansion and deepening of economic relations, especially in innovation, entrepreneurship and hi-tech. We can learn a lot from Israel about managing resources wisely, primarily about water treatment and its efficient use, since the desert occupies 60 per cent of Israel, and this country is a leader in the water treatment segment.**

16 **SANJA STOJKOVIĆ, Head of Business British Motors**
Electric vehicles are the future of the automotive industry

**In 2020, Jaguar Land Rover unveiled a new business strategy, Reimagine, aimed at zero carbon emissions in the product and process supply chain. The JLR group plans to achieve the set goals and provide a unique user experience through luxury and exceptional design with a positive social impact. When it comes to the situation in our country, state support is the basis for improving the electric vehicle segment. Subsidies can undoubtedly contribute significantly to better sales of electric vehicles. In addition to subsidies, the use of electric cars is greatly conditioned by the development of the electric chargers network.**



## IN THIS ISSUE



Photographs: (Vilan) courtesy of Yahel Vilan; (Stojković) British Motors








Photographs: (Dešić) ABB; (Hemetsberger) SolarPower Europe

# A COUNTRY OF TECHNOLOGICAL INNOVATIONS AND WATER SCARCITY

It seems that we can learn the most about how to wisely manage resources from countries that do not have them at their disposal to a significant extent. Among those shining examples is certainly the country of Israel, which has become a leader in the treatment of water and its efficient use out of necessity, since 60 per cent of this country is desert. It was a real challenge to solve the water shortage and find the best way to use the modest water reserves, says Yahel Vilan, Israel's Ambassador to Serbia.

We also asked our interlocutor about the deadline for the suspension of electricity production from coal, the development of infrastructure for charging electric vehicles, and economic cooperation between Israel and Serbia.

**EP** ***This year, Serbia and Israel are marking 30 years since the renewal of diplomatic relations. What are the relations between the two countries, in political and, of course, in economic terms?***

**Yahel Vilan** The embassy of Israel will mark this jubilee with different activities. We are preparing numerous projects in the spheres of culture, public diplomacy, and economy.

**YAHEL VILLAN (January 1, 1968) has been the Ambassador of the State of Israel to Serbia since 2020. He completed his undergraduate academic studies in political science at Tel Aviv University in 1995, and then his master's degree in security studies at Tel Aviv University.**

**He began his diplomatic career in 1996 as the second Secretary of the Department of Northeast Asia at the Ministry of Foreign Affairs. Between 2001 and 2003, he served as the public relations consul of the Consulate General of Israel in New York. He was appointed Deputy Chief of Mission of the Israeli Embassy in Budapest in 2005. In 2008, he left for the position of Deputy Chief of Mission of the Embassy in Warsaw. From 2011 to 2015, he worked as the Deputy Head of Mission at the Embassy in India, after which he was appointed Ambassador of Israel in Nairobi. From 2017 to 2020, he was the Director of the Department for East and South Africa at the Ministry of Foreign Affairs.**

**He was appointed Ambassador of Israel to the Republic of Serbia and Ambassador to Montenegro on a non-residential basis in 2020. He is married and the father of four sons. He speaks Hebrew, English and French.**



We could be a world leader in the electric vehicle sector, but the state of infrastructure, and especially the power grid, is hampering progress

Relations between Israel and Serbia have a positive trend of development. Bilateral trade has a steady upward trend. This year we reached 107 million USD representing growth by 31 per cent on an annual basis, a very nice figure. We have several agreements in force, such as the Agreement on Cooperation in Agriculture, Agreement on Protection of Investments, Avoidance of Double Taxation, Protocol on Cooperation between Israeli aid agency Mashav and Serbian Ministry of Agriculture etc. Unfortunately, we don't have a Free Trade Agreement, which would enable further, faster growth of trade.

During the visit of President Rivlin, the two countries formed a Joint Committee on Economic and Trade Cooperation, whose first sitting hopefully will happen this year. Unfortunately, the situation with the pandemic slowed down certain bilateral activities.

A valuable step forward in economic relations was opening the Representative Office of Chamber of Commerce and Industry of Serbia in Jerusalem this autumn. It contributes to expanding and deepening economic relations, especially in innovation, entrepreneurship, and hi-tech.

**EP** ***As far as we know, many Israeli companies are interested in investing in Serbia, especially in the RES sector, in solar primarily. What is cooperation in the field of energy?***

**Yahel Vilan** Cooperation in the field of energy is on the rise, especially in the last 2-3 years. We are about to sign an MOU (Memorandum of Understanding) on Cooperation in Green Energy. Serbia has an ambitious goal of achieving 40 per cent of energy from renewable sources by 2040 and new regulations (Laws and By-Laws) which make the environment for investments favorable. Israeli companies are eager to contribute to this goal by investing in wind and solar energy primarily.

Photographs: (top right) courtesy of Yahel Vilan ; (other photographs) The Israel Ministry of Tourism

The Ministry of National Infrastructure, Energy and Water Resources is implementing its plan to ban the sale of vehicles with internal combustion engines in 2030



As you mentioned solar, yes, the embassy has marked an increased interest of companies investing and setting up their operations in the upcoming period.

**EP** ***Kovačica Wind Farm, capacity 104.5 NW, investment of the Israeli company Enlight Energy is the most valuable Israeli investment in Serbia, 189 million euros worth. The same company has developed the Pupin wind farm, which is ready for construction and is awaiting auctions. Does that mean that Serbia is a good place to invest?***

**Yahel Vilan** Investment of Enlight Energy is the first and the most significant Israeli investment in green energy in Serbia. It has set the ground for other companies to come based on their positive experience. The company is expanding its operations with the Pupin wind farm, which means they see Serbia is a stable investment environment with a positive business outlook.

Serbia proved to be a stable and predictive business environment during the pandemic based on macroeconomic indicators and generous packages of assistance provided to the economy and citizens.

**EP** ***What energy sources does Israel use, and how much has it moved in the process of the energy transition?***

**Yahel Vilan** There is a growing awareness in Israel and worldwide of the importance of turning to renewable energy

sources such as solar radiation, wind, biogas/biomass, earth heat and other sustainable natural resources.

Reducing dependency on imported fuels contributes to the energy independence of any state. This is of strategic importance for Israel, which is like an electric island because it is not connected to any grid!

Only in the last decade has the country paved a way towards becoming a significant natural gas supplier. As of 2018, the country's electricity output is mainly generated

from natural gas (66 per cent) and coal (30 per cent), while at least 3 per cent is generated from renewables.

In 2019, the Israeli government announced its target to phase out coal-fired power generation by the end of 2025, five years earlier than originally targeted. To achieve this, the government plans to "switch" the Ashkelon coal-fired power plant to natural gas by 2024 and intends to do the same with two more coal-fired plants at Hadera's Orot Rabin by the end of 2025.

Israeli Ministry of Energy outlined the main objectives by the year 2030, which will make Israel fully comply with Paris Agreement on Climate Change: These include stopping the use of coal in electricity production and switching to electricity production using natural gas, a 17 per cent share of RES in electricity production by 2030 and a reduction in national electricity consumption of at least 17 per

cent. In this energy mix, the benefits are economic, environmental, and health.

**EP** ***Are there any Israeli experiences in the field of energy that could be applied in Serbia? Perhaps in terms of regulations or the introduction of some new technologies?***

**Yahel Vilan** There are start-up companies in this field – companies that offer mapping of areas for installing solar systems, companies that have invented two-way solar

> Bilateral trade has a steady upward trend. This year we reached 107 million USD representing growth by 31 per cent on an annual basis. This is a very nice progress



panels, companies that connect to the power grid of energy, solar robot cleaning companies, systems that increase solar production from the sun, optimize solar farms and more.

The solutions come from the worlds of software, IoT and big data, in which Israel is very prominent. Apps that monitor energy usage in your home, helping consumers become more energy efficient and save electricity, and even electric roads that supply energy to the vehicles travelling on them are also noteworthy.

**EP** ***Apart from energy, Israeli companies are interested in investing in the wastewater industry, in which Serbia should invest billions of euros in the coming years. In June 2021, during the event you organized in CCIS (Chamber of Commerce and Industry of Serbia), it was mentioned that Serbia processes only 5 per cent and Israel 95 per cent of wastewater, is this true?***

**Yahel Vilan** In line with Serbia's EU accession and necessity to align and meet with EU standards in water treatment, the embassy put an emphasis on promoting and introducing Israeli water treatment technologies in Serbia.

In this regard, in cooperation with CCIS, we organized a conference in June where we presented several Israeli water treatment companies.

The gap between the current situation of having ten and the fact that Serbia should develop 350 water treatment plants in the next decades is huge. So, there's room for our

Israeli Ministry of Energy outlined the main objectives by the year 2030 which will make Israel fully comply with Paris Agreement on Climate Change

and other companies to contribute to meet the needs successfully and efficiently.

Israel became a leader in water treatment and efficient water use out of necessity. As you know, 60 per cent of the country is desert, so we had to overcome water scarcity and think of how to use to the best extent sources that we have. This resulted in developing technologies which recycle municipal water, in the percentage you mentioned, to the extent of further use in agriculture or even potable water safe to drink. An Israeli company developed satellite imaging and detection of leakage in existing water pipelines which prevents enormous losses in water and the finances of public utility companies.

Our companies and their representatives in Serbia are ready to assist and speak to any municipality or industrial facility facing the challenge of wastewater treatment.

In this regard, the embassy's economic department is at disposal to municipalities or industries as well and would be happy to arrange a meeting or a visit of representatives of Israeli companies.

**EP** ***When it comes to electric vehicles, what do you recognize as the best model for encouraging people to buy them - financial incentives or other benefits such as tax relief or the granting of special rights, for example, the use of lanes reserved for public transport?***

**Yahel Vilan** Well, financial incentives or a tax relief provide a motivation. In my opinion, having in mind all the importance of such cars, the only real solution from all points of view including pollution is investing much more in public transportation. This is the best solution, and I think that all governments efforts and financial incentives should go in that direction, more than for any kind of private cars. Investment in public transportation infrastructure, including traditional ones such as railways, represents a more efficient use of funds along with environmental benefits.

An Israeli company has developed the use of satellite imaging to detect leaks in a pipeline system that prevents huge losses in water and in the finances of public utilities

**EP** ***What subsidy programs has Israel set up for the purchase of fully electric vehicles? Are you familiar with the market share of electric vehicles now, and the goal set for the future? How developed is the charging station network?***



**Yahel Vilan** Israel has major advantages when adopting electric vehicles due to its unique conditions. It is a relatively small country which allows for a more convenient deployment of charging installations. Along with this, fossil fuel prices in Israel are higher when compared to electricity prices. It has its own natural gas energy sources for the electricity generation, while it has almost no oil reserves. Also, Israel is one of the most innovative countries in the world, and its public is known as the early adopter and leader of technological innovation.

At the same time, the introduction of electric vehicles in Israel is slow and limited. For these reasons, the Ministry of Energy, along with other governmental ministries, is removing barriers and providing incentives and information throughout the country to accelerate the introduction of electric vehicles.

Israel's electric vehicle market accounts for 5.5 per cent of all vehicles sold. Despite the country could be a world leader in the electric vehicle sector but infrastructure, particularly the electric grid, is holding back progress. In fact, Israel is not prepared to handle the 215,000 electric vehicles forecast to be in use within the next four years. To overcome the above obstacles the government is encouraging the construction of public charging station network. In this context, the Ministry of Energy has published four requests for proposals for the installation of fast (DC) and slow (AC) charging stations in Israel for a total amount of 30 million NIS, which led to the installation of approximately 2,500 charging stations in Israel by the end of 2020.

At the same time, the Ministry of National Infrastructure, Energy, and Water Resources carries out its plan to ban the sale of vehicles with classic engines in 2030.

There is a huge gap between the fact that there are only ten water treatment plants in Serbia and the fact that 350 plants should be built



**EP** ***You supported the establishment of the Association of RES Serbia with your presence, is the embassy planning any joint activities with the Association?***

**Yahel Vilan** Yes, the embassy was happy to support and be present at the launching of the Association. Renewable energy is among our top priorities this year. We hope to co-operate with the Association in organizing a joint event or conference together with other relevant partners to bring Serbia's green energy potentials to the attention of Israeli companies.

Interviewed by: Danijela Isailović



# SUBSIDIES FOR THE PURCHASE OF AN ELECTRIC VEHICLE AND HOW TO GET THEM

**The next decade is bringing a real expansion of electric and hybrid vehicles. Although these vehicles have been present on the market for years, according to the announcements of almost all global car manufacturers, the production and sale of electric and hybrid cars will be at their peak in the years to come. Contributing to this are the various environmental regulations adopted by countries around the world, the growing environmental awareness of the general population, and the need to reduce greenhouse gas emissions**

The majority of potential buyers find the high price of electric and hybrid cars as one of the biggest obstacles. Most of them hope that the mass production of these vehicles and the constant advancement of technology in the near future will affect the price, making these vehicles affordable and accessible to the general population. To help citizens afford eco-friendly vehicles, many countries, including Serbia, encourage the purchase of electric and hybrid cars by providing subsidies, incentives, and many other benefits.

In 2020, the Government of the Republic of Serbia passed the Decree on the conditions and manner of conducting the subsidized procurement of new exclusively electric and hybrid vehicles, as well as vehicles propelled

Photographs: Bojan Džodan

**ALLOCATED SUBSIDIES**

- **Mopeds and light tricycles – 250 euros**
- **Motorcycles – 500 euros**
- **PLUG-IN hybrid vehicles – 3,500 euros**
- **Hybrid vehicles – 2,500 euros**
- **Electric drive vehicles – 5,000 euros**

***Funds are paid in RSD at the official middle exchange rate of the National Bank of Serbia on the day of payment of the purchase price**

by an electric generator (hybrid drive) accompanied with an internal combustion engine. During 2020, a total of 242 requests were submitted, and 108 natural and legal persons received subsidies for the purchase of 108 vehicles. According to the Ministry of Environmental Protection, close to 30,365,000 RSD were spent on these subsidies.

The data provided by the Ministry show that the interest of the citizens in the procurement of these vehicles is growing on an annual basis. Thus, in 2021, 435 requests arrived at the Ministry, 363 natural and legal persons received funds to purchase 503 vehicles, and about 165,070,000 RSD were paid.

"Out of 363 applicants who exercised the right to a subsidy, 226 are natural persons, and 137 are companies. Citizens generally apply for one vehicle, while companies often apply for more than one vehicle, making this a total of individual subsidies for 226 vehicles, while companies received subsidies for 277 vehicles", an explanation came from the Ministry of Environmental Protection.

The fact that 150 million RSD has been allocated from the budget for subsidies in 2022 shows that the wishes and needs of citizens and their aspirations towards environmentally friendly vehicles have been recognized. The new regulation, which simplified the procedure, entered into force on January 8 so that all interested citizens, legal entities, and entrepreneurs can submit their applications for subsidies until October 31, 2022.

## List of documentation needed

The request for a subsidy is submitted to the Ministry of Environmental Protection and must include:

1. Applicant information
2. Confirmation that no previous bankruptcy, reorganization, or liquidation proceedings have been initiated against the legal entity
3. Confirmation that the legal entity or entrepreneur does not have a final judicial or administrative measure prohibiting activity or conviction for economic offence
4. Proof that the legal entity or entrepreneur has settled all due public revenue obligations
5. Confirmation that the natural person has not been convicted of crimes against the economy, property, life, and body, and public order
6. Confirmation that the natural person has settled all obligations based on property tax
7. Certificate of homologation issued by the Traffic Safety Agency
8. Certificate of Conformity ("COC"), containing data on $CO_2$ emissions for hybrid vehicles and data for electric vehicles showing that the vehicle is electric
9. For legal entities – notarized OP form of the person authorized to represent
10. Pro-forma invoice of the supplier for the purchase of a new vehicle
11. Contract agreement between the supplier and the legal entity, entrepreneur, or natural person containing the name of the manufacturer, year of manufacture, type, variant, engine power, the total price of the vehicle, amount of value-added tax, method, and deadline of delivery
12. Supplier's statement that the subject vehicle is on stock and may be delivered
13. Declaration of the supplier that the vehicle meets all the conditions prescribed in Article 1 of this Decree
14. Confirmation that the supplier is an authorized dealer for the sale of new vehicles authorized by the manufacturer of the subject vehicles and that he is registered with the Agency for Business Registers for the sale of vehicles subject to the request under the relevant code (Wholesale and retail trade and repair of motor vehicles and motorcycles) or a certificate that the seller of the vehicle subject of the request is the manufacturer of the vehicle
15. The applicant's statement on the manner of purchasing the vehicle: own funds or through financial leasing.

Mandatory documentation should be sent to the following address: Ministry of Environmental Protection, 1 Omladinskih brigada St., Belgrade, with the indication: "Request for subsidized purchase of new vehicles with electric drive exclusively, as well as new vehicles that, in addition to the internal combustion engine, also have the electric drive (hybrid drive)".

Prepared by: Milica Radičević



# ELECTRIC VEHICLES ARE THE FUTURE OF THE AUTOMOTIVE INDUSTRY

Suppose you go to ev-database.org, the largest source of information on electric vehicles. In that case, you will notice that in Germany, the United Kingdom or the Netherlands, most models of any manufacturer are in the production phase. In contrast, some models are not available in any of the listed countries. Currently, there is a possibility of pre-ordering for a very few models. This situation is not limited to the electric car market. We asked Sanja Stojković, Head of Business of British Motors in Serbia, how the situation is with conventional vehicles.

**EP** ***Due to the global Coronavirus pandemic, there is significant uncertainty in the automotive industry. Production processes are interrupted, raw material prices are rising, factories are closing, and there is also chip shortage. When do you expect normalization, i.e. complete recovery of the market?***

> We expect that in the second half of 2022 and during 2023, the situation in the car industry will improve

**Sanja Stojković** The changes that have befallen us have created uncertainty in all industries, but it is certain that perhaps the car industry has been hit hardest. We expect that in the second half of 2022 and during 2023, the situation in the car industry will improve. However, due to the current increased demand, and after solving the challenges in the supply chain and the accelerated development of electric vehicle production strategy, we can expect a return to the pre-pandemic level from 2024.

Photographs: British Motors

**EP** ***What is the manufacturer's strategy?***

**Sanja Stojković** Jaguar Land Rover was among the first in the premium segment to recognize the potential and new trends in the automotive industry. In 2019, the Jaguar I-Pace model won three prestigious awards. So, it carries the titles of World Car of the Year, World Car Design and World Green Car.

Then, in 2020, Jaguar Land Rover introduced Reimagine's new business strategy aimed at zero carbon emissions in the product and process supply chain. Jaguar Land Rover plans to achieve the set goals and provide a unique user experience through luxury and exceptional design with a positive social impact.

> The automotive industry must work to develop new technologies to overcome challenges such as charging time and the cost of electric vehicles

**EP** ***How does this situation affect the business of British Motors?***

**Sanja Stojković** British Motors is currently facing challenges common to the entire auto industry. We do our best to meet the expectations of our clients. The beginning of 2020 was a surprise, but we have learned to adapt quickly and develop the necessary skills that can mitigate the negative consequences of the constant changes we face with the right approach to work and listening to the clients' needs.

**EP** ***What do current subsidies for buying electric and hybrid vehicles mean for importers? How much do they affect sales?***

**Sanja Stojković** The fact that the state recognized the necessity of improving environmental protection is extremely important. State support is the basis for enhancing this segment. Subsidies can certainly significantly contribute to better sales of electric vehicles. In addition to subsidies, the use of electric cars is greatly conditioned by the development of the network of electric chargers.

Many European countries are ready to offer whole packages of benefits to drivers of electric vehicles, which indicates the commitment of countries to this task. The automotive industry must develop new technologies to overcome challenges such as charging time and the cost of electric vehicles.

**EP** ***What are the challenges of legislation in the field of environmental protection?***

**Sanja Stojković** Energy transition and emphasis on environmental protection have conditioned the adoption of many regulations that have influenced the change of strategy in the automotive industry. The European Union has a current "Fit for 55" plan, which aims to reduce net gas emissions by 55 per cent by 2030.

In previous years, the car industry has faced demands to reduce emissions. These changes significantly affect the business and the portfolio of services we can offer to our clients. That will be a major challenge for all of us.

**SANJA STOJKOVIĆ, Head of Business at British Motors, exclusive sales, and service center of the Jaguar and Land Rover brands, where she has been employed for more than six years. She showed her expertise as the financial director of this company. She graduated from Megatrend University and from the Belgrade Business School. She lives and works in Belgrade.**

**EP** ***Are you planning to make additional investments in installing EV chargers at your locations? What is the attitude of British Motors towards investing in "green energy", and what else reflects the social responsibility of your company?***

**Sanja Stojković** British Motors has already made investments in installing chargers for electrified vehicles at their locations. In addition, we are working on developing a project to install solar panels at our locations to use green energy for the vehicles of our fleet and for the needs of our processes.

In addition to significant savings and social responsibility, we believe that the strength of our company is reflected in recognition of the vision for investing in the development of infrastructure for charging EVs.

**EP** ***What are the main expectations at British Motors in 2022?***

**Sanja Stojković** Plans for 2022 follow the dynamics of the expected recovery of the automotive industry. Although the end of the pandemic is still unknown, we can confirm with certainty that electric vehicles are the future of the car industry.

Interviewed by: Milica Marković

# WHEN THE PLAIN GROWS GREEN

**In addition to corn, sunflowers and the famous Futoski cabbage, a new "culture" has recently begun to grow on the fertile Vojvodina land. It is just that instead of delighting us with the authentic flavors, the new "culture" will give us green kilowatts, energy stability and the main thing - a healthy environment**

Numerous accomplished renewable energy projects (RES), as well as those that are still in their infancy, are proof of Vojvodina's potential in this sector. We discussed with Ognjen Bjelić, the provincial secretary for energy, construction and transport, whether there is possibility for development of every type of RES on the plain, what investors can expect and what projects are in currently in progress.

**EP** ***The territory of the Autonomous Province of Vojvodina has proven to be an extremely suitable area for the development of RES projects. Out of 398 MW, 397.5 MW is in the territory under your jurisdiction, and many more gigawatts are in the process of instalment. Do you know how many permits and requirementsthe PS has issued?***

**Ognjen Bjelić** The stated data of 397.5 MW refers to the installed power of wind farms built in the territory of the AP of Vojvodina. Along with it, we must not forget other sources, especially the developing biogas plants. The Provincial Secretariat issues construction permits for power plants above 10 MW and for facilities above 50 m. More than 200 different requests of RES investors have been resolved in the previous period, and it is interesting that there are many investors who are just getting ready to begin with the construction, which shows that electricity production in Vojvodina will be significantly increased.

**EP** ***During last few months, we have witnessed that a suspicion has been raised of the need to invest in RES, what is your position on the matter?***

**Ognjen Bjelić** I'd say that there is no doubt that we are in need for the investment, rather there are different views on the role of public companies and state institutions in this process. Having different opinions is a positive thing and will certainly lead to more potential solutions from which it will be possible to choose the best one for our country. There are problems and the solution certainly lies in adjusting the electric power system to the increase of the share of renewable energy sources. I believe that public companies and institutions will find a model through which the burden of that adjustment will not endanger the electricity stability of the system, which will give investors clear guidelines regarding the direction of the planned development in electricity production.

**EP** ***What energy potentials does Vojvodina have?***

**Ognjen Bjelić** The Provincial Secretariat prepared the Geothermal Atlas of Vojvodina, as well as the Study on Geothermal Potentials of Vojvodina, whilst through cooperation on the GOSPEL project, the potential places for the development of deep geothermal energy were identified. Three zones in Vojvodina offer great opportunities for heat production by exploiting geothermal fluid at a minimum temperature of 55-60 °C. When the temperature levels are sufficient, this heat may be converted into electricity. These areas include the towns of Subotica, Sremska Mitrovica and Kikinda. The first two were chosen because of the possibility of thermal energy valorisation, and the last one for the possibility of producing electricity from a geothermal source.

MR OGNJEN BJELIĆ was born in 1979 in Subotica. After graduating from the Faculty of Economics, Department in Novi Sad, he started his career at the Novi Sad Fair, and after three years he embarked on entrepreneurial waters. He received additional education and professional training in Austria, Hungary, Croatia, France and Serbia. For the last 16 years, he has worked on projects in the following areas: local and regional development management, strategic and operational planning, project management, providing technical and advisory assistance in the preparation of development programmes, as well as in the preparation and implementation of projects financed from the EU funds. For the period from 2013 to 2014, he was engaged in the position of Special Advisor to the Minister in the Ministry of Regional Development and Local Self-Government. He performed the duty of the Provincial Secretary for Regional Development, Interregional Cooperation and Local Self-Government in the Provincial Government, for the period from 2016 to 2020. He is currently the Provincial Secretary for Energy, Construction and Transport. He is a Captain in the Army Reserve of the Republic of Serbia. He speaks English, he is married and has a son.



Photograph: (background) Unsplash/ Chris Spalton; (top right) courtesy of Ognjen Bjelić



In the field of solar energy, a Study on the Assessment of the Total Solar Potential with a Solar Atlas has been prepared. The number of sun-hours in Vojvodina ranges from slightly less than 2,000 hours (western part) to 2,100 hours (eastern part) per annum. During the following period, the Secretariat will be committed to the improvement of data at the level of micro-locations, i.e. to the development of local cadastres (or registrars) in which locations will be processed, from the aspect of solar energy, documentation planning and connection possibilities. This way, investors will be given a clear picture of the potential and profitability of the investments.

Lock on the river Tisa, as well as the sluices on the DTD Hydro system, have potential for hydropower plants' development, not to mention the use of crop residues and corn as biofuel, since their potential is obvious.

**EP** ***Apart from RES projects, there is also thermal power plant Pančevo in Vojvodina. What is the significance of that infrastructure facility?***

**Ognjen Bjelić** Thermal power plant Pančevo is a steam-gas thermal power plant with a capacity of 200 MW that is natural gas-fired power plant. This investment is significant due to its capacity and the increase in the share of gas power plants in the power system. Gas power plants are one of the transitional solution options and currently they also serve as a support for the conventional coal - fired thermal power plants.

The Provincial Government has good cooperation with the EBRD in terms of energy efficiency. Recently, a document was signed suggesting energy efficiency improvement in eighty buildings.

The Provincial Secretariat, in cooperation with the Faculty of Technical Sciences in Novi Sad, has prepared detailed energy audits for 94 facilities, concurrently with the process of drafting detailed energy audits. At the end of last year, the Assembly of Vojvodina adopted the text of Pre-financing Agreement with the European Bank for Reconstruction and Development, which defined conditions for contracting loans and implementation of energy rehabilitation projects, thus defining the framework for contracting loans and withdrawing donations. In the next month, in cooperation with the EBRD, we will start developing conceptual solutions for 80 public buildings, and upon the completion of the conceptual solutions, the procedure of selecting the contractor who will prepare the preliminary design, obtain a decision on approval for works and carry out energy rehabilitation of the facility, will commence. The manner of conducting the procedure will be proposed by the consultants, according to the procedures of the European Bank for Reconstruction and Development.

**EP** ***You mentioned that detailed energy audits have been prepared, what are their key points?***

**Ognjen Bjelić** The detailed energy audits showed that two thirds of the facilities (63.7 per cent) were in the F and G

Photograph: Unsplash/Kalman Nemet

energy class, as well as that for these facilities the annual heating costs were over RSD 232,624,000. After the implementation of the proposed energy rehabilitation measures, costs at the level of RSD 99,863,700 can be expected, which is a decrease of 57.1 per cent.

**EP** ***You have clearly stated that there are significant financial savings, is this the only benefit of the project you are implementing with the EBRD?***

**Ognjen Bjelić** Although, after the implemented energy rehabilitation measures the most visible aspect is the financial one, saving money is not the only result of the facilities' rehabilitation. Better conditions for staying in the facility, as well as reduction of environmental pollution are equally important benefits. From the aspect of energy, public buildings are especially interesting and important. The reasons for this are the high potential for improving energy efficiency, the possibility of significant reduction of public spending and their educational role at the broadest social level, considering that being familiar with energy issues is the basis for facing current challenges. It is indisputable that these buildings, as examples, are particularly suitable for the exchange of knowledge about the necessity to increase energy efficiency in buildings.

**EP** ***Although this is the Energy Portal magazine, we cannot leave out the Departments of Construction and Transport that you manage. What projects are you planning in these areas?***

**Ognjen Bjelić** For me, the most important project is in the field of transport. The goal of the President of the Provincial Government, Mr Igor Mirović and my own, during this term of office, is to regulate all school zones in the territory of the AP of Vojvodina. Currently, the design for 150 school zones is in progress, and in the following month the remaining design of the school zones will be provided as well. Simultaneously, we will start the works on the installation of speed bumps, fences, speedometers and the like that will be envisaged by the project, as soon as a certain number of projects are prepared. In this way, we will try to make children's safety our paramount concern, by making it evident and visible. Our youngest ones deserve to go to school carefree, and it is up to us to make it possible for them.

Interviewed by: Danijela Isailović

The number of sun-hours in Vojvodina ranges from slightly less than 2,000 hours (western part) to 2,100 hours (eastern part) per annum. During the following period, the Secretariat will be committed to the improvement of data at the level of micro-locations, i.e. to the development of local cadastres (or registrars) in which locations will be processed, from the aspect of solar energy, documentation planning and connection possibilities

Photograph: Pixabay

# LET'S LISTEN TO WHAT THE WIND TELLS US

The language of the wind is simple. However, although every whistle tells us "healthy environment", "unlimited green kilowatts", and "energy stability", investments in dirty technologies and fossil fuels are still going on.

The activities of the WindEurope Association are becoming more and more important; they are the activities of those who listened to what the wind was saying and are now committed to harmonizing national policies with the needs of the wind industry.

We spoke with WindEurope CEO Giles Dickson about long-term plans for wind energy in Europe and the obstacles that may be found on the way to the goal, the link between green energy and electromobility, as well as the potential of wind in our country.



**EP** ***Europe gets about 16 per cent of its electricity from wind, while ambitious plans for 2050 say that 50 per cent of its electricity will come from wind. Is this feasible, and how?***

**Giles Dickson** The European Commission's decarbonization scenarios estimate that half of all electricity by 2050 will come from wind. To fully understand the size of this challenge, one also has to see that today electricity is only 25 per cent of all energy used in Europe. This will change. Today our cars run on


All photographs: WindEurope

gasoline, and our boilers are heated with fossil fuels. In the future, these processes will be electric. Direct electrification will account for 57 per cent of all energy used in Europe by 2050. Another 18 per cent will come from indirect electrification with renewable hydrogen and its derivates.

The European wind industry is getting ready to accelerate the expansion of both onshore and offshore wind massively. By 2050 we will need 1,000 GW of onshore wind and 300 GW of offshore wind. This is up from less than 200 GW today. The main challenge will be getting permits.

**EP** ***In November, the Electric City conference was held in Copenhagen. In addition to wind energy, electromobility was also discussed, and this is also the topic of this issue of the Energy Portal magazine. Where is the connection between wind energy and electromobility?***

**Giles Dickson** The connection between wind energy and electromobility is clear. The whole idea of switching from today's internal combustion engines, running on petrol and diesel, to electric vehicles is to reduce CO2 emissions in the transport sector. Charging an electric vehicle with electricity from dirty lignite plants is complete nonsense. The expansion of renewables in general, and wind energy, in particular, is essential to the success and acceptance of electric vehicles.

Let me be clear: renewable electricity is the way forward for individual transport. Renewable hydrogen will remain scarce for years to come. We must always remember that direct electrification is the most energy-efficient way to decarbonize. We should only use these valuable e-fuels in those sectors that cannot be electrified directly. First, we must replace the current applications of fossil hydrogen.

The European wind industry is getting ready to accelerate the expansion of both onshore and offshore wind massively. By 2050 we will need 1,000 GW of onshore wind and 300 GW of offshore wind. This is up from less than 200 GW today. The main challenge will be getting permits

Then we should focus on the "hard to abate" sectors like aviation, shipping, and industry.

**EP** ***Do you have data on electromobility in Europe? How many electric vehicles are used, and how many chargers are available?***

**Giles Dickson** The share of battery-electric vehicles in new car sales has grown continuously over the past few years. For the first time in 2020, electric vehicles (including plug-in hybrids) made up a 10 per cent share of new sales. Just one year later, in 2021, this share has risen to 25 per cent, meaning that one out of four cars sold in Europe was electric. Diesel and petrol car sales are declining. And this will only continue over time. The European Commission has proposed an effective ban on fossil-fuel vehicles from 2035. Charging infrastructure is also expanding. Germany, for example, almost doubled the number of charging points to more than 50,000 in just two years.

It is important to mention that electrification is not only a solution for cars. Companies like Volvo and MAN invest heavily in electric trucks, Rolls-Royce, DHL, and Wisk are experimenting with electric planes, and Norway has launched the world's biggest electric ferry.

**GILES DICKSON is the chief executive officer of WindEurope, a position he has held since 2015. WindEurope is the voice of the European wind industry that, on behalf of 400 of its members, represent the whole value chain of wind energy on land and in the sea. WindEurope involves governments and other stakeholders in policy and regulation, organizes industrial exhibitions, conferences and workshops, and coordinates publicly funded wind energy research and development.**

**Dickson is also the chairman of the independent advisory council ENTSO-E, the European Network of Transmission System Operators for Electricity.**

**From 1992 to 2008, he was a civil servant in the Government of the United Kingdom, where he worked mainly on European affairs. From 2008 to 2015, he worked for the French engineering company Alstom where he was vice-president for global public affairs.**




**EP** ***You were in Serbia in December, and that is your second visit in just a few months. It seems that you are impressed by the Kovačica wind farm, the Gallery of Naive Art and the activity of RES Serbia, a very active member of WindEurope?***

**Giles Dickson** Wind energy is an excellent opportunity for Serbia and the broader Southeastern Europe region. The wind is cheap, reliable, and will help decarbonize their economies which still rely heavily on coal. The work of RES Serbia is indispensable in this context. It is essential to make wind energy's benefits visible and explain them to policymakers and local communities. It reduces international dependencies and helps the climate overall. Perhaps even more importantly, it provides jobs and tax revenue for local communities.

And yes, I was very pleased to visit the state-of-the-art Kovačica wind farm. I was very impressed with its efficiency and how much power it is producing. And I was also delighted to visit the nearby Naive Art Gallery, not least to see the painting of the Kovačica wind farm by local artis, Zuzana Vereski.

The connection between wind energy and electromobility is clear. The whole idea of switching from today's internal combustion engines, running on petrol and diesel, to electric vehicles is to reduce $CO_2$ emissions in the transport sector. Charging an electric vehicle with electricity from dirty lignite plants is complete nonsense. The expansion of renewables in general, and wind energy, in particular, is essential to the success and acceptance of electric vehicles

**EP** ***Serbia has started ambitiously, but recently, it has faced problems that will delay the first auctions. First, the investors were dissatisfied with the maximum purchase price, and then there was a conflict between the Ministry and public companies over balancing. Do you have any advice on how to overcome this crisis that could block the entire industry?***

**Giles Dickson** It is crucial to get underway with the first auction and give the industry visibility on future auction volumes. Investors are very much looking forward to this first auction, and further delays would be disappointing. National and international investors stand ready to help Serbia transform its energy system. But with further delays to the first auction round, the Serbian Government risks losing the trust of these investors. They will invest their money elsewhere. There is scope to reduce the balancing charges – as it stands, Serbia's are among the highest in Europe.

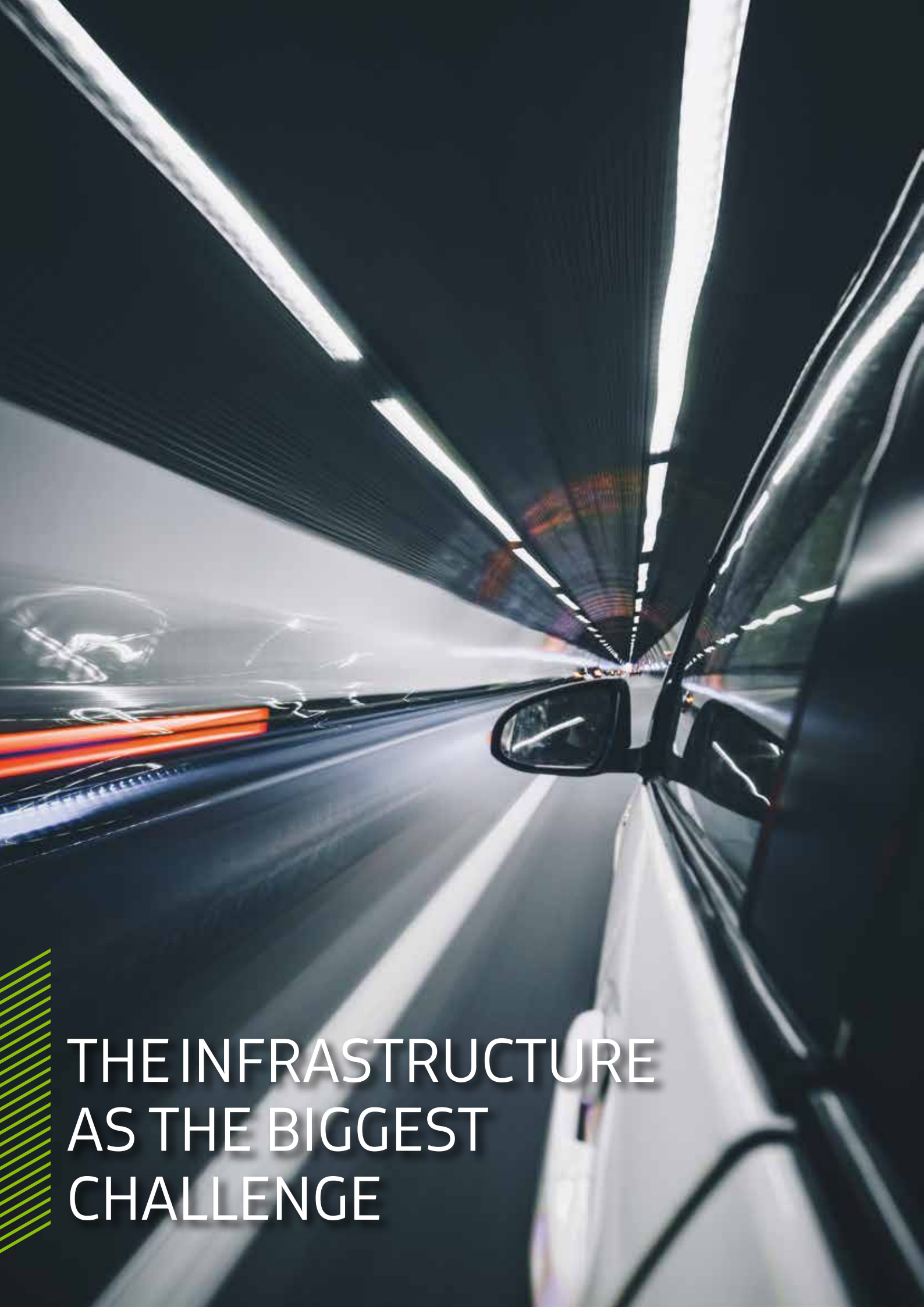
**EP** ***The energy crisis has led to an increase in the price of electricity. How has this affected the wind industry in Europe? Has the price of equipment increased?***

> The European Commission estimates that half of all electricity by 2050 will come from wind. To fully understand the size of this challenge, one also has to see that today electricity is only 25 per cent of all energy used in Europe. This will change. Today our cars run on gasoline, and our boilers are heated with fossil fuels. In the future, these processes will be electric

**Giles Dickson** Let's first talk about the "energy crisis" which is in fact, largely a gas crisis. Europe did not store sufficient levels of gas for the cold winter months. The international gas supply did not pick up quickly enough. Demand in China has also risen sharply at the same time. The result was skyrocketing gas prices and linked to that record electricity prices. The European Commission has repeatedly stressed that the expansion of renewables is the only way to decrease dependence on international gas exporters.

The second bit of the question concerns international trade. We are an internationalized industry. Our European manufacturers source materials and components from around the world. The COVID-19 pandemic has had major implications for international trade flows. The cost of steel and other commodity prices has risen sharply, which has had a major impact on us. The cost of shipping has increased, ultimately making equipment more expensive. This bottleneck in the supply chain is still ongoing, unfortunately.

Interviewed by: Milica Marković



# THE INFRASTRUCTURE AS THE BIGGEST CHALLENGE

In Serbia, during 2021, a total of 113 electric vehicles were sold, which has not affected the disturbing fact that more than 80 per cent of the total vehicle fleet consists of used cars older than ten years. The Government of Serbia has, once again, adopted the Decree on the conditions and manner of conducting a subsidized purchase of new electric and hybrid vehicles.

We talked to Mr Milan Belin, the president of the Serbian Association of Vehicle and Spare Parts Importers, to find out if we are finally ready to embrace the changes or dismiss them because of what we are used to do.

**EP** ***Sales of electric vehicles are globally on the rise year after year as part of the combating climate change strategy. How would you assess the traffic electrification process in Serbia so far? Why are Serbian citizens still having a hard time when faced with a decision to buy an electric vehicle (EV)?***

**Milan Belin** Electrification is a part of a very important strategy that brings global measures to reduce and prevent the greenhouse effects. As one of the big polluters, the automotive industry is adapting to changes, maybe even faster than we can accept. Electrification is related to infrastructural changes, and I primarily refer to the EV charger network, as well as raising awareness that these vehicles pollute less. In addition to electric, we have hybrid and plug-in hybrid vehicles that have transitional technologies since they do not depend on the charger network whatsoever. Let's not forget to mention that electric vehicles are still a bit more expensive, but not so much more expensive than their diesel competitors. However, we also face great ignorance and distrust in new technologies, in addition to our infrastructure, which is still underdeveloped. Yes, the sales numbers are picking up, but those numbers are still small.

**EP** ***How many electric vehicles were sold on our market last year and do you consider that number satisfactory? Also, have subsidies for the purchase of electric and hybrid cars given the desired results so far? How many of those who applied managed to get subsidies?***

**Milan Belin** The data show that in 2021, 113 electric vehicles were sold, of which 71 were passenger vehicles and 41 were light commercial vehicles. Compared to 2020, when 30 electric passenger vehicles were sold only, the increase is more than obvious. Additionally, hybrid models are also subsidized, and sales data show an increase of more than 100 per cent. The subsidies certainly encourage sales, but perhaps more importantly, raise awareness that the purchase of environmentally friendly vehicles has support and makes sense in the long run.

**EP** ***What are the obstacles EV importers and distributors are faced with? How do you comment on the reports by the importers about the deficit in the vehicles supply and the declining stock?***

Milan Belin,
the president of the Serbian Association of Vehicle and Spare Parts Importers

> To encourage customers who have decided to purchase such vehicles and are ready to wait, we invested a great deal of our energy while working with the Ministry in preparing the Decree, to explain that the biggest challenge is the fact that the vehicles are not in stock but still in production

**Milan Belin** The biggest challenge in the placement of electric vehicles for our importers is certainly infrastructure. By that, I mean the internal infrastructure of authorized dealers and service technicians, as well as the public network of chargers. The sale of electric vehicles requires serious investment and preparation in maintenance and charging infrastructure. With these conditions, we still cannot rely on sales, and it is impossible to estimate the return on investment. It is one of the reasons why even manufacturers do not put pressure on the importers here to introduce new electric models to this market. However, it will inevitably happen because most new models coming out are electric.

On the other hand, the vehicle deficit was caused by unforeseen circumstances caused by the pandemic. Due to closures in most countries, the slowdown in production has led to the cancellation of orders for parts intended for installation in vehicles. In particular, we are talking about microchips, or semiconductors, which are an essential part of the final product. It is estimated that any model today includes between 1,300 and 1,500 semiconductors on average. As microchips are being incorporated into almost all electronic products today, we have increased demand and insufficient production. Once the car production started to return to its course slowly, there was a shortage because suppliers negotiated the placement of their products with others. So, our situation is that the production is still slow, and it is not possible to make vehicle stock.



Photographs: (on the previous page) Unsplash/Allesio Lin; (top right) courtesy of Milan Belin

**EP** ***The Ministry of Environmental Protection will subsidize the purchase of new electric and hybrid vehicles this year. Can you explain the process of applying for this grant? How much has the process developed compared to 2020?***

**Milan Belin** The application process is simple to the extent that all required documents and necessary steps are listed in the Decree. It is important that the vendor informs the client about everything then helps the client prepare all required documentation, which is submitted to the relevant office of the Ministry. Compared to last year, the Ministry did accept several of our suggestions. The Association formed a working group that cooperated with the Ministry on this issue. At several points, which are vital for speeding up the process, such as limiting the deadline for implementation, the process will certainly be much faster. Also, the Decree lists all the documents and where to obtain them to avoid possible mistakes in that respect. However, some uncertainty is still around. That is why we are expecting a working meeting with the Ministry in the near future, to resolve all unclear issues and hopefully provide a smooth process.

**EP** ***From the moment they decide to buy an electric vehicle to the moment they take over their vehicle, customers face many challenges. First of all, due to the new condition which requires the vehicle to be in the country, i.e., at the seller's warehouse at the time of request submission. Having in mind the current problems with the lack of vehicles, i.e., a longer delivery period, the buyer risks being left without subsidies. On the other hand, wanting to prevent the process, the vendor is stocking up. Is there a way to overcome these challenges in practice?***

**Milan Belin** There is a great misunderstanding of the actual situation of the automotive industry. This shortage has already caused several consequences. The prices of new vehicles have gone up, hence the higher demand for used cars. As the premise of the Decree, the Ministry took the

The process of applying for subsidies is simple. However, the importers find the infrastructure as the biggest challenge in the placement of electric vehicles

Photographs: (top) Unsplash/Jannes Glas; (bottom right) Vuk Vuković

fact that the vehicle was in stock, which is not the case in 90 per cent of situations today. We invested a great deal of our energy while working with the Ministry in preparing the Decree to explain that the biggest challenge is that the vehicles are not in stock but still in production. We do not have a way to submit a request before the vehicle arrives in the country because such a condition is mandatory. We have tried, but without success, to amend this in order to

What sets our country apart in a negative sense are the liberal regulations on the import of used vehicles, which ultimately contribute to the fact that any effort to speed up the sale of environmentally friendly vehicles is diminished by devastating statistics on the number of imported used cars older than 10 years

try to encourage customers who have decided to purchase such vehicles and are ready to wait. In practice, once the production process reaches a stable phase, this problem will be smaller, but with a smaller change in the procedure, it would be possible to meet the customers' present needs.

**EP** ***What are the benefits for drivers of electric vehicles in our country in relation to those driving fossil-fueled vehicles? Do you think it is necessary to introduce additional facilities for vehicles with zero emissions, and if yes, which ones? What are the examples of good practices in neighboring countries that Serbia can take over?***

**Milan Belin** There are some benefits that are not negligible - reduction of the imports customs rate to 5 per cent, cheaper registration, and subsidies. Examples from the region and Europe are various, from cheaper parking, tolls, lower insurance rates. However, what sets our country apart in a negative sense are the liberal regulations on the import of used vehicles, which ultimately contribute to the fact that any effort to speed up the sale of environmentally friendly vehicles is diminished by devastating statistics on the number of imported used cars older than 10 years. Even Bosnia and Herzegovina recognized the consequential long-term problem and banned the import of older vehicles.

**EP** ***"DDOR Eco BG Car Show", was announced as an Electric Car Show, an event that will contribute to popularizing electric vehicles in Serbia. What kind of response do you expect from the exhibitors and importers? What is the position of the Association of Importers – should such an EV event be organized at a time when the stocks are depleted and the sales are not supported with special conditions of purchase that usually accompany such events?***

**Milan Belin** There are always questions and risks related to holding such an exhibition that once used to be standard and unavoidable. This year's concept proposed by the Belgrade Fair is just aimed at popularization and demystification of electric vehicles, with conditions lacking the great variety related to standard offers and discounts this type of manifestation is known for. Our importers are interested in showing what they have in this modified, narrowed format, hoping to, through direct contact with visitors, work on educating and promoting the acceptance of these vehicles as a logical choice nowadays and in the not-so-distant future. In Europe, these vehicles are slowly but surely becoming mainstream.

**EP** ***Finally, what is your message to those drivers who have second thoughts about buying an electric vehicle?***

**Milan Belin** First of all, electric vehicles represent the latest technologies, which primarily meet the strictest safety standards followed by high environmental standards. Furthermore, these vehicles are very reliable when it comes to maintenance. However, the problem of batteries lifespan is often emphasized, and that is another issue that we can look at in several ways. Science is advancing very fast and progressively, and we must admit that we are witnessing a time in which the paradigm and drive to which we are accustomed are changing. The question is if we are finally ready to embrace the changes or dismiss them because of what we are used to.

Interviewed by: Milica Marković

Photograph: Unsplash/Eren Goldman


THE ECOLOGICAL TRANSITION OF AVIATION

# ONLY TOGETHER WE CAN CONTRIBUTE TO A SUSTAINABLE FUTURE



**Travel is an integral part of modern life, and today the question is no longer whether it should become more environmentally sustainable, but only how to do it. Air France - KLM has been setting sustainable business as its corporate goal for many years. Numerous projects such as fleet modernization, disposable plastic disposal, recycling, carbon offset programs, and sustainable aviation fuel development aim to reduce the carbon footprint and contribute to a more sustainable future. For 16 years in a row, Air France - KLM has been the aviation industry leader in the field of sustainable business according to the Dow Jones index. But now the group is going a step further - working on the development and regular use of sustainable aviation fuel (SAF). SAF is one of the key factors in the ecological transition of aviation, more precisely in the reduction of carbon dioxide emissions**

## What is SAF and why is it so important

Sustainable aviation fuel is a jet fuel made exclusively from renewable sources, such as used edible oil, wood residues or synthetic kerosene. It can replace ordinary fossil fuel or be added to it without any engine modifications and additional costs. SAF differs from ordinary bio-fuel because the principle of sustainability is applied in the production itself, which means that its production does not lead to deforestation or reduction of food production. Currently, SAF is the most important factor in the fight for more sustainable aviation industry because its use can reduce carbon dioxide emissions by as much as 75 per cent!

## Start of regular use of sustainable aviation fuel

Air France - KLM (Air France, KLM, Transavia) airlines began using SAF on all their flights from France and the Netherlands in early 2022 to reduce carbon dioxide emissions. For now, between 0.5 per cent and 1 per cent of sustainable aviation fuel is added to ordinary fuel on these flights. This pioneering step is the crown of decades of work on the implementation of SAF in the aviation industry.

Back in 2009, KLM was the first airline to introduce biofuel on its flights, and since 2011 both KLM and Air France have started using sustainable fuel on their commercial flights. In February 2021, KLM conducted the

Photograph: KLM/Air France

world's first commercial flight using synthetic kerosene produced based on carbon dioxide, water and renewable solar and wind energy. In May 2021, Air France made the first long-haul flight between Paris and Montreal using SAF produced in France, while in October of the same year, on a flight between Paris and Nice, as much as 30 per cent of SAF was in the fuel mixture used by Air France. According to the current technological conditions, a maximum of 50 per cent of sustainable aviation fuel can be used on flights.

## Challenges

To date, the use of sustainable aviation fuel on commercial airline flights has been less than 0.1 per cent. The sustainable aviation fuel industry is still in its infancy period and, therefore, faces many challenges. The first is insufficient production - simply, there are still not enough factories that produce this type of fuel, so it is presently not possible to immediately introduce a larger amount of SAF into consumption. The problem connected with lower production is a higher price of SAF fuel - currently the production of SAF is four times more expensive than fossil kerosene. In terms of money, a ticket for a flight that uses 0.5 per cent to 1 per cent of sustainable aviation fuel will cost between 1 and 12 euros more, depending on the length of the flight and the class in which the passenger is flying. The aviation industry hopes that the development of the production and use of SAF will lead to its reduction in price.

## Only together can we make a big step towards a sustainable future

So far, Air France - KLM has offered passengers the opportunity to compensate for their carbon footprint through various programs (for example, money raised by the KLM CO2ZERO initiative was used to afforest our planet, and over a thousand hectares of rainforest have been planted in Panama). From January 13, 2022, passengers can also buy additional sustainable aviation fuel and thus directly reduce carbon dioxide emissions.

In addition to individuals, companies can also contribute to the energy transition of aviation through Air France - KLM Corporate SAF program. To achieve a significant reduction in carbon dioxide emissions, different industries and companies must work together because only in this way can demand be stimulated, and thus the production and availability of SAF. Investing in the Corporate SAF program provides companies with the opportunity to actively initiate the transition from conventional fossil fuels to SAF and thus reduce the environmental footprint of their business flights.

### WHAT HAS ALREADY BEEN ACHIEVED

- **50 per cent reduction in CO2 emissions compared to 2019 levels (impact of Covid-19 crisis)**
- **5.6 per cent less CO2 emissions per passenger kilometre compared to 2005**
- **39 per cent noise reduction per movement compared to 2000**
- **56 per cent less non-recycled waste compared to 2011**

**JELENA BANAC, Account Manager for Serbia, Montenegro and Northern Macedonia. Since 2005, Jelena Banac has been the Sales Manager at Air France-KLM, and she takes care of the sales activities, segments and opportunities in the three countries. Simultaneously she is responsible for the acquisition of corporate customers for the SAF program.**

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**www.airfance.rs, www.serbia.klm.com**

## How exactly does the Corporate SAF program work

First, Air France - KLM prepares an annual report for the company on how much the company's business flights caused carbon dioxide emissions. Based on the report, Air France-KLM then sends them an annual donation offer by which companies can compensate for their carbon footprint on all their flights, part of flights or certain routes. In the end, the company received a report on how much its participation in this program contributed to the overall reduction of carbon dioxide emissions.

So far, many companies have joined the venture, such as Microsoft, ABN AMRO, Sedra and Arkadis.

Air France-KLM is already working with SAF manufacturers such as SkyNRG, Neste, and World Energy. Also, KLM has joined the Bioport Holland project, which was created as a partnership between the Dutch government and several private companies that want to start SAF production in the Netherlands. According to the plan, the first European SAF factory will open in the Netherlands in 2023, and KLM intends to procure 75,000 tons of SAF annually.

Photograph: courtesy of Jelena Banac



# TERRA 360 – ABB BRINGS THE WORLD'S FASTEST CHARGER TO SERBIA

Mr Dejan Dešić,
Transportation & Infrastructure Segment Manager ABB Serbia

In the metropolises worldwide, the electrification of both private and public transport has gained serious momentum. Electric vehicles, buses, and a constantly increasing number of trucks will become an everyday thing on the Serbian streets in the not-so-distant future. General awareness of the benefits of this type of transport – the fact that these vehicles do not locally emit harmful gases and are cheaper to maintain than vehicles with internal combustion engines is peaking up. Many countries are working intensively to encourage the purchase of electric vehicles providing various types of support. Serbia is making progress in this segment and has been subsidizing the purchase of these vehicles for the third year in a row.

Of course, the increasingly rapid development of electromobility necessarily follows the development of the charger network, which is an absolute must for electric cars to be equal participants in everyday traffic.

ABB is a global leader in the production of electric chargers, with the largest installed base of stations for fast charging of electric vehicles worldwide. Mr Dejan Dešić, Transportation & Infrastructure Segment Manager at ABB, was our host kind to share a variety of information about the fastest charger in the world, Terra 360, electric chargers, electric formula, and plans for the future.

**EP** ***How fast is the development pace of electric charger production technology?***

**Dejan Dešić** ABB has made a giant leap forward in the production of electric chargers, which is also shown by our timeline. It all started in 2010 when ABB introduced its first TERA 50 KW charger, at a time when the first charging

All photographs: ABB

where the entire ABB offer has been implemented. A piece of particularly interesting news from the ABB's world came in 2017 when 150 or 350 kW chargers were launched, and both chargers were modular and expandable. It specifically means that by adding one power supply cabinet, one can increase the charger's power to 350 KW. With the development of chargers, we simultaneously monitor the development of energy needs of electric buses and trucks, and ABB works on creating a portfolio of chargers for both types of vehicles. Electric buses are widely present on the roads, and fast high-power chargers are available at charging stations. On the other hand, some chargers are placed inside bus depots, where vehicles are charged during the night, so those do not need to be high power.

The latest series of 50 KW chargers came in 2018. Their main feature is the possibility of charging the car at a much higher voltage (up to 920 V), which is the voltage needed to charge the most advanced premium models containing a high-power battery.

In 2019, ABB launched a compact 24 kW fast charger, which can be easily installed on the wall. The series of slow chargers was launched in 2020, which means that ABB has

completed the portfolio of its products, and it can be said that at this moment, it represents the most comprehensive offer on the global market.

Thirty thousand fast chargers and hundreds of thousands of slow chargers have been sold (and that number is increasing every day), proves ABB as the absolute leader on the global market.

**EP** ***Ending 2021, ABB launched the fastest charger globally, the Terra 360. What can you tell us about it? Where can we find it presently and what are the plans, and the installation dynamics around the world? When can we expect it in Serbia?***

**Dejan Dešić** ABB's fastest charger Terra 360, which was introduced at the end of 2021, will soon be promoted in Serbia. Its sales in Serbia will begin in the second half of the year.

The first Terra 360 charger was installed and commissioned in Norway. Even though Norway is an oil-rich country, it is making the fastest progress in electrifying its road network and fleet.

### FORMULA E

**Formula E started in 2014 as a competition similar to Formula 1. One day warm-up is organized, then two races (one takes 30, the other 45 minutes), followed by the pole position race. What distinguishes this electric Formula from Formula 1 is that it enables the audience interaction that votes for their favorites. The driver with the most votes gets awarded with extra energy.**

**Next season, ABB will provide chargers for charging formulas, since nowadays pit stops have not been designed for charging batteries. For everything to function smoothly, unique technology is being prepared. For the first time, 800 kW chargers will be used, which will charge the battery in a few seconds via an electric arc. This technology is similar to the one used for charging buses and their large batteries.**

connector standard, CHAdeMO, was established. The first cars were produced that could be charged with fast chargers back then. Then, in 2012, the CCS standard was established, which is still the most common today because it can transmit large powers, more precisely – twice as much as the CHAdeMO standard. All ABB chargers can use dual-standard connectors. In 2012-2013. ABB equipped motorways in the Netherlands and Estonia with TERA 51 and TERA 53 chargers, both 50 KW. After 2014, intensive development of the charger network began in the USA, Asia, and Europe,

This, currently the fastest and most powerful charger in the world, allows you to charge the battery to cover 100 km in three minutes of charging. It is designed so that it can charge four cars at the same time, which is a great advantage for both the charger operators and the users. The algorithm is set, if one car is charged, to deliver 360 kW of power, which at the moment can be received by premium cars only. Should two, three or four vehicles charge simultaneously, the charger can automatically redirect power to 180 or 90 kW (2 cars to 180 kW, three to 120 kW, four to 90 kW or one to 360 kW). There are different cable length options, which can be either liquid-cooled or air-cooled, which is necessary due to the large power transmitted.

**EP** ***Project documentation for all smart buildings must include electric chargers. What is the situation in Serbia in this respect?***

**Dejan Dešić** All modern buildings must meet project requirements that cover the installation of slow chargers to obtain certificates related to energy and environmental efficiency.

More specifically, the projects that are being built now envisage EV chargers in at least five or ten parking spaces. We are witnessing, and it needs to be pointed out, that the installations are designed only for the number of chargers envisaged by the project documentation. Still, in a few years' time, most tenants will drive electric cars that need a place with an electric charger, but the installations will need to be redone so that everyone can plug in and charge the battery of their EV.

We already have a case where the tenants of a residential complex immediately after moving in realized that a small number of parking spaces had a charger. They demanded that everyone be allowed to install an electric charger. This, of course, meant changes to the project, including the works on the grid and the new power substation. That is why I appeal to the designers to anticipate what will be taken for granted in a few years.

**Clarivate, a world leader in analytics, scientific and academic research, patent tracking, and compliance standards, has named ABB one of the most innovative companies in the world in 2021. As Dejan Dešić explains, this is great news for all ABB employees and new young forces, experts, and engineers who will work in the company.**

**"It is important that this fact will draw the attention of every job seeker to ABB as a potential employer. That will help us in Serbia to hire the best. At the moment, we need four new coworkers, of whom some will deal with electromobility, which shows that this is an area that has fiercely moved forward, and we expect nothing but great expansion", concluded Mr Dešić.**

ABB chargers can be seen in public places, at car dealerships who are obliged to have EV chargers on their property, and at gas stations. Public company Roads of Serbia have already installed our chargers. Courier services are slowly switching to this type of transport and have chargers within their infrastructure. ABB chargers may be seen installed in shopping malls new residential and commercial buildings and are widely available to all customers.

**EP** ***Could you tell us more about the ABB plant in San Giovanni Valdarno in Italy?***

**Dejan Dešić** When it comes to production facilities, ABB has them on almost all continents due to high demand. One factory has been opened in Europe in Italy but has not yet started production at full capacity. It is an investment of

over 30 million euros; a facility of 16,000 square meters, in which all fast chargers will be produced. All EV chargers for Serbia will come from this production plant. Our company encourages all customers and partners to visit the factory and see our cutting-edge technology and the production process itself, which is mostly automated.

ABB is the only company that produces hardware and software for its chargers. All manufactured chargers are linked and can be monitored at all times, which certainly sets us apart from the competitors. Also, all owners of ABB chargers can see the condition of the charger in real-time, whether there is a problem that the company monitors. That is why we have the opportunity to perform remote service since we can solve a lot of things thanks to our software. However, if necessary, our service technicians, our service technicians of our partners, can physically access the charger and service it. This type of service is only provided by ABB.

**EP** ***ABB and AWS, Amazon.com, Inc., have announced their collaboration to develop a digital solution on a cloud platform for real-time EV fleet management. Can you tell us more about this project?***

**Dejan Dešić** An impressive number of vehicles is related to the delivery service companies, and everyone who owns a vehicle fleet and deals with delivery and logistics is a potential candidate and client of ABB and Amazon. The idea is to use Amazon's "cloud" technology and their available "cloud" services with the software expertise they have and to connect that with the knowledge ABB has in energy management and charger production technology. Therefore, the collaboration resulted in a software platform that should enable everyone who owns a vehicle fleet, i.e., delivery service, to use it intuitively and efficiently.

The system deals with the management of each vehicle in the fleet in a simple way. The goal is to be able to locate the vehicle at any time to optimally calculate the shortest distance it will travel and the time needed for charging. Presently, the count stands at about half a million electric delivery vehicles that require management of their daily activities somehow. Similar platforms already exist on the market, but this one is flexible and adaptable to all users.

**EP** ***You have been working with partners in Serbia for some time to expand the EV charger network. What projects are in your plans, and are you satisfied with those that have been implemented so far?***

**Dejan Dešić** We fully rely on our partners because they are there to do everything necessary for installation and commissioning of EV charger network, maintenance, and, if necessary, service. Through our partner network in Serbia, chargers of 50, 90, 120, 180 KW are being installed and are already in service on the public roads, which shows that the technology is inevitably progressing forward. Currently, ABB is working with Lidl to equip all its facilities with fast EV chargers. We will also continue our operations with dealers, investors building rest and charging stations. A number of gas stations will also change their name to resting and EV recharging stations due to this new technology and residential buildings with over a hundred slow chargers. This is an area where we have a bright future ahead of us.

Interviewed by Milica Radičević

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HOT TOPIC

# FUEL PRICE, EXCISE, STRATEGIC RESERVES OF OIL AND PETROLEUM PRODUCTS – WHAT DO WE KNOW ABOUT IT?

Fuel prices plummeted again in February, causing concern in the local market, especially after additional forecasts that the cost of crude oil will continue to rise. Although it is impossible to stay immune to the changes happening in the global market, proving the trend of increasing fuel prices in almost all parts of the world, something can still be done. To increase the security of motor fuels supply, it is necessary to form strategic state reserves of oil and oil derivatives that will ensure the functioning of society in the event of local, regional, or global disruptions affecting oil and oil derivatives. These are the words of Tomislav Mićović, Secretary-General of the Association of Oil Companies of Serbia. It sounds very reasonable, contrary to the witty comment of a driver who advises you always to top up the tank for a thousand dinars so as not to feel the price increase. Since there is no place for jokes when talking about important things, we asked Tomislav Mićović what has been done so far to protect the local market from the risks in the supply of oil and oil derivatives.

**EP** ***Increase in excise duties on derivatives in Serbia tells us that we should expect higher fuel prices throughout 2022. What are the predictions?***

**Tomislav Mićović** Fuel prices in Serbia, as in all countries in the region and Europe, have never been higher in the last ten years than today. To get a clearer picture, when we compare fuel prices in different periods, we should also compare the market conditions relevant to those periods. First, I would like to remind you that Serbia has largely changed its excise taxation policy by introducing the Law on Excise Duties in October 2012. The dynamics of the rapid growth of excise duties were adopted so

Photograph: Pixabay

that by the end of 2016, the total state duties on fuel in Serbia became significantly higher. Even then, we were worried that we were facing a complex process of adapting national regulations to the Acquis Communautaire, which would substantially raise costs in producing and trading petroleum products. The increase in excise duties on motor fuels, the introduction of fees for the formation of required reserves, fees for improving energy efficiency, fees for fuel labeling, and fees for quality monitoring contributed to the increase in government revenues. On the other hand, due to the growth of state duties, the price of oil derivatives also increased, which slowed down consumption growth, gave impetus to the grey market, and part of the fuel supply consumed in Serbia was redirected to neighboring countries.

The biggest change in the fiscal burden occurred in the trade of LPG, the most environmentally friendly oil derivative, followed by diesel, which drives industry, transport, agriculture, and construction and thus, to a greater or lesser extent, affects almost all products and services. Budget revenues have increased significantly, which is indisputable. Still, it would be good if the competent state authorities analyzed of the possible adverse effects of large fiscal duties on the economy and society in general.

**EP** ***Recent increase in the price of a barrel of oil of $10 in just 10 days was a shocker, but does it always have to mean significantly higher prices at gas stations in Serbia?***

**Tomislav Mićović** There is no national market, including the Serbian market, that can remain isolated from the changes happening on the global level. To mitigate the drastic increase in the costs for the economy, i.e., the increase in the prices of products and services, each country can adjust excises, VAT, or some taxes, until the energy prices return to an acceptable level. Such measures are being considered in many countries. In the first week of February, a barrel of BRENT, the European reference oil, was sold at prices above $91. Although analysts rarely agree, they now share the opinion that during this year, oil could exceed the price of $100 per barrel, even making the annual average above this level. The Government could certainly declare such an increase as a disturbance and react with measures that would prevent a further rise in fuel price. High energy prices could greatly slow down economic growth, much needed in the post-pandemic period, according to most world economists.

**EP** ***When we compare gasoline prices on January 24, 2022, the cost of gasoline in Bosnia and Herzegovina was $1.39, in Northern Macedonia $1.44, and in Serbia $1.63. On that day, diesel price was $1.71 in Serbia, 1.41 in Bosnia and Herzegovina, and $1.3 in Northern Macedonia. How do you comment on that?***

**Tomislav Mićović** Once you exclude the state duties of each of the countries from the prices listed, you would be surprised to see that the differences in prices between these companies have been close to non-existent. Some difference does exist because not all countries have equal access to sources of oil or oil derivatives, and business conditions and market competition is not the same. The key difference in retail fuel prices arises when adding state duties, which vary greatly from country to country.

**TOMISLAV MIĆOVIĆ has a degree in technology engineering and has been working as the Secretary-General of the Association of Oil Companies of Serbia since its foundation in 2010. He is the founder and member of the Board of Directors of the National Biomass Association SERBIO and has experience in journalism, editorial work, and corporate communications.**

**EP** ***Higher fuel prices increase transport prices and everything else that depends on the fuel prices. Is the period of stability behind us?***

**Tomislav Mićović** Globally, the balance of supply and demand has been seriously disturbed on more than one occasion in the last two years. Begin 2020, Saudi Arabia raised production to an all-time high, the market was flooded with surplus oil, and soon after, no one needed oil due to severe restrictions on movement during the first months of the pandemic. Prices fell to an unsustainable level of $20 per barrel in May 2020, and from June to the end of the year the balance was more or less established after the conclusion of the agreement between OPEC and the alliance on production reduction affecting the stabilization of price in the range between $35 and $50 per barrel. Ever since we have had sudden short-term price changes, as a result of the announcement of the lifting of the restrictions and soon after, as a result of disappointment due to the emergence of new strains of the virus. In the long run, from May 2020 to the beginning of 2022, the oil price has had a growing trend. No one has experience in doing business in a pandemic, and we are indeed facing a period of instability, further fueled by geopolitical tensions.

**EP** ***Conventional-drive vehicles are becoming more and more expensive, while hybrids, especially electric cars, require significantly less investment, both in fuel and operating and service costs. How do you comment on that situation?***

**Tomislav Mićović** The energy transition in transport results from a decision and the directive on the substitution of energy from oil derivatives by green energy, and it was agreed globally. We should not forget that, presently, 94 per cent of the energy used in traffic generally comes from oil.

Photograph: courtesy of Tomislav Mićović

To protect the ways our society functions today and ensure expected growth, the transition should not be left only to be resolved by the market but managed directly. Oil has been driving the transport of goods and people for the last hundred years, which is why an extremely complex infrastructure has been developed to provide enough energy at all times, at a far lower price than the green one that has yet to be developed.

We should all be aware that in addition to the energy transition, the current passenger and freight traffic transition should be implemented, and ultimately the transition of the way of life. It can equally reduce greenhouse gas emissions and switch to some other energy sources. The

development of technological solutions that will enable ships, planes, agricultural and construction work machines (not to mention military machinery) to use other energy sources instead of oil derivatives is still just a dot on the horizon. It requires time and huge investments, such as the previous transition from horse-drawn carriages and steam engines that took almost the twentieth century. Today's level of technological development can accelerate the process of the current transition. It will accelerate it, but if we exclude the pandemic period, oil consumption gets higher every year, and it is estimated that will be the case at least until 2030-2035. This period will be followed by stagnation, and then the decline of oil exploitation at the level of the needs of the petrochemical industry and the remaining traffic, which will still use oil derivatives rather than some other energy sources.

**EP** ***The use of biofuels in traffic in Serbia is on a low level. What can you tell us about that?***

**Tomislav Mićović** Producers and importers of petroleum products have to mix 0.5 per cent of bio components in the fuel they market in the period from July 1 to December 31, 2022, and that is the first step to reaching the final 9 per cent of renewable sources energy expected in years to come. As the founder of the Energy Community and as a candidate country for EU membership, Serbia has taken on certain obligations regarding biofuels, and that news is 10 years old. Unfortunately, not a single plant to produce biofuels has

## ENERGY TRANSITION IN TRAFFIC

**Hybrid vehicles, especially plug-in hybrids, represent a great energy combination for the transition period. Hybrids can very quickly introduce a part of green electricity into the traffic and at the same time, preserve the comfort of use. They rely on an extensive distribution network of petroleum products, in times when electricity can't meet the needs users have, especially on longer journeys, with no adequate conditions to recharge the battery or during the winter period, when engine heat is used to please not to extend the range.**

**The development of vehicles powered by electric motors is taking place at a speed that only mobile telephony has seen. For now, vehicles that get electricity from hydrogen are less represented, and more those that accumulate it in batteries. Battery-powered cars are also becoming cheaper, so small, purely electric city cars will soon become common. Of course, the infrastructure for recharging batteries should be developed at the same pace, and for the transition to make sense, the share of electricity from renewable sources in the national electricity mix must increase.**

Photographs: Pixabay

been built during all this time, to at least meet domestic needs and in that way to ensure that small part of energy independence. In the meantime, European directives have changed and continue to change, so I believe that biofuels and renewable energy sources in transport will be a topic to which you will dedicate a special text.

**EP** ***Finally, are we facing fuel shortages, and does the state have a plan for such a situation?***

**Tomislav Mićović** There are few countries that can fully insure themselves against all potential risks in the supply of oil and oil derivatives. What we can do to increase the security of motor fuel supply is to form strategic state reserves of oil and oil derivatives.

In October 2014, a fee of 2.6 RSD per liter was introduced, paid by all consumers through the fuel price. Some 500 million euros have been poured into the budget so far, but unfortunately, the Energy Reserves Administration had only about a quarter of these funds at its disposal. Instead of already having oil and oil derivatives reserves in the tanks, corresponding to 61 days of average daily consumption, we are not even close to that quantity. Even worse, we missed buying all the cheap oil to form reserves so that process will cost us much more.

This year, the implementation of the Regulation on Operational Reserves will start, which should also contribute to increasing the security of market supply. With this bylaw, the state obliged the producers and importers of gasoline and diesel to form and store the mentioned oil derivatives at their own expense, in the amount corresponding to the four-day average amount they put on the market in the previous three years.

The amount will increase from year to year until the ten-day average is reached. Since this measure will also increase the costs of trade in oil derivatives, consumers will practically invest in improving the security of market supply mandatory and operational reserves through the fuel price in two ways.

Interviewed by: Milica Marković

> Begin 2020, Saudi Arabia raised production to an all-time high, the market was flooded with surplus oil, and soon after, no one needed oil due to severe restrictions on movement during the first months of the pandemic

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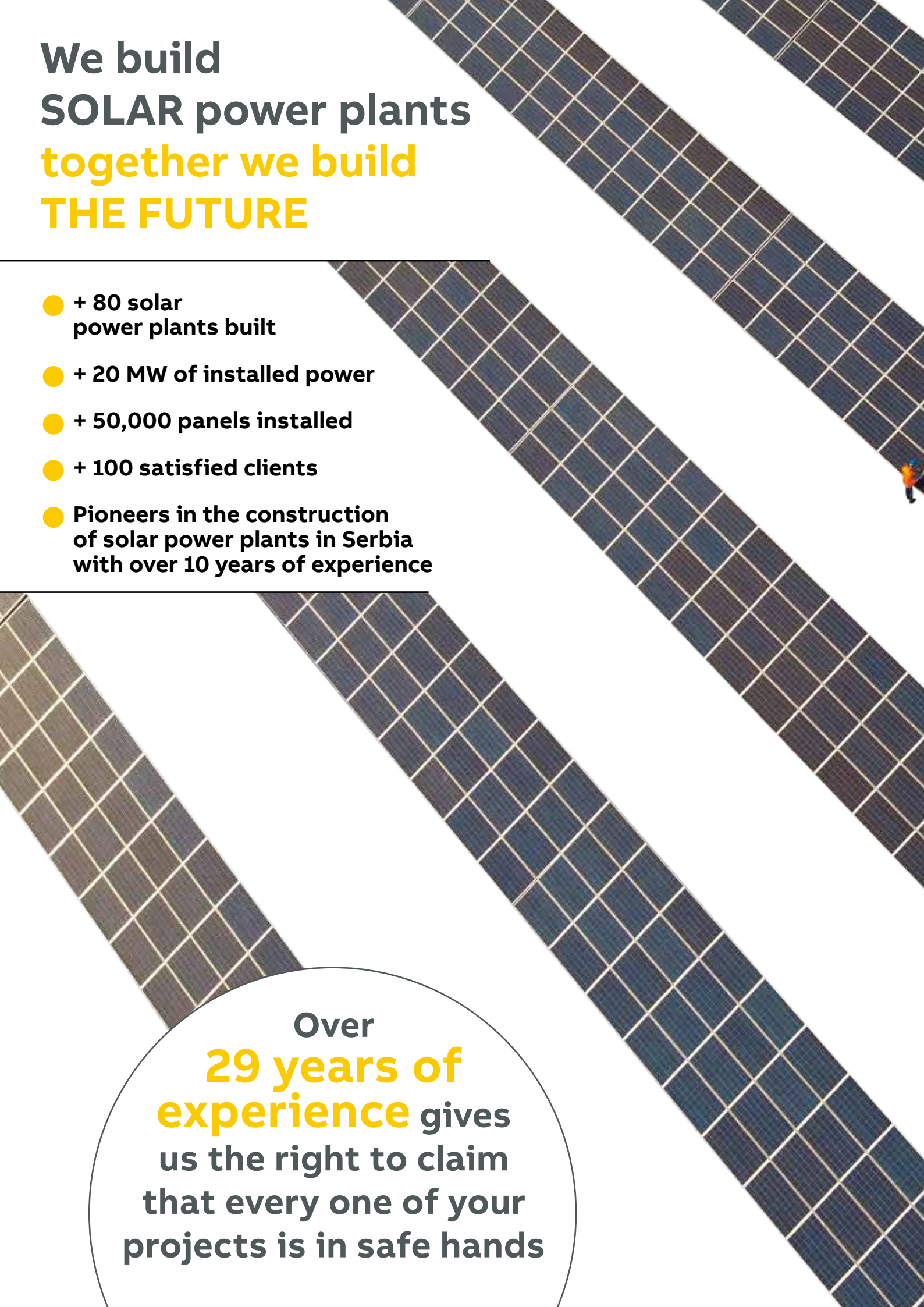

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A ROAD TRIP IN AN ELECTRIC CAR

# EXPERIENCE THAT PUSHES THE BOUNDARIES

**A short trip by electric car around Serbia in 2022 should not be a problem, especially considering that this type of transport is highly developed in other European countries. We did a little experiment, and first-hand impressions follow**

I set off on a journey in a world champion, an elegant and fast Jaguar, which has not only a range a bit less than 400 km in city conditions but also a battery that you can charge with a power of 100 kW. This information is very important for those who are considering buying an electric vehicle and have a sufficiently large purchasing power and a developed awareness of the environment. Right at the beginning, I want to mention that there are several fast chargers installed in Serbia that are in the network of charge&GO and that this company announced that it would install a significant number of fast chargers in the first half of this year.

Our leading actor, the Jaguar I-Pace, is more than four and a half meters long and over two meters wide. It is very stable because the batteries are placed "in the floor" of the vehicle, and the trunk is slightly raised and shallower, but quite a decent size, precisely because of the position of the batteries. When designing, they considered the aerodynamics, so this model has a tunnel that connects the radiator grille and the cut part on the hood as in race cars. Overall, the Jaguar I-Pace is spacious, very agile, has excellent response, is easy to drive, and has parking assistance that works perfectly.

Photographs: Bojan Džodan

With this kind of foreknowledge, I decided with great enthusiasm to check what it would look like if the proud owner of an I-Pace model should arrive at a business meeting in Niš. My new colleague Milica and a great photographer, kept me company. Without them, this adventure would not be complete. Of course, we did not even think we would surpass our friends Andrej Kulundžić or Mladen Alvirović, who ruled this genre without peers. We are a completely different team because of the two of us. Surely you have not seen many girls participate in this activity, which traditionally belongs to the male population.

Considering the current restrictions, namely the insufficient number of fast chargers, we had to plan this venture precisely, considering that the electric car's range varies considerably depending on whether it is driven in the city or on the open road.

During the first day, we drove through Belgrade and did not encounter any obstacles. Every busy woman, a mother with children or a girl who leads an intense social life, can be a proud owner of an electric Jaguar without any problems, without thinking for days about charging the vehicle, even in winter conditions when battery efficiency drops by some 30 per cent. In urban conditions, your best friend is the regenerative energy that recharges the batteries with each release of gas, which means that city crowds and "go-stop" driving finally have their advantages.

We did not test the speed of this vehicle in the city, but it turned out exceptionally well on the highway. Regardless of the current winter conditions, there is no problem when you drive a four-wheeler with the "Car of the Year" award. Of course, to reduce battery consumption, you need to turn off the air conditioning. The advantage of this beauty is that it will successfully warm you up in the winter days even when the air conditioning is not switched on, and we can confirm it.

We decided to take the first break for coffee and croissants at the Gazprom Petrol gas station in Velika Plana, on the Belgrade-Niš highway, because one of the fast chargers is located there. While we drank coffee, answered emails, and made several calls, we recharged the battery to 93 per cent and carelessly continued our journey to Niš.





It turned out that the coffee break, and the recharging of the battery, was a good idea because an unexpected thing happened to us on the charger owned by the PE "Roads of Serbia". We had a little more than 10 per cent of the battery, which, fortunately, more precisely with good strategic planning, remained at the moment when, for some reason, the charger did not recognize our car, so we could not recharge. That was already the reason for the tension in the car to increase slightly, so we were already thinking about returning to Belgrade.

However, we also tried to see an alternative. We researched where there are at least slow chargers in Niš to partially recharge the battery during the meetings if we happen to be "not recognized" again by the charger located on the highway in the opposite direction. We found ourselves in an awkward situation in Niš because not everything is exactly as the Almighty Google says. Namely, hotels that should have chargers for electric cars do not have them, so we additionally spent the battery driving from one hotel to another until we remembered that ProCredit Bank in Niš has its slow charger. Thanks to the friendly staff of the bank, we managed to recharge the battery for about ten per cent completely free of charge, which meant a lot to us at that moment.

We have learned from this situation: you should always check by phone whether these chargers exist; otherwise, you will waste your battery unnecessarily looking for them.


The second and more important lesson would be to summarize: rely solely on reliable charger maps that are part of the application.

After the meetings, we headed slowly towards Belgrade. The first stop was at the fast charger rest area near Nais, right after the Gazprom Petrol gas station. This time we were lucky because the charger "recognized" us, and we were able to fully recharge the battery, without any difficulties, up to 97 per cent.

Although my companions secretly complained that we were waiting so long, I also kept silent on my own; more precisely, I ensured our return to the charger in Vrčin without stress. In addition, my "experiment" succeeded - we arrived from Nais to Vrčin without additional charging!

Although it was not full, this electric four-wheeler arrived in Belgrade without any problems and with another 11 per cent of the remaining battery. If we convert it into kilometers, it is about thirty kilometers, which was quite enough for me to get to my apartment on Autokomanda.

The absence of engine hum and the perfect comfort of the leather seats gave the additional atmosphere on this trip. Jaguar I-Pace also features an excellent Meridian sound system and two screens - the upper one with the Infotainment system, where you can find all the necessary information, including a display of the current battery capacity in the MyEV option. You can choose between three driving modes: ECO, NORMAL and DYNAMIC, which also adjusts the ambient lighting from soothing blue or green to red, and by switching to DYNAMIC, the sound is slightly enhanced. In this model, you sit low, just like real sports cars, and the visibility is satisfactory. Driving an electric car all day is not strenuous, which means that, for example, there is no excessive brake use because you can slow down with good control of the accelerator pedal, which contributes to optimal battery consumption.


Considering that I had the opportunity to drive several electric cars on shorter distances than this trip, I must admit that I am thrilled with the Jaguar I-Pace. I was able to drive 130 km/h on the highway and cover about 200 km without any problems, yet I am not cold, which has always been my fear. Somehow, before, I always drove electric cars in extreme conditions. Still, Jaguar lived up to all expectations.

Thanks to the development of the charge&GO charger network, which will receive a significant increase in the number of installed fast chargers this year, we know that driving an electric vehicle will be much safer, easier, and simpler!

Until then, don't forget to plan your trip in an electric vehicle on time and be sure to drive them in ECO mode. If you decide on the royal brand, you won't need many coffee breaks, and those breaks will probably be shorter!

Prepared by: Nevena Đukić



# THE FUTURE OF SOLAR ENERGY IN EUROPE

Walburga Hemetsberger,
the CEO of SolarPower Europe

SolarPower Europe is the leading European association for solar energy, founded in 1985. This association represent over 250 companies and organizations across the entire solar value chain; from solar manufacturers, to installers and national associations. To become a member of SolarPower Europe, you must complete our online application, ad the final approval is given by the SolarPower Europe Board. We discussed the benefits of the membership in the Association with Walburga Hemetsberger, the CEO of SolarPower Europe

**EP** ***SolarPower Europe aims to achieve that more energy is generated by solar than any other energy source by 2030. How can policy makers, society and companies get involved in accomplishing this goal? Which strategies and tools does SolarPower Europe use to promote clean energy?***

**Walburga Hemetsberger** Our mission is to ensure more energy is generated solar than any other energy sources by 2030 – and we need all hands-on deck to achieve this goal!

Policymakers can help towards this goal by enacting the best possible frameworks for solar to thrive (pro-solar legislation). One example is the capital of Vienna, where

Photographs: (gore) Unsplash/Derek Sutton; (Hemetsberger) courtesy of Walburga Hemetsberger

the city government has announced that solar must be installed on all new buildings, which will increase rates of solar deployment.

Companies can get involved by opting for solar and renewable energy to power their operations. IKEA for example has installed solar on 370 of their store and warehouse locations worldwide.

The wider society can contribute to this goal by installing solar on their homes and businesses. Solar is today the lowest-cost energy technology and will save on electricity bills and is good for the planet.

At SolarPower Europe, we promote solar energy through our advocacy, campaigns and initiatives to provide information and raise awareness on a variety of topics that are critical to the growth of our technology.

**EP** ***You have so many campaigns that you run. Which one would you highlight as the most important one and why? How do you measure the success of your campaigns?***

**Walburga Hemetsberger** SolarPower Europe leads campaigns on the most important issues for the European solar sector. In 2017, SolarPower Europe launched the 'Small is Beautiful' campaign, a campaign to support small-scale renewable installations in Europe which were at risk in the then EU Clean Energy Package negotiations. Our aim was to safeguard regulatory incentives such as priority dispatch for small-scale installations on homes, schools and hospitals – key drivers of the European energy transition. SolarPower Europe lead a group of 17 partners, including renewable energy associations, mayors of cities,



Photograph: Pixabay

cooperatives, property owners and construction associations and we were ultimately able to safeguard priority dispatch for small-scale renewables installations in Europe – a huge victory for renewables!

**EP** ***How can solar energy help delivering the European Green Deal?***

**Walburga Hemetsberger** Solar can really be the engine that drives the European Green Deal. To be climate-neutral by 2050, Europe needs a massive renewable transition. With incredible benefits, solar shines through as the key part of this transition.

Solar is the most flexible energy source, and can be installed on your home, school, business – the possibilities are endless. 25 per cent of EU energy demand could be met by solar on buildings alone. As the most low-cost energy solution, solar can so can also tackle energy poverty and protect households and businesses from fossil-fuel driven energy price hikes.

The solar market is growing exponentially – 2021 was the best year of European solar ever with 25.9 GW capacity connected to the grid. Even cautious scenarios predict that the capacity of EU solar installations will double within four years, reaching 327.6 GW by 2025. This massive growth potential will support the huge renewable transition needed.



**EP** ***Using solar energy in agriculture is gaining popularity all over the globe. SolarPower Europe released the Agrisolar Best Practise Guidelines in order to shed light on the main business models and benefits of Agrisolar. Can you tell us more about Guidelines and what are your predections when it comes to development of agrisolar projects by 2050?***

**Walburga Hemetsberger** Our Agrisolar Best Practice Guidelines seek to demonstrate how agriculture and solar can complement each other, while delivering a much-needed boost to rural development. Agriculture is particularly vulnerable to climate change, but also contributes to carbon emissions – the sector is the second highest emitter in the EU after energy.

Solar power tackles the wider issue of climate change, and at farm level can be used to protect crops and animals from extreme temperatures and improve biodiversity. There are a number of success stories within our Best Prac-

Photographs: (middle right) Unsplash/Giorgio Trovato; (bottom) Unsplash/Alex Bierwagen

tice Guidelines, such as sophisticated, temperature-sensitive, agri-PV installations that rotate to shelter grapevines from strong sun, while generating power for hundreds of local homes. We can only expect the agri-PV segment to grow as farmers and solar companies realise the enormous potential for collaboration.

**EP** ***It is anticipated that the solar energy will become dominant source of energy by 2050. How will that affect the job market? How many people are employed in solar?***

**Walburga Hemetsberger** Our EU Solar Jobs Report 2021 outlines the massive employment potential of solar. Solar creates 2-6 time more jobs than any of its peers during the construction phase, and so can stimulate economic recovery post-pandemic. With the right frameworks in place,

solar could create 1.1million EU solar jobs by 2030. In 2020 the solar sector created around 357,000 EU jobs. This also means that solar can help communities dependent on fossil-fuel work transition to clean, green, sustainable employment.

Poland, Germany, and Spain are the EU countries with the most solar jobs in 2020, with 91,467. 79,018, and 40,215 respectively. Italy ranks sixth, with 16,874 jobs.

**EP** ***Despite having better insulation than Germany and the UK, solar energy isn't that present in Balkans and Eastern countries. Do you have programs that support and promote solar energy in these counties? If not, do you have any plans for it?***

**Walburga Hemetsberger** Greece, Hungary, and Bulgaria are three Balkan/Eastern markets that we expect to grow significantly between 2022-2025, with compound growth rates of 19 per cent, 21 per cent, and 30 per cent respectively. By 2025 we also expect Romania and Greece to become top 10 EU solar markets, each with a 3 per cent share of the EU market. We work to support national solar associations and companies across Europe to promote the development of solar in their domestic markets.

Photographs: Pixabay

**EP** ***What can you tell us about cooperation with other organizations, governments and companies?***

**Walburga Hemetsberger** SolarPower Europe works with our members, national associations, policymakers, researchers, and sectoral partners to advocate for a renewable, solar, energy transition.

One platform SolarPower Europe has founded is the 'European Solar Initiative', a platform that seeks to redevelop European solar manufacturing – aiming for 20 GW of solar manufacturing capacity in the European Union by 2025.

We're founding member of the 'Renewable Hydrogen Coalition', an organisation that represents the interests of the renewable hydrogen industry in the decarbonization of Europe's economy.

SolarPower Europe also works closely with EU institutions to shape renewable and solar energy policy at the EU level. For example, the European Commission will be publishing its first European Solar Strategy in early summer this year and we are working with policymakers to make sure we can take full advantage of the vast solar opportunities that lies ahead.

Interviewed by: Nevena Đukić

CITY OF ČAČAK

# ACHIEVING THE COMMUNITY GOALS THROUGH INVESTMENTS IN ENERGY EFFICIENCY

**Situated in the heart of Serbia and surrounded by the mountains Jelica, Ovčar, Kablar, and Vujan, Čačak is a city proud of its rich history. As one of the largest cities in our country, it develops and progresses on a daily basis. Only a few kilometers from Čačak, visitors from all over Serbia and the region can find attractions like spas, monasteries, cultural and historical monuments, meanders of the West Morava, rich flora, and fauna**



The people of Čačak are extremely proud of their land, mild-tempered and hardworking. They are willing to make their home place even a better place to live. As such, they know that roots of everything begin at home, so it does not come as a surprise that they are not only very keen to learn how to make the energy improvements of their homes but also what kind of air they breathe and how much they can do to protect the environment. We were hosted by the mayor of Čačak, Mr Milun Todorović, and talked about the ongoing projects, plans for the future, and how much is being invested in environmental protection.

**EP** ***The city of Čačak was allocated 10 million RSD subsidies for the procurement of solar panels. What is the next step, and when will the public call be announced?***

**Milun Todorović** After selecting the companies that will install solar panels, we will announce a public call for end-users, i.e., citizens. After the deadline for citizens to apply, the relevant panel will pay a visit to households registered, make records, evaluate, and rank applicants according to the conditions stipulated in the public call and the Rulebook, and finally award contracts to end-users who will receive subsidies. Citizens are very interested in installing solar panels. It is clear that this is a significant saving of money for every household that would decide on this move, so that a large number of them, according to my associates, either come to the City Administration every day or inquire about the public call by phone. We are not giving up on these goals in the future, so the City of Čačak will allocate funds to subsidize projects to improve energy efficiency. Subsidies will be intended for the installation of solar panels, replacement of the thermal insulation of the building, replacement of facade, as well as for the replacement of heating boilers in households.

**EP** ***How much money will be invested in energy efficiency projects in Čačak?***

**Milun Todorović** This year, almost one million euros will be invested in Čačak through projects aimed to improve energy efficiency, specifically in replacing household carpentry and installing solar panels. The funds allocated to Čačak for this purpose by the relevant ministry are among the highest of all local governments in Serbia. The city treasury will allocate another RSD 50 million from two budgetary lines, and we will get the same amount from the Government. With an additional ten million dinars for installing solar panels, the amount spent on improving energy efficiency in Čačak will reach one million EUR. The interest of our fellow citizens is high on our list of priorities, and the interest in this matter is extremely high. All citizens will be able to take part in the call, with the criteria determined by the Ministry of Mining and Energy.

The City of Čačak has intensified its efforts on the development of a mobile application that will serve citizens to monitor the air pollution level within the city limits

**MILUN TODOROVIĆ was born in Čačak on November 28, 1969, where he finished primary and secondary school, and then the Technical Faculty, where he acquired the title of graduate engineer for industrial management. Employed in the company "Auto Čačak" in Čačak since 1993 as Sales and marketing director, and since 2003 as General manager. He has published several papers dealing with sales, after-sales, and marketing. He is married and the father of two.**

**EP** ***Air pollution is part of our everyday life. What is the situation in Čačak in that respect? What is the city's air quality, and how do you measure it?***

**Milun Todorović** The City of Čačak has intensified its efforts to develop a mobile application that will serve citizens to monitor the air pollution level within the city limits, using data from 11 sensor locations. In this way, the citizens of Čačak will monitor the air quality at all times. The Čačak Public Health Institute provides great support to the local authorities in this matter. It will, in accordance with the measured values, give adequate recommendations via media about the parts of the day when citizens should stay indoors due to high air pollution. Subsidies for replacing carpentry, thermal insulation, gasification of households will significantly contribute to lowering pollution. I must emphasize that the City of Čačak measures air pollution levels on high-frequency roads. We still don't have the average value, but we measure directly in the most frequent places regarding public traffic. It is very important to mention that during October 2021 we officially commissioned the gas boiler room at a local school "Vuk Karadžić" to shut down the last boiler room in this part of the city that used oil, fuel oil, and coal as fuel. The next thing to look into is the possibility of shutting down old-generation natural gas boilers where possible. By switching to the supply from the new energy-efficient plant and connecting to the primary hot water network instead of the old system, significant savings will be achieved, and the strictest environmental standards will be met. Only then can



Photographs: (on the previous side and top right) Mayor's office

we expect significantly better air quality. We have replaced all heat sources owned by the City of Čačak, and managed by PUC "Čačak", moving on from the less environmentally friendly fuels to natural gas.

**EP** ***Together with the Ministry of Environmental Protection, you are co-financing the rehabilitation of the "Prelići" landfill. What is the progress of your work, what has been done so far, what will be the result once the rehabilitation is complete?***

**Milun Todorović** The project named "Rehabilitation, closure, and reclamation of the non-sanitary landfill Prelici" was completed thanks to the budgetary funds provided by the City of Čačak in 2015, as a regular activity of the Environmental Protection Program. After the Ministry of Environment announced a public call for co-financing local self-government units to develop and implement projects for rehabilitation and reclamation of existing unsanitary landfills in 2018, the City of Čačak applied and received almost 35 million dinars. Nearly nine million were allocated from the city budget, making this a capital project valued at 44 million dinars. The first phase was completed in 2019, but since this is a very demanding project, zoning and the so-called implementation phase are phased. After the new public call announced by the relevant ministry, the City of Čačak applied for phase A within the second zone, with an investment of little more than 66 million dinars, while the participation of our local self-government was just over 16 million dinars. It should be emphasized that zone two is divided into two phases, making the quality units completely logical and stable. All this was done due to a pervasive, complex, and long-term construction, technological, and mechanical work. I must not forget that the City of Čačak has already provided 40,000 square meters of HDPE foil, much needed for rehabilitation. The missing part of some 15,000 square meters will undoubtedly be ready by the beginning of Phase B. Phase A is fully completed; we are very proud that the first waste flare in Serbia is operational since spring last year. By the way, it will take two years for the body of the landfill to settle and completely release methane. According to the conclusion of the Government of Serbia, the City of Čačak received 70,681,000 dinars for phase 2B. We started its execution last summer as a final activity, which should ultimately ensure the closure of the landfill body. The process of releasing methane is still ongoing, so the consultants on this project estimate that during the spring, the rehabilitation of the landfill "Prelići" will be complete. After that, it will be possible to start the land reclamation process.


The project named "Green Belt of Čačak" deals with new green areas in the city outskirts and is worth 4.5 million dinars

Photographs: (middle right) Mayor's office; (bottom) Bojan Džodan

**EP** ***There is a plan for the construction of a wastewater treatment plant? What is going on with this project? What will it bring to Čačak?***

**Milun Todorović** As of April last year, the City of Čačak has made it to the official IPA financing list with its project "Wastewater collection and treatment for the City of Čačak". It is one of the most important projects in our city since it envisages the construction of a wastewater treatment plant in Prelići, that is, at the place where the Atenica river flows into the Morava. Through the IPA program, European Union has allocated 23 million euros for this investment, and a small number of local governments in Serbia will have the chance to use it. The project started in 2013, when a feasibility study was conducted within the MISP project (Municipal Infrastructure Support Program). The aim is to improve the quality of water in the river West Morava and the living conditions of the inhabitants of the City of Čačak in the river basin area and minimize the health risks of the inhabitants. Indeed, this goal will be realized by building a wastewater treatment plant in settlement of Prelići, as envisaged by the PDR plan, by reducing the discharge of untreated industrial and municipal wastewater into the river. In October 2018, the Ministry of Environment and the City of Čačak signed a Memorandum of Understanding, which included preparation of the project and tender documentation for the selection of contractors and professional supervisors for the construction of wastewater treatment plants in Čačak, collectors in the urban and suburban settlements. The complete project documentation in Serbia is carried out by the Spanish company "Eptisa". The project aims to prepare documentation in accordance with the legislation of the Republic of Serbia and the EU requirements regarding funding from IPA programs. The local self-government formed a Project Board managing the project and the Implementation Unit, in charge of the project implementation, made of various local representatives coming from the City of Čačak, PUC "Waterworks", PEID (The Priority Environmental Infrastructure for Development Project), Ministry of Environment and experts in this field as needed. Now we have completely finished the project and received decisions on the reconstruction of the pumping stations Beljina, Košutnjak, and Ljubić polje. The audit by the Commission of the Ministry of Construction, Transport, and Infrastructure has been completed, and we expect the tender documentation for the WWTP soon.


**EP** ***Can you tell me something more about the project "Green Belt of Čačak" and its execution at this moment?***

**Milun Todorović** We have been working ambitiously and efficiently to solve the problem of environmental protection, not only to justify our regional leadership position. In addition to the already mentioned infrastructure projects for the rehabilitation of the landfill and the construction of the wastewater treatment plant, we are fully committed to strategic new landscaping in the city. The project called "Green Belt of Čačak" implies the creation of new green areas in the city outskirts, worth 4.5 million dinars. The allocation of the Ministry of Environmental Protection is 3.5 million, and the contribution of the City of Čačak is one million dinars. For several years, we have been intensively connecting the marginalized zones into the network of new green areas by encouraging afforestation of degraded areas, to improve the quality of the environment. A total of three hectares is covered with new trees and landscaping. The first milestone of the "Green Belt of Čačak" was set with 82 autochthonous seedlings of conifers and deciduous trees planted in the Avenija residential area, which will positively affect the climate and increase green areas in this part of the city. The action continued with planting 27 autochthonous species of deciduous trees in settlement of Ljubić, followed by new plants in Slavka Krupeža street and Tanaska Rajića boulevard, where trees now separate residential buildings and the railway that runs along the street. Afforestation of this area, above all, aims to demarcate the railway and housing in terms of population safety, noise reduction, and provide reserves of open spaces, and establish an open area and preserve the specific character of the site. Through this project, 372 trees were planted at five locations.

Interviewed by: Milica Radičević

## ENVIRONMENTAL PROTECTION

**The city management is working on solving general environmental problems such as waste disposal, construction of new parks, and reforestation. Raising the environmental awareness of citizens is of crucial importance, hence our constant work on education.**

**"We organize various activities in the field to include our students or educational programs in their schools, as well as in kindergartens, in an attempt to make our youngest ones learn and remember how important it is to preserve and protect the environment. In this way, we want everyone to develop a sense of care for their environment, its preservation, and improvement, striving at a healthier and better life", concludes Todorović.**

Photograph: Mayor's office

# CHARGE & GO – A SAFE PATH TOWARDS ENERGY TRANSITION OF TRANSPORT

The path of sustainable transport in Serbia is slowly but surely being paved. The support of the Government, which for the third year in a row subsidizes the purchase of electric and hybrid vehicles, also contributed to that.

The state has allocated 5,000 euro subsidies for the purchase of new passenger vehicles and light trucks with a fully electric drive. At the same time for plug-in hybrids (which can be charged from an external electricity supply) whose carbon dioxide emissions do not exceed 50 g/km, it allocates 3,500 euro subsidies. For ordinary hybrid vehicles, which cannot be plugged into an external electricity supply and whose carbon dioxide emissions are less than 140 g/km, 2,500 euros is obtained. More than 400 electric cars and about 5,000 hybrids have been registered in our country thanks to this support system.

For electric cars to participate in traffic at all, it is necessary to develop the charging infrastructure. There

are more and more electric chargers in Serbia. Thanks to the digital platform and the charge&GO application, drivers of these cars can quickly and easily find chargers nearby and recharge their vehicles.

Charge&GO has created the first regional digital platform and mobile application that displays a network of chargers for electric vehicles. The platform gives electric vehicle drivers the ability to access the charging point and the ability to pay for the use of chargers through the app. At the same time, companies can remotely manage their charger network thanks to this app. It includes several services such as charging control, charger performance monitoring, pricing, usage restriction and charging session review.

## The difference between AC and DC chargers

AC and DC chargers are available to charge&GO users. Some have already been placed at the service of electric vehicle drivers throughout Serbia. Others are in the design and installation phase, and good locations are being intensively sought for new electric chargers, says Nemanja Grubješić, Head of Technical Sales at charge&GO.

Nemanja explained the difference between charging vehicles on AC and DC chargers. The biggest difference is reflected in the charging speed because electric vehicles have lithium-ion batteries that charge on DC voltage, so charging time is much shorter. "C chargers receive AC voltage, which is switched to DC in the car, thanks to its elements and charges the battery. This process is time-consuming, so the AC charger belongs to the slower type of charger, and it is used at home or in commercial facilities where people stay longer. The average charging time of an electric car on an AC charger is from four to eight hours.

The whole system is a bit different when it comes to DC chargers. These models have an inverter that converts AC to DC, and it automatically charges the battery, which significantly speeds up charging time.

The charging speed of the car also depends on the power of the DC charger. Fast chargers charge the battery between one and three hours, while ultra-fast chargers can charge a car battery in less than an hour.

"For longer life of the electric car, i.e. its batteries, AC charging is recommended, which is also the cheapest solution. Electric car drivers charge their vehicles mostly during the night when electricity is cheaper, and they are ready to drive in the morning. Charging between four and eight hours can fully charge the battery. It takes much less money to charge the battery of an electric vehicle to full capacity than to fill the tank of a car with an internal combustion engine", Grubješić points out.

Photographs: Bojan Džodan

## AC charger price

The type of AC charger is mostly chosen by drivers of electric cars who charge vehicles at home, although this model is often installed in commercial facilities, such as hotels and shopping malls. On the other hand, fast and ultra-fast DC chargers are installed at gas stations, busy roads, rest areas on highways, where electric car drivers can recharge or fully charge the vehicle battery in a short period of time.

"When someone decides to buy an electric car, he immediately thinks about buying a charger because he wants to provide himself with a safe charge. For the installation of a home charger, according to the turnkey system, it is necessary to set aside about 1,500 euros", says Nemanja, emphasizing that charge&GO, in addition to offering a simple and fast service of charging electric vehicles through platform and application, also sells and installs electric chargers.

The team of charge&GO is working hard on building the infrastructure, and they plan to cover the entire territory of Serbia with the network of their chargers.

Nemanja says he always tries to acquaint the citizens with all the advantages that driving electric cars brings. As he points out, the team's success behind the charge&GO platform is reflected in how much electromobility in our country is developing and growing. One of the incentives would be subsidies for the installation of chargers. This type of support, which is not new in Europe, would significantly improve and accelerate the expansion of the charger network in our country, affecting the number of electric cars on the streets.

Prepared by Milica Radičević

## E-MOBILITY ASSOCIATION – COMMON FORCES TO ZERO-EMISSION

Year after year, electric car sales are growing, and many states are receiving subsidies and various benefits that encourage the purchase of these vehicles. This is also contributed by the fact that more and more car manufacturers are announcing that they will produce exclusively electric and hybrid-powered vehicles. Looks like we'll all be driving electric cars soon, which means that by joining forces, we will have an impact on reducing emissions of harmful gases coming from transport.

There is also a growing interest in electric vehicles in Serbia. It has shown that we need the association that will help both – the future owners and those who already drive cars powered by electricity. That's how the e-Mobility association was founded. It aims to help and wake up the car drivers to realize that electric vehicles are part of our present, not the future. Nebojša Margetić, president of this association, explains that during the purchase of the electric car, he received significant assistance from Association of Drivers of Electric Vehicles "Strujni krug" from Croatia and then the idea for E-mobility was born.


"The concept of our E-Mobility association is very similar to Croatian, except that we are starting in much more difficult conditions, without the support of the European Union, with fewer vehicles, chargers, and subsidies. But big success does not come without the big challenges", Margetić points out. One of the main goals and motto of the association is "Our mission is – zero emission", this refers to the emission of $CO_2$ and other harmful gases. At the same time, there is an increase of electric vehicles in traffic.

Energy Portal



## THE UNITED KINGDOM PROHIBITED KETCHUP, MAYONNAISE AND SALAD DRESSINGS IN PLASTIC SACHETS

Small plastic sachets of ketchup, mayonnaise and salad dressing will soon be banned in the UK. Apparently, this country is also determined to ban disposable plastics packages, which are very difficult and rarely recycled.

This ban comes as one of the measures of the Ministry of the Environment, Agriculture and Rural Affairs that are prepared to reduce the generation of waste that usually ends up in landfills, seas, and oceans.

As further stated, apart from the plastic ketchup, mayonnaise and topping bags, the UK plans to ban the use of plastic plates, as well as small packs of coffee milk.


The country introduced the payment of plastic bags in 2015, which led to declining in their use by whopping 95 per cent. The use of microplastics found in personal care and hygiene products, that by rinsing through drains, eventually reaches all water systems was banned in 2018. Prohibition of the use and production of plastic straws, mixing wands and cotton buds, are in effect from 2020 in this country to reduce plastic waste and protect the environment.

According to previously published data and estimated use numbers, 4.7 billion plastic straws, 316 million plastic mixing wands and 1.8 billion plastic cotton buds are used every year. While we await new analyses, I hope that the imposed bans have brought results and that the amount of single-use plastic waste has been significantly reduced.

Milica Radičević

Photographs:Pixabay

## STEP CLOSER TO CHEAPER SOLAR PANELS

Silicon, an expensive material used to make solar cells, and which also dictates the high price of solar panels, fortunately, has an incomparably cheaper alternative – perovskite.

Nevertheless, although the perovskite is largely attributed great potential when it comes to the production of solar panels in the future, this material has not yet been able to outperform silicon in terms of efficiency and stability.

The problem with perovskite solar cells is that, despite the excellent photovoltaic performance, these cells result in very little energy output. On the other hand, perovskite structure, characterized by excellent performance, is only stable at temperatures above 150 degrees, while it loses its characteristics at room temperature.

In search of a stable and efficient perovskite structure, researchers from the University of Cambridge have helped themselves to all available methods to find out, for the first time, what a stable perovskite structure looks like.

"There was a common consensus that when people stabilize these materials, they become ideal cubic structure", said Tjarnan Doherty, one of the scientists. "But what we have found out is that they are not cubic at all, they're already very slightly distorted. There is a very subtle structural distortion that gives some stability at room temperature."

The distortion is so small that it was previously undetected until Doherty and his colleagues used the sensitive structural measurement techniques that were not widely applied to perovskite materials.

Milena Maglovski



## SCIENTISTS INTRODUCE "NEARLY-PERFECT" LITHIUM-SULPHUR BATTERY

The transition to electric vehicles is crucial for combating climate changes, and for efficient and sustainable electromobility, the key lies in batteries.

Scientists are making great efforts to make electric car batteries as efficient and reliable as possible. And in addition to standard lithium-ion batteries, there are already sodium-ion batteries and other alternatives.

Promising innovations include lithium-sulphur batteries, and researchers from the University of Michigan believe that the future of electric vehicles lies right there.

Lithium-sulphur batteries offer numerous advantages compared to current battery technology, including improved gravimetric energy density, significantly reduced price of raw materials and improved safety features writes The Faraday Institution.

Nevertheless, a large number of charging and discharging cycles of these devices have been carried out but at the expense of other parameters, such as speed charging capacity, resistance and safety of batteries, explained Professor Nicholas Kotov of the University of Michigan.

New lithium-sulphur batteries contain a network of recycled synthetic fibers that prevent the formation of dendrites – needle structures on the anode that can lead to rapid degradation of the battery, short-circuit, and even explosion. This way, they enabled over a thousand charging and discharging cycles of powering the electric vehicles and five times the capacity of standard lithium-ion batteries, hard from the University of Michigan.

Milena Maglovski

Photographs: Pixabay

SMART EV CHARGING IN BUILDINGS

# A KEY LEVER FOR ACCELERATING EV ADOPTION

**With millions of new electric vehicles (EVs) expected on the roads soon, the trend of decarbonizing and transforming the mobility industry will only accelerate in the coming years**

The introduction of smart EV charging infrastructure is becoming a global goal of essential importance for the whole world, thus accelerating this trend, and using its benefits for both consumers and the environment.

Building the smart and decentralized energy system implies the introduction of a reliable EV charging infrastructure, bearing in mind that it is planned to install 300 to 500 million EV connectors by 2040.

To achieve this goal, most global policies focus on the deployment of public charging infrastructure. It is essential to assess the potential added value of applying smart EV charging technology in private buildings for EV drivers, system operators, and other stakeholders are given that around 90% of EV chargers installed by 2040 will be in private environments.

## The multiple benefits of smart EV charging in buildings

To assess the benefits of smart chargers, the Schneider Electric TM Sustainability Research Institute has conducted a cost-benefit analysis of installing local smart EV charging technology in households, multifamily, and commercial buildings.

Our research finds that, for consumers and system operators, the benefits of such an approach are striking. The results highlight that:

- Smart EV charging stations for electric vehicles are more often installed in buildings, as they are on average more accessible to consumers than in public places
- If we compare to public EV charging costs, smart EV charging can generate savings of up to 70% for consumers especially if paired with time-of-use tariffs, demand charges, and the implementation of distributed power generation infrastructure (such as onsite solar). Using a load management system allows for additional savings which can be further increased.
- The benefits of EV charging are magnified by the provision of grid and system services, highlighting the value of having a fully smart and bidirectional charging strategy.
- Implementing smart charging technology in buildings increases the resilience of local and global grids, while also helping avoid the need for large, expensive associated infrastructure investments.
- In the end, smart EV charging in buildings is a source of reducing $CO_2$ emissions by more than public charging or uncontrolled charging.

## A thoughtful policy approach is required

Significant benefits are immeasurable, however, well-designed strategies are needed to achieve them:

1. The **promotion** of EV charging at buildings removing all existing barriers.
2. **Reducing** the cost of smart EV charging for consumers by introducing two-tariff calculation of the time of use of electricity and increasing the self-consumption of electricity produced via distributed generation.
3. Better **access** to grid and system services for EVs to support the transformation of energy systems.

Decarbonisation of transport, buildings and global energy systems are the fields most associated with the implementation of smart EV charging. When coupled with flexible sources and loads within buildings, it also has the potential to provide important additional benefits for consumers and system operators.

This combination provides a more efficient and economically attractive proposition than centralized paradigms – and is an important first step towards the convergence of Mobility, Energy and the Urban transformation.

To answer the needs of smart EV charging Schneider Electric has developed EcoStruxure ™ EV Charging Expert as EV charging infrastructure load management system, access management and supervision solution.




All photographs: Schneider Electric

# ELECTRIC DREAMS ON THE ROADS OF SERBIA

**A few years ago, the management of the public enterprise "Roads of Serbia" recognized the necessity of introducing electric vehicles to the Serbian transport system. Just before the end of 2018, a proposal by the toll collection sector of this public company was sent to the Ministry of Construction, Transport, and Infrastructure to prescribe the procedure for installation of electric chargers, which were previously omitted both by the Law and the Rulebook**

Our interlocutor, Mr Darko Savić, Deputy Executive Director of the Toll Collection Sector within the PE "Roads of Serbia", told us that his company had already installed five EV chargers in 2017. These chargers are installed at strategic key points along highways, i.e., when entering our country from abroad. All those who traveled to neighboring countries must have noticed the EV chargers located at toll stations "Preševo", "Šid", "Dimitrovgrad", "Subotica", as well as at the central location in our country, in the area of the former toll station "Belgrade" near Bubanj Potok.*

Five years ago, the installed EV chargers were the latest EV charging solution offered by global manufacturers. They all have three connectors: two for fast DC charging and one for AC charging. These stations allow fast charging of electric vehicles, including the next generation of electric cars. Maximum output power is 50 kW for DC and 22 kW for AC charging. At the beginning of last year, the public enterprise "Roads of Serbia" installed three ultra-fast electric chargers with 175 kW of power. One of them is located at the toll station "Belgrade", along the Niš – Belgrade route, while the remaining two are on the plateau of the former toll station "Niš" - one in the direction of Belgrade, and the other in the opposite direction, towards Niš.

## Characteristics of ultra-fast chargers at toll plazas

The 175 kW DC charger model, manufactured by the world-renowned company ABB, is a fast charger consisting of a vertical power cabinet of modular type and a charging port. The maximum DC output power of the device is 175 kW. The flexible design allows multiple types of connectors such as CCS and CHAdeMO. This charger was designed based incidental charging and is suitable for toll stations, rest areas on highways, or gas stations. "These chargers are designed to work outdoors at temperatures ranging from -30 to +50 °C with mechanical shock protection and the ability to connect to the GSM/2G/3G modem/4G network and 10/100 Base-T Ethernet", explained Mr Savić and added that the new electric chargers meet all required standards and are suitable for the actual and next generation of electric vehicles. All chargers have an interface that allows you to connect the charger to a system/fiscal platform for charger use.

Presently, three new ultra-fast chargers are connected to the Charge&GO platform, the first regional digital platform for charging electric vehicles. Through this


### THE STATISTICS

- **Almost a year has passed since the installation of three ultra-fast chargers, and the figures show 985 charges at the location of the Belgrade toll station, 152 charges at the site of the former toll station Niš (heading Belgrade), and 119 charges at the site of the former toll station Niš (direction to Niš).**
- **"The charging service for electric vehicles on the existing Roads of Serbia chargers is currently free, which shows that this public enterprise wants to contribute to the revival and development of electric vehicle transport in the Republic of Serbia", says Darko Savić. Their intention is that electric chargers be part of the road infrastructure is in line with positive world trends.**
- **PE "Roads of Serbia" is currently preparing the tender documentation which will include the installation of 10 additional electric chargers on public roads. These chargers will be newer generations, power from 120 to 150 kW, with the possibility of upgrading.**
- **"As a starter, 10 locations determined for the installation of new chargers are planned on highway sections: Belgrade-Subotica, Belgrade-Šid, Belgrade-Čačak, Belgrade-Niš, Niš-Dimitrovgrad. The locations will be precisely determined by the tender documentation, and our intention was to obtain as much regional dispersion as possible", states Darko Savić.**



* Due to the construction works of the bypass route around Belgrade, the electric charger located on the plateau of the former toll station "Belgrade" near Bubanj Potok was relocated to the rest area Boljkovci (Belgrade-Čačak direction), a section of the Miloš the Great highway, near the Ljig toll station.

Photographs: Bojan Džodan


The charging service for electric vehicles on the existing Roads of Serbia chargers is currently free, which shows that this public enterprise wants to contribute to the revival and development of electric vehicle transport in the Republic of Serbia



application, the platform enables monitoring and management of the charger system and payment for charging (when the legal requirements are met). Darko Savić states that the Charge&GO platform provides charger visibility on global platforms, allowing application users insight into charger occupancy, the possibility of charging for electricity used, and many other benefits (possibility of editing charging prices, etc.). "The plan is to place the existing five chargers on the same platform, which would give us a significant network of chargers on public roads, visible on the world's leading applications such as Plug&Share, Virta, ChargePoint", said Mr Savić.

## The future seems bright

In cooperation with the relevant ministry, PE "Roads of Serbia" intends to equip new sections of highways with EV chargers. Resting areas and parking lots are a mandatory part of the technical documentation needed for constructing new highway sections, with the tendency to align all newly built sections with modern European and global standards in terms of road infrastructure. "Clearly, some several years ago we recognized the need to introduce electric vehicles in the transport system of Serbia and the need for a systematic approach through the strategic and legislative framework in the area of infrastructure development for charging electric vehicles", said Darko Savić. The Ministry of Construction, Transport and Infrastructure accepted the proposal of PE "Roads of Serbia" – Article 3, paragraph 2, item 34 of the Rulebook on special types of facilities and special types of works for which it is not required to obtain an act of the competent authority for these types of works performed, based on the approval for performance of works, as well as the scope and content and control of technical documentation attached to the request and the procedure carried out by the competent authority (Official Gazette of RS No. 2 from 16 January 2019) – and for the first time prescribed the installation of electric chargers for electric vehicles within the existing regulations. That's not all. "Roads of Serbia" is trying to support environmental modes of transport in other ways, so together with the relevant ministry, an initiative was submitted to amend the Law on Fees for the Use of Public Goods in terms of obtaining a toll discount for users of electric vehicles and users of vehicles with EURO 5 or EURO 6 energy class. While waiting for the outcome of this initiative, owners of electric cars can follow the news about the expansion of the network of electric chargers in our country, especially news about the installation of fast and ultrafast chargers on highways, hoping that many other benefits will be adopted, like those already available to EV drivers in European countries.

Prepared by: Milica Radičević


**SICHARGE D**

# Dynamic charging for future eMobility

- PowerUp: easily upgradeable power up to 300 kW DC
- FullDPA: dynamic power allocation to optimize on-demand vehicle charging
- ConnectPlus: option for parallel fast charging of up to five eVehicles
- ValueScreen: innovative 24” flexible touchscreen adds value

**siemens.com/sicharge-d**

SIEMENS


ProCredit Bank

# FREE RIDE WITH PROCREDIT BANK – REGIONAL CHARGER NETWORK IS EXPANDING

**Many people would say that electric cars are the vehicles of the future and that years will pass until this mode of transport comes to life. However, changes are happening very quickly. In the world's developed countries, e-powered vehicles have become the present, and more and more of them are on the streets. In order to encourage citizens to buy electric vehicles, they are working on a support system that is reflected in subsidies for the purchase of cars, chargers, free parking and other benefits**

For Serbia, it is often true that it is "lagging behind the world", but in this case, it is not so because in our country, there is a support system for the purchase of electric and hybrid cars. Thanks to the state's incentives, there are more than four hundred electric cars and about 5,000 hybrid cars on the streets of our country.

When we talk about electric cars, many people focus on the fact that these vehicles do not emit any harmful gases. In addition, these cars are very easy to maintain, and maintenance costs are very low.

Despite all the advantages that electric cars bring, it is necessary to develop a good network of chargers for "e-powered driving" to come to life in this area fully. Fortunately for e-powered drivers, there are more and more publicly available chargers that can charge the batteries of these cars.

It seems that the future brings us the fact that we will have the opportunity to replenish the car at every step during the completion of daily obligations, such as going shopping or to the bank. ProCredit Bank has paid special attention to that. Drivers of electric cars can charge their four-wheelers on chargers that are installed in the parking lots of the bank's branches.

Until recently, ProCredit Bank has had fifteen chargers which are strategically placed in eight cities: Subotica, Sombor, Novi Sad, Belgrade, Pančevo, Kragujevac, Čačak and Niš. They are located in front of Zone 24/7 of this bank.

The bank's leaders realized that it was necessary to expand the network. So, at the beginning of this year, 27 new chargers were installed in busy places and near major roads and highways so that they would be easily accessible. New chargers have been installed in Subotica, Belgrade, Novi Sad, Zlatibor, Šabac, Kragujevac, Sokobanja, Niš, Kruševac and Prokuplje. The complete network of these chargers will soon be available to drivers on ProCredit Electric Stations application.

At the level of the ProCredit Group in ten European countries during 2022, a total of three hundred chargers for electric cars will be installed, the use of which is completely free.

ProCredit Bank is the first large buyer of green electricity in Serbia. Still, it is also the first domestic company to receive a guarantee of the origin of EPS that the electricity they consume is produced exclusively from renewable energy sources.

"Our citizens who drive an electric car will be able to cross long distances without any problems and recharge their vehicle battery every hundred kilometers, completely free of charge. In addition to the fact that this value provides additional value for these drivers, the positive impact on air quality will be evident over time," people from ProCredit Bank say.

Protection of the environment, ecology and renewable energy sources are the focus of ProCredit Bank's operations. They are intensively trying to be an example of good practice at the internal level, and they have fifteen electric vehicles in their fleet. No wonder they set a very ambitious goal – that by the end of the first quarter of this year, all vehicles in their fleet will be with zero $CO_2$ emission. It is in line with the bank's plan to become carbon neutral in the near future.

Fulfilling these goals will significantly affect the protection of the environment and the air quality in our country, which is the environmental commitment of ProCredit Bank which is planning special loan offers for the purchase of electric vehicles.

ProCredit Bank experts are ready to answer all your questions at any time. All you have to do is to schedule an appointment or look at the detailed offer on the bank's website.

Prepared by Milica Radičević

Photograph: ProCredit Bank


# BELGRADE'S MOTORSHOW

## Belgrade 12 – 15 May

**The Belgrade Car Show is an event that everyone is looking forward to.**
**The Covid pandemic has led to the cancellation of this event in 2020 and 2021 to the great disappointment of both exhibitors and visitors. New technologies, electric cars and hybrids will be the focus of this year's fair**

According to the organizers of this year's car show, there is a great interest of participants, media, experts, and the public, both in the country and region.

"Practically, after a three-year break, the upcoming event means the continuation of the sequel of car and motorcycle shows at the Belgrade Fair. The last Car and Motorcycle Show was held in 2019, and in 2020, ten days before the start, a fully prepared event was canceled due to a pandemic" says the Belgrade Fair.

This year's car show in one segment will significantly differ from the previous ones. The automotive industry is at a major technological milestone but at the same time in great trouble. In general, the demand for new vehicles currently exceeds the existing supply. Due to problems with the supply of some key components (semiconductors - chips, but also aluminum parts), there was a big delay in the finalization of production and the lack of new vehicles on the global market. Delivery deadlines are uncertain, they are getting longer and longer, and are often broken.


"Due to the current situation, importers and distributors of vehicles at this year's Car Show, unlike previous editions, do not prioritize the affirmation of the sale of new cars. They give priority to presenting environmentally advanced vehicles, electric models, hybrids, light hybrids and new vehicle models with conventional propulsion (petrol and diesel), which are supposed to have been improved in terms of reducing the emission of harmful exhaust materials", the organizers state.

Car and motorcycle shows are primarily business events but also media attractions. Thus, the visitors of this event will have the opportunity to enjoy the attractive accompanying contents. Some of them have become traditional over time, such as the test drive of electric motorcycles and bicycles on specially arranged training grounds, the skills test for safe driving and prize games, as well as the selection for the Car Show Miss.



## DDOR Eco BG Car Show will be held from May 12 to 15

Keeping in mind the changed concept and format of the event, the Belgrade Fair expects great interest from the professional public in organizing accompanying professional events on more than current issues of environmentally advanced technologies and their application in the automotive industry in the function of environmental protection.

The Car and Motorcycle Show organizers are preparing the event with the conviction that the epidemiological situation will not be a reason for cancellation. During the Car show, all necessary protective measures will be taken that, according to the recommendations of the competent institutions, are appropriate for manifestations of a mass character.

The price of an individual ticket for the Car Show will be 400 RSD, for organized group visits 20 and more visitors 300 RSD per person, and students and pupils will pay 200 RSD per person during the organized visit.

The parking price is 150 RSD per hour, the maximum daily price of the parking is 750 RSD.

Prepared by: Milica Radičević

Photographs: Belgrade Fair


# THE SOLUTION FOR THE FUTURE OF SUSTAINABLE TRANSPORT

**According to the World Bank, air pollution from traffic on average globally is about 20 percent. Reduction of harmful gas emissions, especially in urban areas, can be reduced by electrification of both public and private transport. Mobility could become fully sustainable in the future thanks to a secure supply of energy derived entirely from renewable energy sources. The development of transport in this direction would lead to the complete elimination of harmful gas emissions from traffic**

The world's metropolises are taking sure steps to improve and accelerate the complete transition to electric vehicles with innovative solutions. Intensive work on the promotion of electric vehicles, affects the growth of the number of these cars that we find more and more on the streets.

According to the International Energy Agency (IEA), about three million electric cars were sold in 2020. There was also a turnaround, as for the first time Europe overtook China, which has been the world's largest market for these vehicles so far.

There is optimism in the competent institutions in our country. Subsidies for the purchase of electric and hybrid vehicles are expected to continue to contribute to the further development of electromobility.


**Chargers get the necessary energy from renewable energy sources, while the parts can be reused**

In order for drivers of electric cars to participate in traffic without hindrance, it is necessary to develop the accompanying charging infrastructure. As the number of electric vehicles grows, so does the need for more electric chargers. This was recognized by the company charge&GO, which in partnership with Enel X, a member of the global business line of the Enel Group, is working on the development of this network.

Enel Group is one of the leaders in energy transformation, both in Europe and in the world. They are recognizable by the fact that they create simple, easily acceptable and efficient solutions from complex technologies that enable sustainable growth and development. Such solutions include Enel X electric chargers.

Unique solutions under the ENEL X brand, based on the principles of the circular economy, provide customers in many countries with an alternative model that respects the principles of environmental protection. Chargers get the necessary energy from renewable energy sources, while the parts can be reused. Thus, many Enel X chargers in Italy, which are owned by this company, are powered exclusively by green energy sources. The expert team of this company is working on innovative solutions for the reuse of lithium-ion batteries to reduce pollution caused by their disposal.

## Enel X - Smart charging solutions for electric vehicles

The 22 kW JuiceBox charger is a safe and compact charging solution. An additional benefit is that this charger is made of recycled plastic. LEDs allow the user to always clearly see the charging status of their electric car.

Among Enel X's latest innovations is the state-of-the-art JuicePole charger, which allows two electric vehicles to charge their batteries up to 40 percent in just 30 minutes. Charging session data is available on the clear LED screen at all times, and RFID identification technology allows users to authorize on the charger using an RFID smart card.

In our country, charge&GO is working on equipping the FCA Serbia dealer network with the chargers of our partner Enel X. The new Juice Box model PRO Enel X chargers are installed at their dealers, AutoGarant in Preljina and Auto Mig in Nis.

AutoGarant has two Juice Box PRO models of 22 kW and Juice Box PRO cellular - 7.4 kW. While in Auto Mig there is Juice Box PRO cellular - 22 kW, as well as two models Juice Box model PRO - 22 kW.

Among the car dealers who have installed chargers of this company are AK Kompresor, Auto kuća-Kole, AK Stojanov Novi Sad, Nikom auto Kragujevac and others.

We remind you that the company FCA Serbia in Kragujevac also installed the Enel X electric charger in the area of its factory.

While the network of these innovative chargers for electric vehicles of a well-known Italian brand is expanding in our country, we expect a big step forward this year when it comes to the number of electric vehicles on our roads. Judging by the interest of our citizens in subsidies for the purchase of electric vehicles, it seems that we will witness that turn towards the electric future on domestic roads.

Prepared by: Milica Radičević

Photographs: EnelX

# ADOPTION OF THE RES LAW IS A MAJOR STEP FORWARD

The recently adopted Law on Renewable Energy Sources has brought many positive changes and drew the attention of foreign and domestic investors. Citizens and businesses were given the opportunity to become prosumers or self-consumption generators, establish energy communities, and auctions were introduced to grant subsidies to investors. This Law creates conditions for Serbia to use its great potential of solar energy, thereby attracting new investments and contributing to the reduction of environmental pollution. We discussed current developments and challenges with Dragoljub Cibulić, senior partner in the BDK Advokati, that has over 17

Dragoljub Cibulić,
senior partner at BDK Advokati

years of experience advising clients on some of the most important renewable energy projects in Serbia, Bosnia and Herzegovina, and Montenegro.

**EP** ***What is your take on the current delay in the final phase of the preparation of regulations that would enable the implementation of the Renewable Energy Sources Act (RESA) and the organization of the first auctions?***

**Dragoljub Cibulić** Unfortunately, the events in the last few months have sent a negative signal to all participants in the renewable energy sector. After a strong positive momentum in the first half of 2021, which resulted in the adoption of the RESA and the first set of by-laws, and the preparations for the first auction for market premiums, the delays in the drafting of the remaining by-laws, and the disagreement of the major players on the remaining outstanding issues in the regulatory framework have put a big question mark on the new investment cycle in the renewable energy projects in Serbia.

The remarks made by EPS and EMS are not ungrounded but are based on the assumption that, in the next few years, Serbia will develop a huge capacity of renewable energy sources and ignore the fact that EMS, Elektrodistribucija Srbije, the Ministry of Mining and Energy and the Energy Agency of the Republic of Serbia still have important levers at their disposal to control the

Photograph: Pixabay, (Cibulić) courtesy of Dragoljub Cibulić

renewable energy investment cycle, e.g. through procedures for the issuance of energy permits, connection approvals, setting the market premium quotas, and determining the maximum purchase price.

**EP** ***Bearing in mind that EPS and EMS are asking for RESA amendments, while the Ministry and international institutions hold that implementation must not be delayed further, what do you think is the solution to overcome this problem?***

**Dragoljub Cibulić** The solution, as always, lies in achieving a compromise solution that would, on the one hand, enable further smooth development of the renewable energy sector and commencement of a new investment cycle in 2022, and which, on the other hand, would not jeopardize the stability of the energy system and the operation of the transmission and distribution system.

Technological development and maturity of the renewable energy sector shift the focus from the incentives to the consequences that the sector's rapid development has on the transmission and distribution system and the stability of the entire energy system. The transmission and distribution system must undergo a strong transformation to respond to the inevitable changes. The operators of these systems should not shy away from that process since those will be essential parts of the new energy system.

To fully include RES in the energy system, developing new production and storage capacities is crucial to enable adequate balancing of RES production. It is vital that the Government and the Ministry select adequate project development structures and independent and experienced teams for the implementation of these projects without delay, which should enable these capacities to be online as soon as possible.



**EP** ***If we exclude the problems, what are the advantages of the legislative framework consisting of 4 laws that were adopted in early 2021?***

**Dragoljub Cibulić** The very fact that these acts have been adopted is a big step forward. In addition to laying the foundations for the further development of RES production capacities, it seems to me that the greatest advantage and achievement of the new regulatory framework is enabling end consumers to be active participants in the electricity market, through the concept of prosumers, more flexible electricity supply through direct contracting with producers, aggregation of consumption, and the establishment of mechanisms for the promotion and financing of energy efficiency projects.

**EP** ***What are the biggest challenges that investors face? We saw that the Serbian RES Association - you are its member - was indignant because of the low purchase price cap set by the AERS for the first auctions? Are there any problems in permitting or other areas of regulation?***

Photographs (top) Unsplash/Gonz Ddl; (bottom) Unsplash/Anders J.

**Dragoljub Cibulić** The recent decision of AERS on the maximum offtake price for the first auctions of wind power capacities ignores the fact that Serbia, despite the breakthrough that occurred in the previous years with the development of the first major private RES projects, is still a developing market. Serbia is not a member of the EU. It does not have an investment rating, there are problems in the rule of law and stability of institutions, which means that investors and financiers have higher expectations in terms of return on investment to justify investing in a destination with higher perceived risk. In that sense, the decision on the two-way premium has a demotivating effect on the largest number of investors. It is also the fact that the decision on the maximum offtake price was made before the regulatory framework was completed and the issue of balancing was settled - any amendment to the RESA concerning the balancing issue would necessitate another look at the decision on the maximum offtake price the two-side nature of market premiums.

It is worth mentioning that one of the issues is the inconsistent practice of the Real Estate Cadastre when registering wind farms. In some cases, the Real Estate Cadastre treats wind turbines as lines and not as facilities, completely contrary to the existing legal framework and can create problems for financing future wind projects.

**EP** ***BDK greeted the announced amendments to the Environmental Impact Assessment Act. What will those amendments bring, and in general, what are our regulations regarding environmental protection from the perspective of the energy sector, of course?***

**Dragoljub Cibulić** The announced new Environmental Impact Assessment Act aims at further harmonization with the EU law in this area. The most significant change is that development approvals enabling the implementation of the project cannot be issued before the impact assessment procedure is completed (where applicable). Until now, this procedure could be carried out later, up to the commencement of construction works under the construction permit. The way the draft defines a "development approval" shifts the impact assessment to an earlier project stage. Namely, according to the draft law, a "development approval" may include various conditions that precede the issuance of construction and similar permits. It may create legal uncertainty because it is not entirely clear at which point it is necessary to conduct the environmental impact assessment procedure. This uncertainty could slow down the project development, and it is, therefore, necessary to clearly specify the timing for carrying out the environmental impact assessment procedure. It is reasonable to argue that this procedure should be performed before obtaining the construction permit, having in mind the timing of some other procedural steps in the regulatory framework.

Another point that is important for energy projects is insisting on assessing the cumulative impacts of a project taken together with other related projects that have already been developed or are being planned. It will prevent investors from artificially showing less impact on the environment by dividing a project into smaller parts. Also, having in mind that the projects that have already been completed or are still being planned will also be taken into account, one should expect studies of higher quality and more stringent and meaningful compliance requirements.

**EP** ***BDK has offices in Montenegro and Republika Srpska. How far has the energy transition in these countries come? What is the regulation regarding RES, and can new investments in wind and solar energies be expected soon?***

**Dragoljub Cibulić** All three countries are at a similar level of the energy transition, the regulatory framework has recently changed in Montenegro and Serbia, and a new sectoral law is expected in Republika Srpska soon. Of course, there are certain specific traits. In Serbia, RES projects have so far been developed primarily by private investors. In Republika Srpska the participation of the state electricity company is significant, while in Montenegro, projects have been developed at locations leased from the state through a public tendering procedure. Just like in Serbia, there are numerous projects in different stages of development. It seems that the whole region has a chance to develop significant RES capacities in a short period of time.

Prepared by: Danijela Isailović




# PUBLIC FAST-CHARGING INFRASTRUCTURE LIKE TRIPPING POINT FOR THE E-MOBILITY REVOLUTION

**SICHARGE D – fast DC charger from Siemens company**

What came first, the chicken or the egg? We do not have the right answer to this question!

What is the condition for the development of e-Mobility: a publicly available network of fast chargers or an affordable price for electric cars and an increase in the number of their users (customers)? The answer to this second question is obvious: the development of the network or infrastructure of fast chargers is one of the main conditions (in addition to lowering the still high prices of electric cars) for the faster development of e-Mobility and the mass transition to this type of transport.

The fear of an empty electric car battery while driving, and far from any charging options, is largely present (I witnessed the same during a test drive of an electric car when, due to works, the highway lane on the side where the gas station is, was closed with the only charger on the route I drove). At the same time, your gaze is focused on the battery status indicator and the number of kilometers to the next charging point.

Clearly, home and workplace charging are not only the primary charging options for today but also in the near future. However, suppose we want to increase the acceptance of e-Mobility and make e-cars more of a mainstream means of transportation. In that case, we will need to set

All photographs: Siemens

up comprehensive public fast charging networks. And as a recent study, commissioned by the German BMVI (Bundesministerium für Verkehr und digitale Infrastruktur), predicts, public charging will be one of the three most important pillars for a successful e-Mobility environment in 2030. According to the study, around 41 per cent of the total amount of energy needed for charging in Germany would be used at private charging points, but approximately 32 per cent of publicly accessible charging points will nearly cover the same amount of energy. The remaining 27 per cent will be used for charging points at workplaces and in company parking lots.

However, a couple of items should be singled out here. Firstly, there are users of electric cars who do not have the option of charging the battery at home or work. Secondly, there are users who travel many kilometers per day and thirdly, battery technology is progressing, which allows a charging power of up to 300 kW and a voltage of up to 1000 V. Even if the charging capacities of most electric cars are still limited today, they will be able to accept higher charging power in the future.

In this context, public networks – fast-charging infrastructure are becoming increasingly important.

And what that infrastructure will look like?

In addition to individual quick charging options, e.g. in city car parks or supermarkets, there is a trend of public charging stations "hubs" for fast charging – a kind of electric version of the gas station. Ideally, these charging stations are located in city centers, infrastructural intersections, or along highways where, e.g. ten or more e-cars can charge quickly at the same time, along with options for drivers to be busy with something while waiting for about 15 minutes to recharge their pet's battery, such as cafes or shops.

To meet these market demands, last year Siemens launched its new fast charger called SICHARGE D with a maximum power of 300kW.

Modernly designed and robust, it is suitable for highways and city fast-charging stations, city parking lots, as well as shopping malls, airports or railway stations and provides high charging efficiency, scalable charging power and dynamic energy sharing when charging multiple electric cars simultaneously.

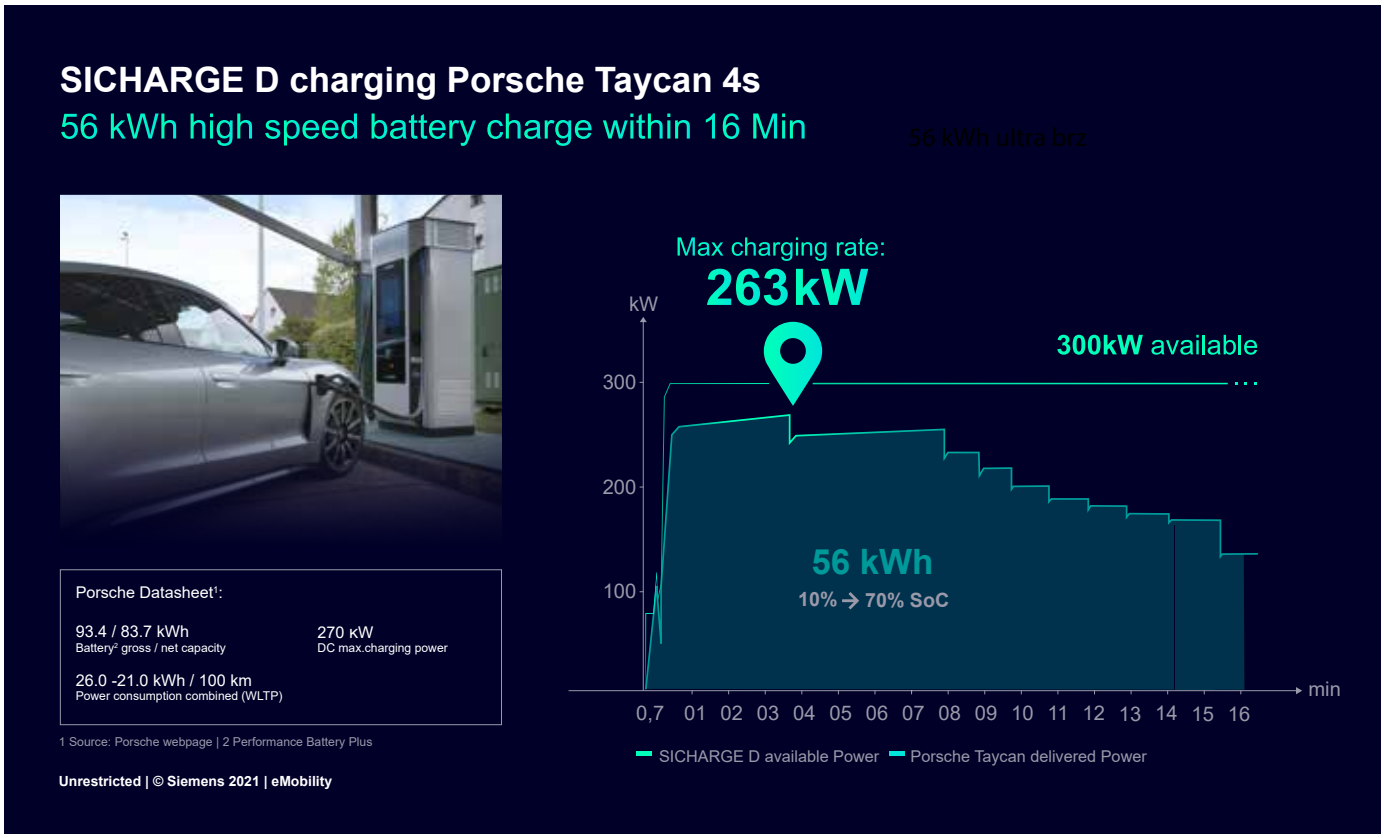
With a constant charging efficiency of over 95.5 per cent and a peak efficiency of 96 per cent, the new SICHARGE D charger ensures that almost all of the electricity generated is delivered to the car being charged. For customers, this means reduced operating costs. Additionally, the charger is designed to meet the future technological development of electric vehicles and their batteries.

The charging capacities of most of today's electric cars are limited. Still, the new charger will be able to accept higher charging power in the future as well as higher charging voltage ranges.

SICHARGE D has a scalable charging power of up to 300 kW. Since the base power of the charger is 140 kW, it can be upgraded through "plug-and-play" modules up to a maximum capacity of 300 kW (PowerUp option). The charger supports voltages between 150 and 1000 V and currents up to 1000 A on all DC sockets. It allows full loads for future 800 V battery charging electric cars and most of today's electric vehicles with lower charging voltage values.

The number of electric cars is growing slowly, so today's investments in infrastructure are challenging. With the option to expand SICHARGE D chargers with two external dispensers (additional charging ports the same charger – ConnectPlus option), investors can determine the time of investment in extensions according to market requirements. The standard configuration has two DC sockets (AC socket is optional), while the maximum number of DC sockets is 4 pcs. achieved by an additional installation of the mentioned dispensers. This allows 5 electric cars to be charged simultaneously on this charger (4 on DC sockets and 1 on AC sockets).

The new charger combines these features with dynamic parallel charging (FullDPA option - Dynamic Power Allocation). It means that the charger considers the individual power demand of each connected electric car and automatically adjusts the charging process to the technology of each battery and charging status. This ensures that all connected electric cars get the maximum power available from the charger without any additional manual intervention.






For an enhanced user experience, an integrated 24-inch adjustable screen (height-adjustable) allows easy control of the SICHARGE D charger. In addition to the basic function, there are new screen usage options (ValueScreen option) for additional operations not related to the charging process (e.g., advertising products or ordering food or drinks at a nearby restaurant where a charger is installed).

As a contribution to this story, the picture shows the battery charging session of the electric car Porsche Taycan 4s. We can see that Siemens' DC charger SICHARGE D charged this car' battery from 10 per cent to 70 per cent SoC (State of Charge), which is 56kWh in 16 minutes. In this way, this DC charger showed its true performance.

Given global climate change and the European Union's regulatory goals of having at least 50 per cent of its vehicles be electric by 2030, Siemens, as a socially responsible company that prioritizes sustainability and environmental protection in all areas of its business, including products and technical solutions in the field of e-Mobility, supports the development of fast charger infrastructure. This is rapidly transforming the entire automotive industry and changing people's awareness that, together, we can help decarbonize the planet without having to change our habits much.

We may not listen to the piercing sound of a diesel or gasoline engine (which I must admit can be pleasing). Still, we will enjoy the silence of the electric car and together contribute to leaving the planet in a better condition for our descendants.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IN FOCUS

# COMMUNITY FRIDGE

**Leave whatever you can, take whatever you need**

People can donate originally packaged and hermetically sealed groceries, fresh fruits and vegetables, soft drinks, and basic foodstuffs such as flour, sugar, and oil

We have to ask you to pay special attention to this text at the very beginning. Take a moment and think about how much food you threw away during the previous week or month and what type of food usually goes stale in your fridge. Research conducted in Serbia indicates that we buy more food than we need, which is why a part of it, in fact as much as 35 kg per person per year, ends up in waste bins. On the other hand, it is quite normal to feel uncomfortable when throwing away food. If you have not yet had a suitable place to dispose of surplus food that would meet the urgent needs of vulnerable groups, now there is a solution devised by Emilija Bojić and Tamara Stojković from the "Community Fridge" initiative.

They've got the idea of a community fridge after learning that waste from the food and textile industries has a very negative impact on the climate. The amount of such waste is just incredible. Globally, some 1.3 billion tons of various foods are thrown away every year. Locally obtained data, determined by the research of the Environment Improvement Center, indicates that every person in Serbia throws away food worth 10,000 dinars a year. At the same time there is a significant number of people in our country who are starving. Tamara and Emilija managed to realize the opportunity to execute their idea of a community fridge as part of the WWF project "The climate remains on the young". The fridge is located at 59 Dobračina street, in front of Dorćol Platz.

Besides the environmental aspect of the project, these climate activists introduced a humanitarian element, giving a special significance to the initiative. "Now we can redirect food that would otherwise end up in the waste to socially endangered groups. It is important to point out that when we throw away food, we throw away a piece of forest, river, or land. In addition, food that ends up in waste

Photographs: Sara Đuka

impairs the quality of the soil and emits greenhouse gases", says Emilia.

It took as much as six months to install just one fridge, which was a total surprise to the two activists. Tamara says that there were many obstacles, from the initial research of the Law on Food Donations, searching for organizations and individuals who would support them, organizing volunteers, to informing the public about the fridge. "As far as notification is concerned, we were most concerned about how we will inform end users, considering that they do not use social networks so much", Emilija explains. However, the initiative became known very quickly, and the end-users received information through the media and then spread it among themselves. With the help of the Belgrade Food Bank, they contacted many organizations that work directly with socially vulnerable groups.

**Community fridge operates thanks to the regular donations of the Belgrade Food Bank, as well as all individual donations**

When asked what the biggest challenge was, both agree that the Law on Food Donations prevents citizens from donating certain categories of food that are still tasty and usable. That is why they had to specify exactly what could be donated. However, they will take another step further. In the future, a lot of time and effort will be invested in public advocacy for changes to the Law on Food Donations.

## How did it all start?

Tamara and Emilija met at the WWF open competition "The climate remains on the young". Tamara wanted to reduce waste from the food industry and Emilija from the fashion industry. They were united by the idea of Community Fridges and Wardrobes. "We started with the fridge first because it is more difficult to install, mostly because of the legal regulations on food donations. From the beginning of the process, WWF has provided us with priceless mentoring that will be so important throughout our careers. The Belgrade Food Bank was among the first to recognize the potential and decided to help us without hesitation, both in practice and with numerous important tips. The same was done by the humanitarian organization June 28, which donated a refrigerator to us, while Dorćol Platz was kind enough to provide us with the spot. Thanks to Andrej Kolosov's artistic contribution, the fridge was painted accordingly", says Tamara.

The shared fridge is regularly replenished by the donations made by the Belgrade Food Bank and all the individuals with their food donations. Volunteers take daily care and keep the fridge clean, watching out not to issue any unsafe food. Such food is disposed of in compost.

People can donate originally packaged and hermetically sealed groceries, fresh fruits and vegetables, soft drinks, and basic foodstuffs such as flour, sugar, oil and others. Of course, all donations must be within the valid expiration date. A community fridge is available to everyone from 11 a.m. to 7 p.m. at 59 Dobračina street, in front of Dorćol Platz. Emilija adds that they would like to install more refrigerators, but they have not picked a new location yet.

## When will the Community Wardrobe open?

Thanks to this wardrobe, clothes will be up for grabs by those who need them the most. On the other hand, this is a great opportunity for individuals to dispose of and donate clothes they no longer wear, which would, in return, prevent the accumulation of huge textile waste. However, Tamara and Emilija are currently focused on maintaining the fridge, but they hope to open the Community Wardrobe as soon as possible.

"We believe that young people are the ones who will feel the worst consequences of the climate crisis, so we would like to tell them that their voice matters. Young people are worried about the planet's future, but this very concern should be the inspiration to get involved and make a change. We would also like to invite all young people interested in ecology and sustainability to join our initiative", Tamara and Emilija said, explaining that everyone can decide how they want to contribute to the common goal, whether to donate food or volunteer in the field.

Prepared by: Milena Maglovski



# ISLAND VACATION AND EV – IDEAL CHOICE

**Innumerable Croatian islands, which captivate with their hospitality and rich scents of Mediterranean cuisine, are fittingly the favorite summer resorts in Europe. In addition to all the qualities, Hvar, Krk, Lošinj, Korčula, and other islands scattered on the Adriatic Sea can boast, visitors will soon have more reason to spend their vacation in one of these destinations, which, will soon become green oases**

Promotion of renewable energy sources, followed by the transition to electric vehicles, are two important segments of the Croatian islands' green agenda, we were told by Maja Jurišić, Head of the Island Movement. Founded in 2017 as a civil society organization, the Island Movement is a unique platform of experts and islanders who seek to respond to the needs of island communities in the process of the green and digital transition. The vision of the Island Movement is self-sustainable and self-sufficient island communities, independent of the mainland in every respect. As explained by our host, the main mission of the Movement is to provide islanders with advisory and logistical support in projects contributing to that vision. We are truly thankful to Hrvoje Prpić, president of the Strujni Krug (Electric Circuit) Association, and his valuable knowledge about electromobility on Croatian islands, who also contributed to this issue of the magazine, explaining in detail all the advantages of introducing electric vehicles on the islands, the state of battery charging infrastructure and preconditions for the accelerated green transition of island communities. The Strujni Krug Association was founded merely two years ago, but more than 1,000 members quickly embraced it. Most of the members are individuals, although the Circuit has over 100 different companies which, in addition to finding the possibility of marketing their products, see the association as a great lobbyist who can help the state adjust the laws to market needs, explains Prpić.

Photograph: Pixabay

Maja Jurišić,
president of the Island Movement

Switching to electric vehicles on the islands is far easier because older generation electric vehicles with a range of less than 100 km can be used at very affordable prices, and vehicles can be charged thanks to solar panels, which have also become very affordable



## Why EV on the island?

The wider adoption of electric vehicles is essential for the country's decarbonization in general, not just the Croatian islands. However, the electrification of traffic on the islands stands out as a special topic because drivers face fewer obstacles when switching to electric cars, and thanks to the numerous benefits that islanders can have after the complete ending of fossil vehicle use. "Switching to electric vehicles on the islands is far easier because old electric vehicles with a range of less than 100 km can be used, and their prices are already very affordable, and vehicles can be charged thanks to solar panels, which have also become very affordable", explains Prpić. For those considering buying an electric car discouraged by underdeveloped charging infrastructure, islanders, on the other hand, have an advantage because, according to the president of the "Electric Circuit", Croatian islands have a much better battery charging infrastructure than the number of vehicles requires. In addition, electric cars can be charged at any outlet, avoiding problems arising in urban areas where residents must park their vehicles in public parking lots, unlike islanders who can park in their backyards or garages.

Maja Jurišić, who knows life on the island with all the significant challenges, points out that the insufficient connection of the island with the mainland, and the islands with each other, is often a severe problem to islanders especially when it comes to emergencies. One of the solutions is the transition to electric vehicles – more precisely,

Photograph: (middle) Pixabay; (top right) courtesy of Maja Jurišić

connecting the islands with electric boats: “During the development of strategies for the transition to clean energy of island communities, maritime transport proved to be the weakest link in terms of climate impact and pollution, and at the same time the most demanding for implementation, with the need to adjust the complete infrastructure, as well as the continuous growth and development of maritime transport”. The president of the Island Movement notes that there is a production of solar-powered ships in Croatia, and since the market in that area is increasingly innovated and developed, “The Land of a Thousand Islands” is already in a great advantage. Finally, for tourists to “recharge their batteries” on a Croatian island, t the islanders must start charging the batteries of their electric cars. On some islands, cars are banned to prevent exhaust gases and noise from affecting the island’s harmony, leaving Prpić in the hope that islands where only electric cars will be allowed will soon become a reality.

## We can do better

Maja Jurišić believes there is a huge space for improving the charging infrastructure and therefore increasing the number of electric vehicles in use on the islands. Thus, the Island Movement, dedicated to achieving energy sustainability, is happy to highlight projects and programs implemented by the island development agency OTRA of Cres and Lošinj. In addition to implementing the SECAP (Action Plan for Sustainable Energy Development and

„We all come to the islands, not only to enjoy the fresh air and clean sea, but also the sounds of nature. “We don’t need an old two-stroke motorcycle that spoils the whole story,” said the president of the Electric Circuit

Photographs: Island Movement

Adaptation to Climate Change) and the strategy for the transition to clean energy, OTRA is continuously working on educating islanders in this field and energy renovation of buildings and develops a project to install solar panels with additional chargers for electric cars thereby encouraging the development of e-mobility, said the president of the Island Movement. Jurišić assessed that the progress of traffic electrification is still dissatisfying, expecting the public calls aimed to encourage and co-finance the purchase of electric vehicles, such as those issued by the Fund for Environmental Protection and Energy Efficiency to contribute to its acceleration. "Raising the awareness of the local community on a regular basis about the importance of introducing renewable energy sources in everyday life and all its segments contributes to this goal, proving that the Island Movement everyday work through the otoci.eu portal along with various activities and education on Croatian islands will bring them to the finish line. Of course, the Movement members strive to set a good example by using electric vehicles in the future. Should the Island Movement obtain a vehicle or vehicles at its official disposal in the future, it would certainly be an EV", Maja adds.

Jurišić assessed that the progress of traffic electrification is still dissatisfying, expecting the public calls aimed to encourage and co-finance the purchase of electric vehicles, such as those issued by the Fund for Environmental Protection and Energy Efficiency, to contribute to its acceleration

Photograph: Island Movement

## Conditions needed for successful electrification of island traffic

Electromobility is one of the most important components of sustainable development and a green transition. Still, we must not forget the primary problem of the islanders, and that is the supply of electricity, said the president of the Island Movement. So, one of the preconditions for a successful transition to electric vehicles is a stable grid and the availability of water to enable economic development and improve the quality of life on the islands. The Island Movement is currently supporting some island municipalities to develop charging infrastructure for electric vehicles and install solar panels on parking roofs, hoping to encourage more island communities to embark on similar projects. The President of the Electric Circuit Association highlighted another vital precondition for the electrification of the Croatian islands and the need to adopt measures at the state level. The association is currently dealing with law changes at the state level. Once they achieve what they need, they will be able to deal with regulations in cities and municipalities. "For now, we leave it to other associations. The measures we are working on are the right to use VAT in full in the case of buying an electric vehicle, the abolition of taxes on electric vehicles, the abolition of tolls for electric vehicles, simpler and higher incentives for the purchase of new electric vehicles, the abolition of incentives for plug-in hybrids and greater development of the charger network", says Mr Prpić. Finally, our clear message to all those hesitant about buying electric vehicles and joining the green transition is to do it as soon as possible and thus set an example to other island communities. "I would like to send a message to the islanders to think about an electric vehicle and the cost of use of only one euro per 100 km... It's unthinkable that you go out and spend some 70-80 euros at the gas station every week or two, and you have an outlet at home. To all those hesitant about buying an EV – go for a test drive and try it out. Once you try it, there is no going back", concluded Prpić.

Prepared by: Milena Maglovski

# CONFERENCE "ENERGY EFFICIENCY THROUGH THE USE OF THE SOLAR AND BIOMASS ENERGY"



Is solar energy the future of Serbia? Can a citizen be both – a producer and a distributor of electricity? What are the benefits of the Law on the Use of Renewable Energy Sources?

There are many questions, and all the answers are in one place - the conference "Energy efficiency through the use of solar and biomass energy". It will be held on February 23, 2022, in Novi Sad and will bring us important information about investing in solar and biomass energy.

The organizers: the National Association for Biomass – "SERBIO" and GIZ DKTI, aim to get acquainted with the current business and legal environment and networking of domestic and international companies involved in the renewable energy sector.

A panel intended for industries, companies, agriculture, and households, as well as workshops for public companies, heating plants and local self-governments, will be held in special halls. Attendees will have the opportunity to hold B2B meetings with representatives of companies, consulting firms and banks.

Practical information on the beginnings of solar power plant construction, design, and biomass technologies, among others, will be presented by companies with many years of experience in these fields such as

Fotografija: Pixabay

Viessmann Ltd. Belgrade, Luxor GmbH, Solaris, MT-KOMEX, Đuro Đaković Ltd Croatia, Teknoxgroup Serbia, as well as financial institutions such as EBRD, IFC - International Finance Corporation, ProCredit Bank, ERSTE Bank and ESCO financing model - Negawatt Solutions Ltd and others.

## With solar and biomass to lower electricity bills

The use of fossil fuels must be reduced by 75 per cent to achieve the climate goal of reducing the increase in average global temperature by 1.5 °C by 2050. Therefore, even greater growth in RES capacity is expected in the future. As a member of the Energy Community, Serbia has a required goal that 32 per cent of the total energy consumption should be from renewable sources by 2030.

The new Law on the Use of Renewable Energy Sources will enable us to see more solar panels on the roofs of family houses, residential buildings, production halls, warehouses, and refrigerator storage units. The procedure for their installation will be shorter and simpler than before.

The replacement of feed-in tariffs with market premiums and auctions enabled the modernization of incentive systems, and changes in laws and investment incentives led to a greater presence of European companies in our market, and thus cheaper equipment for solar power plants.

Using the energy of the Sun is no longer a mission impossible; on the contrary - everything is simpler. Serbia has more hours of sunshine than many European countries that already use this type of green energy, which indicates that it has enough necessary resources.

The procedure for drafting a project, obtaining a building permit, issuing a building permit, installing, and concluding a contract with EPS Distribution has been simplified and accelerated, so it should not take more than 3 months.

**You can save and produce electricity and heat through solar panels and biomass plants/boilers. Practical information on the beginnings of solar power plant construction, design, and biomass technologies, among others, will be presented by companies with many years of experience in these fields**

The use of biomass and solar energy as renewable sources of efficient energy for independent complexes is the future that enables the installation of innovative technology that provides a high degree of energy efficiency and environmental responsibility through its implementation.

Whether it is a household or an industry, a company, or an agricultural farm, by using solar energy and biomass energy one can reduce his electricity bill and sell the electricity he produces or become the so-called prosumer.

Biomass is the most widespread and underutilized source of renewable energy – it accounts for as much as 61 per cent of the current potential of renewable energy sources in Serbia. Many households and industries use both energy sources, not only to save money but also because biomass and solar energy are environmentally friendly resources. Also, many heating plants around the world make extensive use of solar panels to produce energy for biomass processing.



Photographs: Serbio

BOTH ENERGY AND ECOLOGY

# THE GREEN SHADE OF BLACK GOLD

**What is cogeneration and what is electro-generation? Can thermal energy and electricity be produced from gas and how can gas become "cleaner"? Where can electric cars be charged on Serbian roads? The answers to these questions have been provided by our largest oil company, NIS, which has been developing energy-efficient projects for many years**



When we mention NIS, the first thing that comes to mind for most consumers is the production and sale of fuel. However, over the past decade, the domestic oil industry has also been involved in the energy transition. Namely, in 2012, NIS defined a strategy of growing from an oil company into an energy holding company within which the expansion of the company's activities in the field of electricity generation began. What did that entail? Certainly, a stronger orientation towards more environmentally friendly projects and more rational use of energy. This already happened in 2013. NIS started its cogeneration program – specifically, mini power plants with a total maximum power of 14 MW were built at eight locations in Serbia. In these power plants, in which the company has invested over 20 million euros, thermal energy and electricity are produced from gas, which, due to its lower quality, used to be flared:

"More efficient use of gas resources has contributed to higher energy efficiency with a significant environmental impact. The produced energy is used for the needs of the company, and a part is placed on the free market," NIS states, noting that the realization of this project enabled the company to enter electricity trading operations, first in Serbia and then on the regional market.



Photographs: NIS

## From oil to electricity

In addition to cogeneration, NIS is in the process of completion of the most important investment in the segment of electricity generation, which is the TE-TO Pančevo power plant that is being built by the company together with the Russian Gazprom Energoholding. The value of the project is about 180 million euros, while the installed capacity of the plant is up to 200 MW.

As a key player in the domestic market of petroleum products, NIS, following modern energy trends, also introduced the possibility of charging electrically powered cars at its petrol stations:

"Our petrol stations are part of the charge&Go network of electric chargers. Drivers of electric cars can charge them at some of our highway GAZPROM petrol stations - Velika Plana-right, Stari Banovci, Novi Sad 16 and Sokolići 1, which is also the first petrol station on Miloš Veliki Highway. In addition, this service will soon be provided at the latest NIS facility, Zmaj 1 in Belgrade, as well as at the Krnješevci petrol station, on the Belgrade-Zagreb highway," it is said by NIS.

## Higher quantities of cleaner gas

As early as 2016, NIS put into operation the amine gas treatment plant at Elemir, which enabled a significant improvement in the quality of domestic natural gas, as well as an increase in the volume of its production. What is more, the operation of this plant, in which NIS has invested more than EUR 30 million, has significant environmental effects, because the processing method completely prevents carbon dioxide emissions into the atmosphere, thus reducing the "greenhouse" effect. The Elemir plant is the first HiPACT (High Pressure Acidgas Capture Technology) plant in Europe, and this technology is considered one of the most efficient in the world among the existing methods in the gas treatment process.

# ENERGY LAW AND ITS PURPOSE

Dr. Branislava Lepotić Kovačević, President of the Serbian Energy Law Association

Energy law is an area of law that is actually gaining importance with the growing need for energy, security of supply problems and the expansion of energy trade. Energy law regulates production, transport, sales and consumption of energy. It is complex and has its direct sources of law, but it also includes other sources of law that regulate the general rules of procedural and substantive law in energy sector. Energy law has its international and national sources.

Security of energy supply is based on legal norms and agreements, both in international and domestic energy affairs.

Energy penetrates into every segment of business and social life of economic entities and individuals. Today, it is hard to imagine life without energy. Legal relations related to energy start from charging a mobile phone, transporting, cooking lunch, baking bread, building facilities, working on a computer... All this is regulated by the energy law. The pathway from energy resources production, its transformation into energy, energy transport (which includes transport by imovable transport vehicle - energy network) - to energy consumption for a specific purpose or need, crossing state borders and encroaching from public to private domain; all this is regulated by the energy law. The right to use energy is also international conventions and laws, but also commercial agreements and actions of participants in the energy market and energy consumers. All these relations are interconnected in different ways and include a wide range of participants in the energy market who are legal and natural persons, international and state institutions.

What is the purpose of energy law? Energy law enables the achievement of energy policy goals and energy strategies aimed at security of energy supply. Energy law enables the sustainable development of the energy system in uncertain future circumstances. The relationship between energy regulations and energy development strategies is reciprocal. Energy policy and energy strategy are adopted in accordance with the rules of energy law governing the drafting and adoption of these documents. These rules regulate, among other things, the responsibility and actions of institutions as well as the public participation. On the other hand, the implementation of energy policy and energy strategy is achieved through legal norms.

Ignorance of the energy law is harmful. It can lead to more expensive realization of a certain business ventures or personal needs and increase the risks of security of supply. Failure to comply with legal norms in energy can lead to significant and costly consequences in resolving possible disputes or interrupting initiated projects. Energy law is based on the centuries-old experience of state administrations, institutions and companies, international organizations and private individuals. The implementation of the energy law avoids known risks. International cooperation makes it possible to avoid the risks that other countries or institutions have encountered in different situations. The development of the energy law also enables the confrontation of newly encountered risks, including the risks of climate change, war conflicts and other circumstances. Therefore, knowledge of energy law is necessary for all professionals in the field of energy, while the energy law itself is currently practiced by professionals specializing in this field of law.

In Serbia, dealing with energy law began with the first professional activities in the field of energy, in the middle of the 19th century. In accordance with European practice, in 2018 the Association for Energy Law of Serbia (UPES) was founded, which was among the first few national associations of members of the European Federation of Energy Law Associations (EFELA), whose members are associations of Great Britain, Spain, Italy and Greece., Portugal, Ireland, Norway, Austria and other countries. This enables an intensive exchange of knowledge and experience with the aim of promotion, gaining new knowledge in this field and connecting members in the wider European context. In addition, UPES cooperates with professional and business associations important for the development of energy sector in Serbia itself, including the Serbian Chamber of Commerce, associations in the field of renewable energy sources, thermal energy, oil and gas, heating and electricity.



Photographs: (on the previous page) Pixabay; (top) courtesy of Branislava Lepotić Kovačević

# WHO'S AFRAID OF THE ENERGY CRISIS

The prices of fossil fuels are not standing still yet on the world market, so the kilowatts obtained from them are very expensive. It is clear that for a stable future, we need renewable energy sources (RES) that will make the current energy crisis and excessive air pollution things of the past.

In addition, RES brings young people the opportunity to be part of an ever-evolving industry, to constantly adopt new technologies and find secure, well-paid jobs. Therefore, our interlocutor is a young engineer Nikola Grubor, who found his job and a group of like-minded people in the company **CEEFOR**.

CEEFOR has been designing solar power plants for more than ten years and helping its clients reduce electricity consumption, and Grubor and his team are responsible for some of the largest solar power plants in our area.

We talked to the young engineer about his journey into the world of green kilowatts and young people's growing interest in entering this industry. We also referred to the energy crisis, and Grubor spoke about the reasons why the industry is increasingly turning to solar energy, as well as the recently adopted Law on the Use of RES, which can bring energy stability and financial benefits to Serbian citizens.



**EP** ***We are witnessing an increase in the price of conventional energy sources, and thus electricity worldwide. Can the citizens of Serbia prevent the energy crisis with the help of renewable energy sources?***

**Nikola Grubor** The large rise in electricity prices, caused by increased energy demand after the opening of large economies, then reduced production from wind farms in northern Europe, as well as problems with Russian gas, is a major blow to our industry. Although citizens did not feel the effects of the energy crisis, as the price of electricity has changed only for industry, the question is how sustainable the current situation is. After major accidents at TENT and the state's inability to provide energy for its own needs, any additional installed capacity from renewable sources is a relief, both for the state that will import less energy and for consumers who will significantly reduce electricity bills at times when market prices are at an all-time high. I would like to mention that the energy transition should be approached responsibly, and we should not rush into the immediate shutdown of conventional power plants, as the consequences of irresponsible integration of renewable sources into the system could be incalculable.

**EP** ***Last year was marked by the adoption of several laws in the field of mining and energy, one of which relates to the use of renewable energy sources. Can you tell us which novelties were introduced by this law and what they will bring to Serbia's citizens?***

**Nikola Grubor** The long-awaited law passed at the end of March last year introduced a few innovations that are the basis for large investments in the development of solar power plants and wind farms, increasing the share of renewable energy sources in our system and reduce emissions. With the possibility of obtaining so-called market premiums through auctions (they are a supplement to the market price of electricity delivered to the market), the law allows citizens and companies to gain the status of buyer-producer (so-called prosumer) through a simplified procedure lasting a few months. The prosumer has the right to produce electricity for his consumption, but he can also deliver any surplus to the transmission or distribution system.

**EP** ***How many projects has your company implemented so far? Have factors such as the new Law on RES, higher electricity prices and the need to reduce greenhouse gas emissions contributed to the increase in workload?***

**Nikola Grubor** Although the increased volume of work was expected after adopting the new law, and the ensuing energy crisis hit everyone. The industry, which will not be able to keep up with such a rise in prices, is forced to turn to solutions such as solar power plants. Prior to the price increase, the projects were investments that were repaid within six to seven years, while now, it takes four to five years to return on investment.

As for the projects of **CEEFOR** company, many of them have already been realized or are approaching their realization. Many projects (measured in tens of megawatts) are in preparation, which is a good indicator that large investors have recognized who is the true leader in the field of renewable sources.

**EP** ***Being part of a growing industry, such as renewable energy, certainly carries a number of challenges. How often are employees required to learn and adopt new technologies?***

**Nikola Grubor** As mentioned, the challenges are numerous. Manufacturers of solar system components are improving their products every day to make the systems better and more efficient so that they can crystallize as leaders in their fields in the world. Although fundamentally similar, let's compare projects from a few years ago with today's. We can see significant differences, which is the best indicator of how vital everyday learning and adoption of new technologies is.

**EP** ***Can you single out one or more projects that were specific and why were they different? How did you solve the challenges you encountered while working on it?***

**Nikola Grubor** Each project is specific and different from the previous one, whether it is a 50 kW or 10 MW power plant. Every step of the project, starting from the original idea, solution, the whole correspondence with the relevant institutions, and implementation represents a kind of challenge that is easily solved with a quality team of people that the company **CEEFOR** has.

**NIKOLA GRUBOR worked in a German company that deals with designing low-voltage installations during his studies, and later in EMS as a relay protection engineer. RES projects attracted him, and he found the possibility of rapid progress and the adoption of new technologies. He is currently in the position of project manager at CEEFOR, where he and his team are working on large projects with a total capacity exceeding 20 MW. He is a member of Mensa and believes that the combination of its capabilities and fast-growing industries can give extraordinary results.**

**EP** ***Which project (or projects) would you single out as the most important?***

**Nikola Grubor** At this moment, I would like to single out the solar power plant in Sremska Mitrovica with a capacity of 3 MWp*, which will be built on the roof of the building, as well as the power plant 8.4 MWp in Indjija, which will be the largest power plant built in our country.

**EP** ***Why should young engineers enter this industry?***

**Nikola Grubor** There are several reasons. There is already a shortage of engineers who would meet the need for professional staff in this field (I would note that only **CEEFOR** hired five new engineers in 2021). With the development of electromobility and electricity storage technologies, the need for professional staff will even increase. In addition to working with new technologies, the realization that each project is a positive step towards reducing emissions and preserving the environment is only an additional motive for any individual willing to try in this industry.

Interviewed by: Milena Maglovski

* MWp – Mega Watt Peak



Photographs: CEEFOR

# COP 26 – HOPE FOR A BETTER TOMORROW

Once a marginal issue of environmental protection, reserved for narrow professional circles, today has become the central axis around which global politics and economy revolve. Droughts, floods, heatwaves, rising sea levels, and other consequences of the climate crisis have seemingly "wised up" everybody around the world. In addition to profit and staying in position for as long as possible, the well-being of people and the entire planet has become a priority.

Photographs: (top) Karwai Tang/UK Government; (bottom right) Doug Peters/UK Government

That is why for the third decade in a row, the United Nations has gathered almost all countries of the world at annual climate summits called COP (Conference of the parties), and the center of the 26th summit, held at the end of 2021, was in Glasgow, Great Britain.

World leaders, along with tens of thousands of negotiators, government representatives, businesses, and individuals, took part in twelve-day COP 26 talks to address the growing challenges of climate change and provide contributions to this global struggle.

We will find out very soon whether the promises made are sincere intentions to be implemented or whether last year's COP was another stage of "greenwashing". And one thing is certain – government officials do not have much time left!

## Five years after the Paris Agreement

Climate change is taking an increasing toll from year to year, making each subsequent COP more important because it brings new hope to those who have felt the devastating consequences of the climate crisis.

The significance of COP 26 can be understood in the light of the 21st summit in Paris when the well-known Paris Agreement was concluded.

All countries agreed to work together to limit global warming to well below two degrees Celsius and to target 1.5 degrees to adapt to the effects of a changing climate. Countries must remain consistent in achieving this goal because every little bit of warming will lead to immeasurable losses of life and natural resources.

Under the Paris Code, countries have committed to presenting national plans to reduce their emissions - known as nationally determined contributions or "NDCs". The aim of COP 26 was to finalize the Paris Agreement by enacting detailed rules that make it operational and accelerate action to address the climate crisis through cooperation between governments, businesses, and civil society.

## Concluding a historic climate pact

COP26 will be remembered even after the conclusion of the Glasgow Climate Pact to turn the 2020s into a decade of climate action and support.




**World leaders, along with tens of thousands of negotiators, government representatives, businesses, and individuals, took part in twelve-day COP 26 talks to address the growing challenges of climate change and provide a contribution to this global struggle**

The decisions package consists of a series of agreed items, which include intensified efforts to build resilience to climate change, curb greenhouse gas emissions and provide the necessary funding for these purposes. The nations have reaffirmed their commitment to providing 100 billion dollars annually to fight climate change, and reaching the goal is possible only if each country fulfills its promises. International financial institutions must also finance the private and public sectors needed to ensure global zero greenhouse

Photograph: Justin Goff/UK Government


gas emissions. The goal of chairing COP 26 was to maintain hope that the rise in global temperature would be limited to 1.5 degrees Celsius, and the Glasgow Climate Pact is doing just that. Other goals defined at last year's summit include protecting communities and natural habitats, restoring ecosystems, building extreme weather-resistant infrastructure, investing in defense and warning systems, and agriculture to save human lives, resources, and homes. Also, at the latest COP, nations are called for the first time to phase out coal energy and inefficient fossil fuel subsidies.

## COP26 milestone – A farewell to coal!

Even though many countries worldwide have been defining coal abandonment for years as one of the main strategies for achieving zero emissions, this key promise became official only after COP 26. World nations have pledged to end all investment in new capacity for the production of electricity from coal and quickly increase the share of clean energy and implement a fair transition from fossil fuels to protect workers and communities. It includes 23 countries that committed for the first time to phase out and stop investing in new coal energy, marking this COP milestone. Indonesia, South Korea, Poland, Vietnam, and Chile are among these countries. The three largest coal money-spenders: China, Japan, and South Korea have pledged to end foreign financing of coal production by the end of 2021. The G7, G20, and OECD agreements on ending international public financing of coal send a strong signal that the world economy is shifting to renewable energy sources. This could mean the end of close to 40 GW of coal in 20 countries, which is more than half of the capacity for electricity production in the UK. In addition, a group of more than twenty governments and financial institutions, including Canada, the United States, and the United Kingdom, have agreed to stop funding new fossil fuel projects abroad with public money by the end of 2022. To meet the goals of the Paris Agreement and limit the rise in temperature to 1.5 degrees, the global transition to clean energy needs to progress four to six times faster than now. Given that coal is the largest

> Governments have committed themselves to making sure that all new cars and vans sold have zero emissions by 2040 or earlier and in the world's leading markets by 2035 at the latest

Photograph: Doug Peters/UK Government

single contribution to climate change, it's phasing out and providing a rapid and inclusive transition to clean energy is of essential importance.

## Action plan for 2022 – Accelerate the transition to zero-emission vehicles

The focus of COP 26 was on zero-emission vehicles, vital for achieving the goals of the Paris Agreement. Over ten per cent of global greenhouse gas emissions result from road transport emissions therefore it is a must to accelerate the pace of transition to eco-mobility dramatically. Governments have committed themselves to making sure that all new cars and vans sold have zero emissions by 2040 or earlier and in the world's leading markets by 2035 at the latest. Financial institutions have once again confirmed that they will make their capital available to support the transition to environmentally friendly vehicles by 2035. In addition to contributing to cleaner air and improving public health, switching to zero-emission vehicles will create jobs and increase energy security in balancing electricity grids as the world switches to clean energy. In November 2020, the Council for the transition to zero-emission vehicles was formed as the first world political forum through which ministers and government representatives from the world's largest and most advanced automotive markets can participate. The goal of the Council is to accelerate the pace of the global transition to zero-emission vehicles, and last year's COP identified priority areas where government representatives can work together to support this transition. The role of different technologies in achieving this goal has been recognized and the effective measures that governments can take to implement the transition. The members of the Council agreed about the necessity to ensure that the transition to zero-emission vehicles is fair and sustainable so that no country or community is left out.

Alok Sharma as the president of last year's COP, called on the countries to keep the promises made in Glasgow because the result will be dry ink on paper. He warned that it is the right time to implement the plans, which means a constant inflow of funds in the fight against the climate crisis, intensive investment in green energy, and harmonization of state policies with the gradual abolition of coal. "Nearly two hundred countries that have achieved the historic climate pact in Glasgow gathered at COP 26. In this way, we have shown that the climate can create space for cooperation amid divided global politics, that the world can work together to improve our common future, face great global challenges and seize opportunities", Sharma said ahead of the new COP27 summit in Egypt.

Prepared by: Milena Maglovski




Photograph: Doug Peters/UK Government

# THE RIGHT TIME FOR WOMEN'S ENTREPRENEURSHIP AND INITIATIVES

That morning, Aleksandra Lazović Lønningen threw away the expired food package again. In her home in Norway, in front of an open refrigerator, she thought about how much money was wasted in this way. And while she was checking to see if the remaining groceries were out of date, an idea came to her. What would happen if there was an application that would send notifications and remind us of food about to expire?

Thus, the idea of Eat Me App was born. At that moment, Aleksandra did not know whether a similar application had already existed. She was simply led by the thought that such help in the kitchen would be handy. And not to mention the money savings.

"Living in Norway encouraged me because I had the opportunity to see some good examples of how civil initiatives formulate problems whose solutions then successfully develop legitimate businesses," Aleksandra says.

Photograph: Eat Me App

However, besides the problems you solve, enthusiasm and a team are needed for development.

As in a puzzle, that last element was missing. While support for green projects in Norway was not a novelty, in Serbia at the time, issues of climate change and sustainable development were just entering public discourse. However, the door to change inevitably opened and Aleksandra came to Belgrade with her husband and baby.

At the Academy of Circular Economy in the Serbian Chamber of Commerce, Aleksandra met Sanja Dramićanin. They recognized each other for their enthusiasm, strong will and insight into the potential for a green women's entrepreneurial venture, Aleksandra says. "Sanja, as a business professional in the field of IT, fell in love with the idea of combining her profession and sustainable development. Eat Me App is the result of a true pioneering endeavor that is built out of love and the desire for a better and high-quality relationship with the environment and ourselves. We had all the skills we needed to get started."

## EatMeApp

Keeping in mind that they emphasize love as the initiator of their activities, we asked them what it encompasses. Both authors agree that love and respect for their families and home, for their shortcomings, and the land that feeds us is the real energy source from which they build a vision and create.

During the quarantine in 2020, Aleksandra and Sanja developed the concept and product, investing their own money, and the first version of the application appeared before the end of 2020. They officially started working when they founded the company in May 2021. and are currently preparing to launch new versions of the app for both Android and iOS users.

## How Eat Me App works

This mobile app sends notifications to users about the expiration date of groceries. In that way, they have an insight into the statistics on used and unused food and the monetary value of discarded food. It is this moment that is crucial to raise awareness of the problem.

Sanja and Aleksandra believe that in the first week of using their application, the user is guaranteed to either save or see how much financial loss he is threatened with if he does not do something with the groceries. That is why the authors of the application, with their creative advice on how to store and use food, help the users to reduce food waste. As a result, their users achieve significant savings in the household budget. But how exactly does Eat Me App work?

"The application provides the possibility of donating and exchanging food among users. We are currently in the testing, mapping and needs assessment phase with our customers regarding food exchange and donation options. Everything we do is done with the LEAN approach to reduce resource consumption and at the same time involve users in the development of the application from the very beginning. It should be emphasized that the goal of the application is to enable all of us to have a more responsible and aware attitude towards food and towards ourselves, keeping in mind our habits", Aleksandra says.

The application can be used by everyone who has a smartphone, and for now, there are no negative reactions, only useful feedback and questions. They are currently working intensively on contact with users to find out where the problems that need to be solved are hiding. "The ways in which we interact with customers are still being defined. Our goal is to learn from users and offer them



interesting ways to interact with the application so that the very learning and adopting new models of thinking and behaving is both effective and efficient," our interlocutor says.

Aleksandra says that since they deal with the problem of climate change through user habits related to the attitude towards food and food waste, they especially focus on Generation Z and even millennials. This means that the focus is on people who are beginning to get involved in economic flows and who will continue to build on what we are doing now, again for the benefit of our children. "This project is an extended arm of education that starts from us through the next generation of our children. Good teamwork. And social climate entrepreneurship," Aleksandra explains, stating that young people today are very aware of the situation with resources, as well as the business-as-usual model of behavior that has brought us here. These young people want something different. "We absolutely agree. And we want something different. It has been proved unsustainable so far and therefore absolutely meaningless."

Their so far success, Aleksandra says, is measured by the positive impressions that come from the very beginning, but also by the fact that the public recognizes the potential of their product. "The first recognition came to us from the Serbian Philanthropic Forum for the National Giving Day for its exceptional contribution to the Save Food campaign. At the end of the year, we became part of the large Climate Kic accelerator through Impact Hub Belgrade, the largest European platform to help innovative startups on the path to sustainable development and the problems of climate change. With their help, we are devel-


With a planned approach to buying and using food and access to the recipe database, the Eat Me App user has a direct impact on reducing food waste, adequate distribution of surplus food as well as a positive impact on climate change

**WHAT SHOULD BE CHANGED FIRST**

**Aleksandra is sure that the old models of thinking should be shaken up at the level of society. "We, here, in our region, are firm and sharp in criticism. That is good, but it is not sustainable if criticism takes up all the creative space. I, personally, as an extremely strong critic and analyst, and that is a part of my professional training, take care to respond to criticism with creativity and offer a possible solution. The essence is in training the way of thinking, which in addition to discovering the problem, also offers a solution. It is necessary to see not only NOW but also AFTER. And at the same time we can take on and bear our own responsibility. It is a training of hope and will for tomorrow. Long-term thinking. Only in this way can we properly activate the resources of will and desire that we carry within us, with the goal of not only survival but – sustainable development", our interlocutor says, convinced that this is a way for entrepreneurship and teamwork to give results.**

oping the next phase of our application. We have a really nice experience collaborating with Impact Hub Belgrade and sincere support, which we need on this journey."

This week, they finished shooting the promo video as the finalists of the green incubator of OTP Bank "OTP ZERØ". They were also guests in the Scientific and Educational Program of RTS.

All these so far successes have several dimensions. On the one hand, they confirm the value of their project. On the other hand, clearly there is room for innovation in our country. There is also an ever-growing ecosystem. Will, knowledge and what is most important - entrepreneurial spirit, Aleksandra claims, is a fundamental characteristic of our society.

"Throughout history, we have managed and survived great life challenges. It's a part of the entrepreneurial spirit. We have a huge creative potential here, the ecosystem is developing, and the possibilities already exist. Not to mention the problems. The activism that exploded over the past year is proof of this claim. Living will and faith in tomorrow. With adequate educational programs in various forms, we can raise a whole generation of entrepreneurs. That is the engineering of the 21st century. And no wonder, it is in our genes to work for society and ourselves. One should not lose hope, and one should not lose heart. Every opportunity should be used. And now is the right time," says Aleksandra with inspiration, noting that the green agenda is now a priority and that large funds will be allocated to support green projects. "Of course, there is politics, but it's not all just politics. There is room for creation, work and making a living by working."

# Eat me App in the fight for a healthier environment and circular economy

One-third of the food produced globally is thrown away. Spatially represented, food waste would occupy the surface of India and would be the third-largest emitter of carbon dioxide in the world.

In our country, on the other hand, 7 per cent of the population lives on the brink of absolute poverty in Serbia, that is, almost half a million people.

About 40 per cent of the respondents in the research, which The Environment Improvement Centre conducted, confirmed that they throw away food precisely because of the expiration date. They state that the food got spoiled due to long-standing after preparation (bad planning), then that they forgot the food in the freezer (this can also be solved by application).

Sanja and Aleksandra believe that with the help of a planned approach to the purchase and use of food and access to the recipe base, their user has a direct impact on reducing food waste, adequate distribution of surplus food, and thus a positive impact on climate change.

Sanja was a member of the Serbian delegation with the Eat Me App in October at Dubai EXPO 2020 on the week of circular economy and sustainable development. The project left an extremely positive impression and the initiative itself, especially because these are women entrepreneurs. They received invitations to talk to interested investors.

"Our strategy is fundamental development to private capital. The door is open to us. We live in a time of expansion of women's entrepreneurship and initiatives. That was missing in the domestic ecosystem. The project must be developed in the field of sustainable development. Because the natural environment is our primary environment. I believe that women and mothers will certainly contribute to the way of thinking with their organizational and leadership skills from the aspect of the value priority system. The value system is the key to change when it comes to the way we treat resources and the natural environment," Aleksandra says.

When it comes to the future, the development strategy focuses on two parts: one is to help the user preserve value (in food and money), and the other is to upgrade the value by changing the way of thinking and behaving. This second part is especially interesting to them, and Sanja and Aleksandra believe that it will be interesting for the users. They are now entering the second phase of R&D, but they certainly plan to dedicate spring and summer to further developing of the first phase. They are also developing a network of collaborators and partners on their project and are hoping for some promotions and festival gatherings with users during the year.

Prepared by Milica Radičević


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# TOP 10 OTP BANKA GENERATOR ZERO CARBON FOOTPRINT REDUCTION PROJECTS SELECTED

**Finalists in bid for a worthy two million dinars prize plus expert support of OTP bank and contest partners**

Hemp bioplastics production system, mobile application for prevention and reducing household food waste, self-sustainable greenhouses or biotic material as a substitute for styrofoam are just some of the innovative solutions that have entered the finals of OTP Bank's Generator Zero competition. This year, as many as 72 unique projects have been received, all contributing to the reduction of carbon footprints, whereas ten selected finalists will compete for the winning project title. The most creative competitors will present their solutions in the great final and the winner will be awarded a two million dinars prize, as well as the support of OTP Bank in the further implementation and promotion of the project.

Solutions for collecting and recycling cigarette butts, monitoring and management vehicles system, a bicycle application, a solution for reducing food waste, a project for manual paper manufacturing, as well as an electrical-work platform for farmers will all compete for the main prize.

Support will be provided to this year's finalists through all communication channels of the Bank, as well as through media promotion and promotional material in the form of videos and photos, whereas the winner may expect to receive two million dinars, as well as valuable prizes from this year's partners which certain finalists we also receive. Further, the bank will enable the presentation of the project at the OTP Lab innovation hub of the parent OTP Group, present in 11 countries in Europe, as well as in the Portfolion investment fund.

> OTP banka is the largest corporate and retail creditor and a market leader in factoring, leasing and e-commerce services

Partners who recognized the importance of this year's Generator ZERO, and whose representatives are members of the jury, besides representatives of OTP Bank, include: ICT Hub, Mastercard, Serbia Innovates, Digital Serbia Initiative, Bosch, Belgrade Open School, Netokracija, Schneider Electric, Bosch, OTP Lab and PortfoLion Investment Fund.

OTP banka is the largest corporate and retail creditor and a market leader in factoring, leasing and e-commerce services. It focuses on innovation and digitalization of its business, which provides customers with new benefits with focus on improving digital banking and user experience. Green transition and commitment to sustainable business and environmental projects is one of the key strategic directions. The presence of OTP Bank in 91 cities with 184 branches allows clients across Serbia to have access to a wide range of products and services, an efficient offer tailored to their specific needs, and to a network of almost 300 ATMs - the country's largest.

Let us recall that Generator is a perennial project of OTP Bank dedicated to all entrepreneurs and innovators who want to contribute with their ideas and projects to on current topics during times marked by digitalization. The project has been running since 2017 and has so far supported innovative entrepreneurial ideas, students with entrepreneurial innovation, it helped SMEs transform digitally, and rewarded those entrepreneurs who helped micro, small and medium enterprises overcome the crisis caused by the COVID-19 pandemic. According to a United Nations, it would be necessary to reduce the carbon footprint by 45 per cent by 2030, in order to limit global warming to 1.5 degrees Celsius.

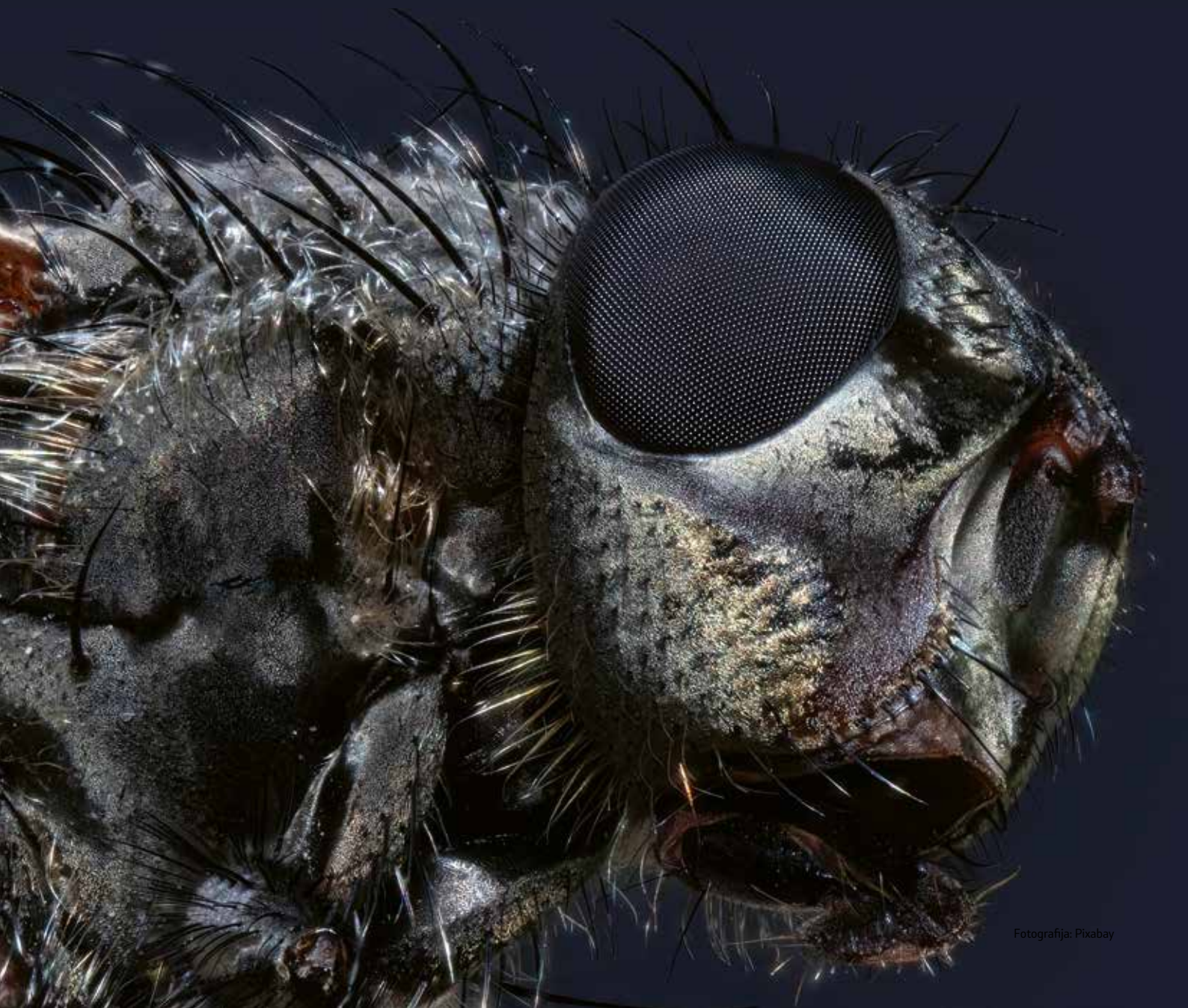

Photographs: OTP banka

# SAFARI UNDER OUR FEET

**They are certainly not the cutest creatures, and it is true that they can cause a lot of fear and distress in many, despite their size. It is an understatement that they are often unwanted guests in our homes, and encounters with them could end up in discomfort and pain**

Still, Tomislav Tatić finds none of the above true, rather fascinating creatures that provide an inexhaustible inspiration source. Observing them through his camera lens, Tatić noticed that every piece of grass is an exotic oasis of biodiversity and that the bugs we meet every day are much more interesting when we take a closer look. Here is what he said about his unusual models and his journey through this small yet huge world.

**EP** ***What is macro photography, and when did you start with it?***
**Tomislav Tatić** Macro photography is a particular type of high magnification photography. When you take a macro picture of something that is otherwise micro, only then can you see all the things invisible to the naked eye, mobile phones, and other cameras. My interest in photography started in my teenage days when I got my first serious



Fotografija: Pixabay

camera as a gift. In the years that followed, photography was a hobby, occupying every second of my spare time. It was a period when I was finding myself. Even then, I was attracted to macro photography, but it is so specific and requires more professional, and thus more expensive equipment, so it took me a little longer to buy it. I would like to point out the last year as a concrete and serious macro photography period.

**EP** ***Why did you choose bugs (insects)?***

**Tomislav Tatić** I desire to bring people closer to these creatures around us since they are mostly "afraid" of them, but in fact, they have never really seen them. That fear is mostly unjustified, so I want to show that these creatures are fascinating and that we have no reason to be afraid of them. People are always striving for something far away. They are interested in going on a safari, to the zoo, water worlds... And they are not even aware of what kind of biodiversity they have exactly under their feet. To some extent, I understand that because when tourists come to Belgrade, they usually take selfies at the Pobednik monument (The Victor), and it would be really difficult to find a citizen of Belgrade with such a picture. I don't think I have to travel to the other side of the world to find interesting animals I can photograph, because I have them on my

Macro photography is a particular type of high magnification photography. When you take a picture of something that is otherwise micro, you see things invisible to the naked eye. I desire to bring people closer to these creatures around us since they are mostly "afraid" of them, but in fact, they have never really seen them. That fear is mostly unjustified, so I want to show that these creatures are fascinating and that we have no reason to be afraid of them. I have noticed that people's attitude towards insects has changed since I started doing this, which encourages me and makes me happy because what I do gets to them

All photographs: courtesy of Tomislav Tatić

Tomislav Tatić,
graphic designer

lawn or in a nearby canal. Macro photography has opened up a whole new universe for me, hitherto unexplored. We have the exotic on our doorstep, only if we take a closer look.

**EP** ***What exactly do you shoot?***

**Tomislav Tatić** I shoot creatures from nature people see every day but never stop to look at them.

**EP** ***How do you choose what to shoot?***

**Tomislav Tatić** Sometimes bugs pick me. For example, I wake up in the morning, fix some coffee and go out on the balcony, and a sweet spider is waiting for me, weaving a web on a tree in the yard during the night. If that's not the case, I choose bugs that I haven't photographed too often before. The environment is also important, and so is the background. If I were painting big animals, I wouldn't move an elephant to make the background more beautiful. It's the same with bugs; it doesn't matter that they are small. I love when they are in a natural environment and look after their business. Sometimes the beetle is beautiful, but the environment is not, so that's not it. There are other situations when the bugs I shoot are simply not in the mood to pose at that moment.

**EP** ***How many bugs have you photographed so far?***

**Tomislav Tatić** Uh, that's a tough question. I'm not sure how to answer. I could probably say more than a hundred.

**EP** ***People usually don't like insects. Does that mean that you love them since you deal with them?***

**Tomislav Tatić** It's not that I love them, but I truly appreciate them as an important part of nature. People are usually unaware of the benefits they bring us or how different our world would be without certain types of bugs. Generally, people see them as annoying creatures, although I do know a lot more annoying people than insects. I have noticed that people's attitude towards insects has changed since I started doing this, which encourages me and makes me happy because what I do gets to them. For example, my wife no longer screams when she sees a spider but calls me to show me what she found. It also happened once that my friends called me because they found an interesting bug in their yard. Or for my father who woke



me up with the words: “Sorry to wake you up early, but there’s a huge spider in the garage”.

**EP** ***Do you distinguish insects now? Do you read a lot about them?***

**Tomislav Tatić** When I started my photo journey with insects, I didn’t know much about them. In time, I began to get acquainted with certain species. Some apps on my phone that recognize bug species and give basic information about them were of great help. It is always the first step that leads me to further research. There is a lot of useful information on the Internet. With the help of these additional tools, I learned that I want to photograph several types of insects in Serbia, and so far, I have not had the opportunity to see them. So, every time I go out, I hope that I will finally “meet” them.

**EP** ***Do you know others who deal with insects in this way in Serbia, the region, the world?***

**Tomislav Tatić** Frankly, I didn’t know people like that until I started doing this. Only when I got deeper into the topic that I became aware of other people doing this. I found many people on social networks who share my interests.

**EP** ***Apart from the Instagram page containing your work, are there any plans for the exhibition?***

**Tomislav Tatić** At the moment, I don’t have any specific plan for the exhibition or alike, but I’m patiently getting there. My wish is to organize an exhibition “Backyard Safari” which would show people what kind of wildlife they live in, without even being aware of it. It’s a wilderness that often can’t be compared to anything but science fiction movies. There is a whole world at our fingertips that seem unreal.

Interviewed by: Danijela Isailović

Photo: photo archive

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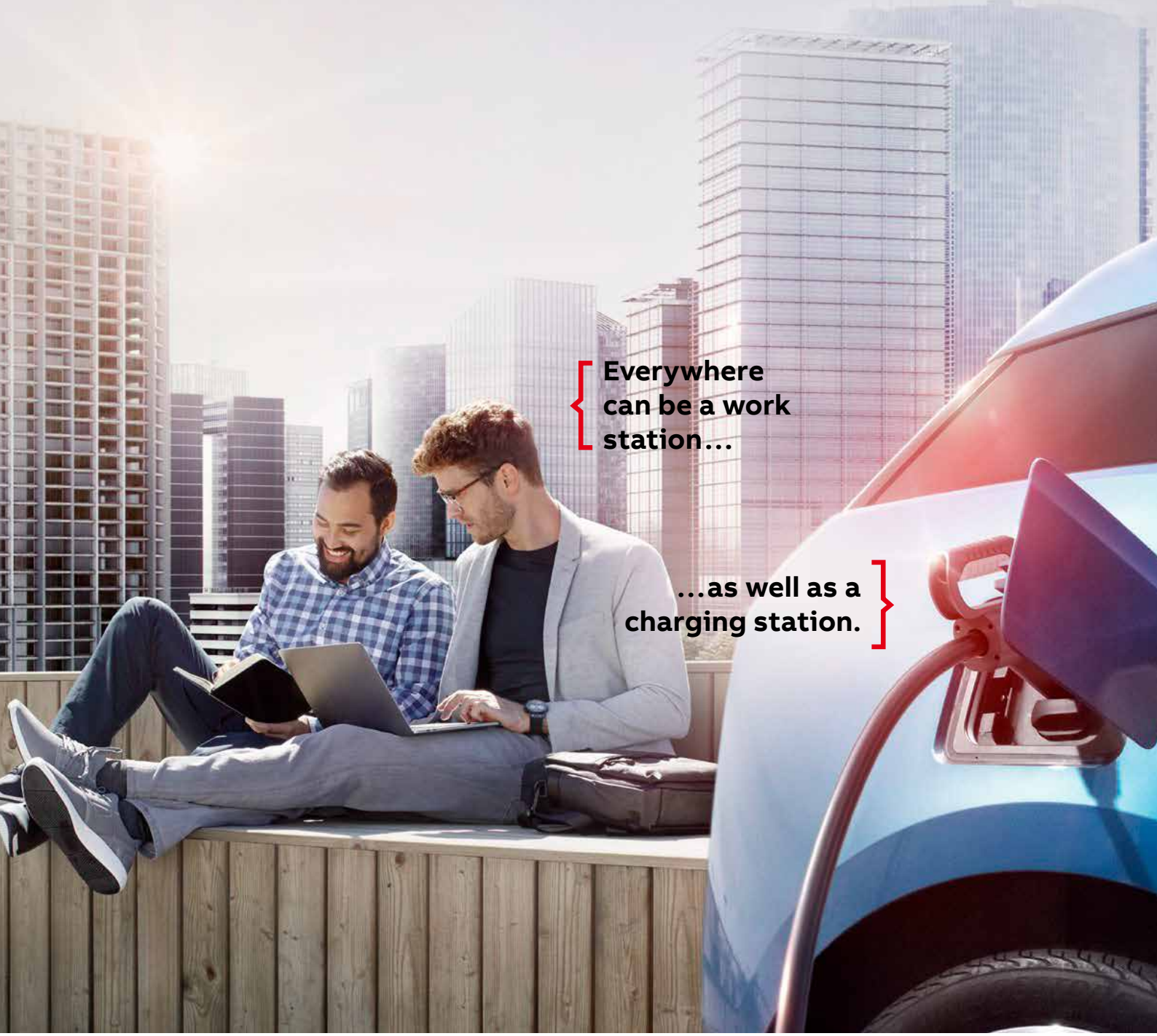


# Smarter Mobility

## Holistic charging infrastructure solutions

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