NR. 41 ■ 2025

ENERGY PORTAL emagazine

ISSN 2560-6034

Strengthening the Value Chain for the Recovery of the European Automotive Industry

Charlotte Sammelin
Ambassador of Sweden to Serbia

Sweden's Path to a Green and Prosperous Society

Sustainable mobility

ABB SETS NEW STANDARDS IN EV CHARGING WITH A400 AND C50 CHARGERS

VOLVO

VOLVO TRUCKS – LEADING THE WAY INTO THE FUTURE OF ELECTRIC TRUCKS

For the fifth year in a row, Volvo Trucks is the leader in the heavy-duty electric truck segment in Europe and North America. With a market share of 47% and a range of up to 600 km on a single charge, the Volvo Electric Range is driving the future of zero-emission transport.
The future is electric – join the revolution with Volvo Trucks!

WORD OF THE EDITOR

ENERGY PORTAL MAGAZINE
Bimonthly publication
energetskiportal.com

Address:
Bulevar Oslobođenja 103/3
11010 Belgrade

e-mail of the editorial board:
info@energetskiportal.rs

Publisher:
CEEFOR Ltd, Belgrade

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

620.9

ENERGY portal magazine / editor-in-chief Nevena Djukić. - Štampano izd. - 2017, no. 9 (nov.)- . - Belgrade : CEEFOR, 2017- (Zemun : Birograf). - 30 cm

Dvomesečno. - Drugo izdanje na drugom medijumu: Energy portal magazine (Online) = ISSN 2560-6034

. - Ima izdanje na drugom jeziku: Magazin Energetskog portala (Štampano izd.) = ISSN 2560-5232

ISSN 2560-6026 = Energy portal magazine (Štampano izd.)

COBISS.SR-ID 259518988

Dear readers,

You are holding a new issue of the Energy Portal Magazine, dedicated to topics that shape a sustainable future and redefine our everyday lives—this time with a special focus on eco-mobility.

In this issue, we had the honor of speaking with the Ambassador of Sweden to Serbia, Charlotte Sammelin, who shared her country's remarkable achievements in the implementation of the circular economy and renewable energy sources. Sweden—a country where sustainable development has become the norm—successfully blends tradition and innovation, demonstrating that achieving a perfect balance between preserving natural resources and modern technological advancement is possible.

Our story continues with an interview with Nikola Dašić, Mayor of Kragujevac, who presented the revolutionary platform "Be Part of the Plan"—a project that uniquely contributes to improving city infrastructure and environmental protection. This interview reveals how local governments in Serbia can implement ambitious strategies to enhance citizens' quality of life, aligning with the standards of the world's most developed regions.

For those preparing to step into the exciting world of electric four-wheelers, this issue provides valuable insights into the efficiency of the EV subsidy system in Serbia, the development status of charging infrastructure, and the necessary measures to support the rapid expansion of the charging network. You'll also find in-depth analyses of the current sales rates of electric and hybrid vehicles in the country.

We also spoke with Miroslav Mašić, Director General of the Directorate for State Roads at the Ministry of Transport of Montenegro, who shared how Montenegro is modernizing its road infrastructure, as well as current trends in vehicle import and export, showing what share of total vehicles are electric.

Additionally, our People and Challenges and Eco-Innovations sections feature stories about enthusiasts whose tireless work and dedication to clean technologies are key to transforming our world. These stories—full of energy and innovation—illuminate the path to a future where technology and environmental protection go hand in hand, creating a harmony that will benefit our planet.

In an era where speed and innovation drive societal change, it is crucial to pause, reflect on contemporary challenges, and reconsider how to integrate sustainability principles into every sphere of our lives.

We hope that through these stories, we will empower you to contribute to creating a sustainable future and to be part of the change.

Nevena Đukić
Nevena Đukić,
editor-in-chief

Photograph: courtesy of Nevena Đukić

IN THIS ISSUE...

Photographs: (First row) Miriam Preis; (Second row) Unsplash/Ernest Ojeh, Wikipedia/Vanilica; (Third row) MT-KOMEX, ABB

Photographs: (First row) Schneider Electric, Belgrade Fair; (Second row) Futuristic Beehive, Authorized Representatives and Car Dealers at the Chamber of Commerce of the Federation of Bosnia and Herzegovina; (Third row) courtesy of Muhamed Hamamdžić

SWEDEN'S PATH TO A GREEN AND PROSPEROUS SOCIETY

When we talk about Scandinavia, a palette of colors unfolds before us, reflecting the essence of the northern region of the European continent—endless shades of blue from bays, lakes, and seas that shape the coasts, gray rocky mountains, dark pine forests exuding pristine wilderness, and green energy that symbolizes sustainability.

Sweden, one of the most forested countries in the world, is known for the concept of Allemansrätten—the right of every individual to roam and explore nature freely. This law allows people to walk through untouched landscapes, pick wild berries, paddle in a kayak, or camp almost anywhere. The freedom to enjoy nature comes with simple yet essential rules—the natural balance must not be disturbed, and private property must be respected. The principle of nature conservation is deeply embedded in the very fabric of the

Photographs: (top) Jerker Andersson; (bottom) Per Pixel Petersson

Sweden is proud to be Serbia's leading bilateral partner in the environmental sector, supporting the country in aligning with EU environmental regulations, implementing policy frameworks, and securing funding for sustainable projects

country, from the everyday lives of Swedes to the creation of laws and national goals.

The achievements of Sweden—a country that naturally embraces the principles of a circular economy, the use of renewable energy sources, and all aspects of sustainable development—were presented to us by Charlotte Sammelin, the Ambassador of Sweden to Serbia.

Q: Sweden is among the top 10 countries on the Environmental Performance Index (EPI). What are the key environmental policies that have contributed to this achievement?

A: Sweden's success in combating climate change stems from a combination of forward-thinking policies, investments, and international collaboration. The introduction of a carbon tax in 1991 has been instrumental in reducing greenhouse gas emissions by incentivizing cleaner energy choices. Significant investments in renewable energy sources, such as wind, solar, and bioenergy, have further decreased reliance on fossil fuels.

Innovation is at the heart of Sweden's climate strategy, with strong support for developing technologies that enhance energy efficiency and promote sustainable practices. Public awareness and education are also key priorities, fostering a well-informed and environmentally conscious population. On the global stage, Sweden actively engages in international environmental initiatives and works with other nations to raise climate ambition. Recognizing the importance of collective action, Sweden emphasizes collaboration to reduce global emissions and mitigate the adverse impacts of climate change. This comprehensive approach has established Sweden as a global leader in sustainability and a champion for a greener future.

CHARLOTTE SAMMELIN has been the Ambassador of Sweden to the Republic of Serbia and Montenegro since August 15, 2024. Prior to that, she led the Department for International Trade and the EU Internal Market for three years and served as Sweden's Ambassador to Greece. During her career at the Swedish Ministry of Foreign Affairs, she has focused mainly on European Union policies, including EU foreign policy, neighborhood relations, accession negotiations, economic issues, trade, the EU internal market, and implementing the Lisbon Treaty. She spent twelve years working in Brussels in various positions, including as an advisor in the Support Group for Ukraine at the European Commission (DG Near), a foreign policy advisor to the President of the European Council, Herman Van Rompuy, and as a diplomat at the Permanent Representation of Sweden to the EU. She also served at the Swedish Embassy in Madrid. Before joining the Swedish Ministry of Foreign Affairs, she worked as an economist at the OECD in Paris, focusing on territorial development and agriculture. Ms Sammelin holds a master's degree in political science, European law, and economics from Ludwig Maximilian University in Munich.

Photograph: (Sammelin) Zoran Stojičić

Q: Sweden relies significantly on renewable energy sources. What are the most important steps to further increase the share of renewable energy in the energy mix?

A: Sweden has achieved impressive growth in renewable energy, expanding its share in its energy mix from 46 percent in 2010 to 66 percent in 2023, of which biofuels and waste accounted for 29.4 percent, nuclear 26.8 percent, and hydroelectric power 12 percent. This progress is driven by substantial investments and supportive policies prioritizing clean energy and cutting greenhouse gas emissions. Committed to sustainability, Sweden targets 100 percent renewable electricity generation by 2040 and net-zero emissions by 2045 at the latest.

By comparison, during the same period, Serbia has also been making progress in expanding its share of renewable energy in its energy mix from 19.8 percent in 2010 to 25 percent in 2023, of which hydroelectric accounted for 33 percent of the total power generation. A faster global green transition is essential to combat climate change effectively, requiring increased investments in fossil-free energy solutions to reduce emissions and build a sustainable future.

It is interesting to note that both Sweden and Serbia see nuclear power as an important contribution to meeting their energy needs while also reducing emissions. Whereas in Serbia, the moratorium on nuclear power plant construction was lifted in 2024, a tipping point in Swedish energy policy was in 2009 when the government permitted the replacement of existing reactors, thus effectively ending the previous phase-out policy.

Sweden's innovations include advancements in energy efficiency, CO_2 taxation, and the development of biofuels (another area of large potential in Serbia). We have also made significant investments in nuclear power, hydropower, wind, and solar energy to diversify our renewable energy portfolio and promote sustainability. We are also doing our part in delivering climate finance by being a leading donor and increasing our climate finance even further by strengthening synergies with innovation and trade.

Q: What measures and legislative initiatives is Sweden implementing to reduce transport emissions and improve air quality, and how are they integrated into national strategies?

A: By offering long-term sustainable products and services in areas such as transport, energy, and digitalization, Swedish companies contribute to more sustainable societies globally. Sweden's climate policy aims for net-zero emissions by 2045 at the latest, with a comprehensive climate action plan to achieve this goal. The government has expanded external climate aid to include support for climate adaptation, resilience, and emission reductions, amounting to SEK 9.4 billion in 2023. Additionally, private resources are mobilized through Sida's guarantee framework to support these efforts further. Together, these initiatives have made Sweden a leader in sustainability, demonstrating how collective action and a comprehensive approach can effectively tackle environmental challenges.

Q: Sweden is known for its successful waste management strategy. What key innovations in recycling and waste reduction have contributed to this success?

A: Firstly, we implemented strict regulations and policies that promote recycling, composting, and waste re-

Photograph: Niclas Albinsson

Sweden actively engages in international environmental initiatives and works with other nations to raise climate ambition

duction. This ensures that waste management is a priority at all levels of society. As a central part of effective waste management, we adopted a circular economy approach by following the EU waste management hierarchy. This hierarchy prioritizes waste prevention, followed by reuse, recycling, (energy) recovery in specially adapted incineration plants, and disposal only as a last resort. It also ensures that materials are utilized efficiently and responsibly, minimizing environmental impact and maximizing resource recovery. Secondly, Sweden invested in raising awareness of the benefits of recycling and made it easy-to-do. For instance, our extensive recycling programs allow our citizens to sort their waste effectively, with separate bins for paper, plastic, glass, and organic waste. This meticulous sorting system enhances recycling rates (approximately 99 percent of household waste) and supports the government's goal of reducing waste sent to landfills. Finally, we have invested heavily in waste-to-energy plants, which convert non-recyclable waste into energy. These plants provide heating to over 1 million households and electricity to 250,000 homes. This approach significantly reduces the volume of waste sent to landfills. In fact, Sweden imports waste from other countries to fuel its waste-to-energy plants, generating revenues and ensuring that the plants operate effectively.

Q: How does Sweden integrate sustainable agricultural practices into its broader environmental strategy, and how do these practices impact the environment?

A: Sweden integrates sustainable agricultural practices into its broader environmental strategy through various key initiatives. Firstly, Sweden has a strong focus on organic farming, which avoids synthetic fertilizers and pesticides, promotes healthier ecosystems, and reduces pollution. Organic farming practices also contribute to soil fertility and biodiversity. Secondly, we promote the adoption of the Ecological Recycling Agriculture (ERA) approach, which emphasizes recycling nutrients within the farm system and reduces the need for external inputs. ERA practices have shown to significantly lower climate impact, with 85 percent fewer commodity purchases and 2.3 times greater carbon sequestration compared to conventional farming. We also promote precision agriculture by utilizing technology to optimize field-level management regarding crop farming. This includes the use of GPS, sensors, and data analytics to ensure efficient use of resources, reducing waste and environmental impact. Lastly, we encourage farmers to incorporate trees and shrubs into agricultural landscapes to enhance biodiversity, improve soil health, and sequester carbon. This practice also helps create habitats for wildlife and improves the resilience of the farming system.

Q: How does Sweden align infrastructure development with preserving natural habitats and biodiversity?

A: The commitment to conservation in Sweden is reflected in its integration of environmental considerations into national policy-making. We have enacted laws and regulations that prioritize the protection of natural resources while balancing the needs of infrastructure, economic development, and societal welfare. For instance, before any major infrastructure project begins, Sweden conducts Environmental Impact Assessments (EIAs) to evaluate potential environmental impacts and develop mitigation strategies. Valuable

natural environments are protected in the long term by establishing nature reserves – there are currently 5400 of these in Sweden – which also preserve biodiversity and serve as outdoor recreation areas. Sweden also integrates green infrastructure into urban planning, which includes creating green spaces, wildlife corridors, and sustainable drainage systems. This approach helps maintain ecological balance while supporting urban development. Specific measures include practicing sustainable forestry, ensuring that forest management activities do not harm biodiversity by selective logging, maintaining old-growth forests, and protecting endangered species. We have also implemented measures to protect marine ecosystems, such as establishing marine protected areas and regulating fishing practices to prevent overfishing and habitat destruction. In addition, Sweden engages various stakeholders, including local communities, NGOs, and governmental bodies, in conservation efforts. This collaborative approach enhances the effectiveness of policies and ensures that diverse perspectives are considered.

Q: How does Sweden plan to address the challenges of climate change in the future, and in what way will it adapt its environmental policies in response to global changes?

A: The global future of renewable energy looks promising, with increasing investments in renewable technologies and a strong commitment to reducing carbon emissions. However, the transition faces significant challenges, including effective policy implementation, technological advancements, and securing funding

Valuable natural environments are protected in the long term by the establishment of nature reserves – there are currently 5400 of these in Sweden – which also preserve biodiversity and serve as outdoor recreation areas

Photograph: Miriam Preis

for sustainable projects. Sweden is preparing for this shift by investing in renewable technologies, promoting energy efficiency, and implementing market-based policies. Climate change will reshape global priorities, highlighting the importance of sustainable development, reducing greenhouse gas emissions, and fostering international cooperation.

Q: What specific projects could Sweden propose to Serbia in the field of circular economy, and how could they contribute to waste reduction and improved resource efficiency?

A: Sweden is proud to be Serbia's leading bilateral partner in the environmental sector, supporting the country in aligning with EU environmental regulations, implementing policy frameworks, and securing funding for sustainable projects. A greener economy requires attracting investments, creating a supportive regulatory environment, and raising awareness that we can all contribute to more sustainable use of resources and minimize environmental impact.

Sweden is already involved in concrete projects supporting Serbia's circular economy journey. We were involved in the ODVAJAMO project that brought recycling to 17 municipalities. Today, one of our focus areas is promoting public procurement with green criteria and sustainable supply chains. Sweden also collaborates with NALED to advance this agenda. Similarly, our partnership with the Standing Conference of Towns and Municipalities strengthens local governments' capacities to deliver more inclusive and sustainable waste management services.

Serbia is making strides toward sustainability by reducing waste and greenhouse gas emissions and increasing renewable energy use. This is helped not least by the EU for Green Agenda in Serbia project, in which Sweden is a partner and a donor.

Through the IED Serbia project, Sweden also supports Serbia in implementing the EU Industrial Emissions Directive, enhancing integrated pollution prevention and control (IPPC) permitting and inspections.

Interview by Milica Vučković

Photographs: (middle) Anders Tedeholm; (bottom) Ulf Lundin

MONTENEGRO BUILDS ROADS TOWARD SUSTAINABLE MOBILITY

Electromobility is increasingly becoming a key component of modern transportation, and Montenegro, although a small country, recognizes the importance of sustainable mobility and steps toward a greener future. The development of road infrastructure and the introduction of electric vehicles are emerging as inevitable challenges and opportunities for progress. In a conversation with Miroslav Mašić, Director General of the Directorate for State Roads at the Ministry of Transport of Montenegro, we learn how the country is gradually moving toward electromobility, what measures have been taken so far, and what still needs to be done to accelerate the process.

Q: How would you assess current trends in vehicle imports and exports in Montenegro, and what share of the total vehicle fleet do electric vehicles represent?

A: Based on available data for 2024, it can be concluded that Montenegro continues to show a strong dominance of conventional engines in the road transport sector, both in terms of vehicle registration and importation.

Regarding registered vehicles, diesel vehicles comprise 78.5 percent of the total fleet, while petrol vehicles account for 20.1 percent. Electric vehicles are present symbolically, with a share of 0.2 percent, and hybrid vehicles represent just one percent of all registered cars.

A similar picture emerges in the structure of vehicle imports for 2024, where as much as 84.62 percent of vehicles run on diesel, and 10.13 percent on petrol. The import share of electric vehicles stands at 0.92 percent – a slightly higher percentage than their registration share, but still indicative of very low interest in fully electric powertrains. Hybrid vehicles hold a more significant share (a total of 4.18 percent, combining diesel-hybrids and petrol-hybrids), while vehicles

Photographs: (top) Unsplash/Dragiša Braunović; (bpttom) Pixabay/Falco

Based on available data for 2024, it can be concluded that Montenegro continues to show a strong dominance of conventional engines in the road transport sector, both in terms of vehicle registration and importation

Miroslav Mašić
Director General of the Directorate for State Roads at the Ministry of Transport of Montenegro

powered by petrol and LPG are almost negligible (0.15 percent).

These trends indicate that the energy transition in Montenegro's road transport sector has not yet reached a mature phase. While a slight increase in the import of hybrid and electric vehicles can be observed, their overall presence remains minimal, suggesting additional economic and infrastructure incentives are needed.

Q: What measures is the Ministry of Transport taking to promote eco-mobility and reduce harmful emissions in the transport sector?

A: To promote eco-mobility and reduce harmful emissions, the Ministry of Transport – through the Directorate for Road Transport and Motor Vehicles – has prepared and adopted the Regulation on Amendments to the Regulation on Technical Requirements for Vehicles Imported or Placed on the Market in Montenegro for the First Time (Official Gazette of Montenegro, No. 5/2015, 63/2018, 10/2019 – Decision of the Constitutional Court, 68/2020, 16/2021, 17/2024 – Decision of the Constitutional Court, and 43/2024). This regulation limits the import of vehicles older than 15 years and bans the import of used vehicles meeting only the EURO IV standard.

Photograph: courtesy of Miroslav Mašić

Therefore, starting on 1 July 2025, Montenegro will require the import of used motor vehicles that meet at least the EURO 5 standard. Additionally, the Ministry, together with the United Nations Economic Commission for Europe (UNECE), is working on creating a Program for fleet renewal with subsidies for replacing old passenger vehicles with new ones.

Each year, the Ministry allocates funds to non-governmental organizations (NGOs) to implement small projects to promote green transport and raise public awareness about public transport, bicycles, electric scooters, and similar modes. The Ministry has financed over 50 projects and allocated over 500,000 euros to the NGO sector.

Q: What is the current status of the Mateševo–Andrijevica motorway

project, and when is its completion expected?

A: Modern and safe roads are a prerequisite for better domestic and international connectivity, improved tourist access, and, consequently, enhanced overall economic development. Within six months of my tenure, we have managed to establish solid foundations for the further development of road infrastructure through five main road corridors: the Bar–Boljare motorway, the Adriatic–Ionian motorway, the coastal expressway along Montenegro's shoreline, the expressway from Bijelo Polje to Pljevlja and the border with Bosnia and Herzegovina, and the expressway from Podgorica to Nikšić, Žabljak, and Pljevlja, with a total length of 624 km.

These five motorways and expressways are divided into 19 sections representing independent construction and functional units. Out of these 19 sections, only one has been completed – Smokovac–Mateševo, with a length of 42 km.

According to the planned timeline, the contract for the design and construction of the next motorway section, Mateševo–Andrijevica, is scheduled to be signed in the third quarter of 2025. This will enable the start of the main project design, preparatory works, and construction. Simultaneously, it will be necessary to conclude a loan and grant agreement, appoint project supervision, and carry out numerous other activities, such as land expropriation.

The European Bank for Reconstruction and Development (EBRD) will support the financing through a 200-million-euro loan and EU grants amounting to 150 million euros. The project is part of the indicative extension of the Trans-European Transport Network (TEN-T) into the Western Balkans and the Single Priority Infrastructure Project List for Montenegro. The remaining investment funding will be secured from the state budget.

Modern and safe roads are a prerequisite for better domestic and international connectivity, improved tourist access, and, consequently, enhanced overall economic development

Q: Is the Ministry negotiating with international financial institutions or private investors for further transport infrastructure development, and what are the primary funding sources for the planned projects?

A: For the Mateševo–Andrijevica section, a loan from the EBRD amounting to 200 million euros has been secured, along with 150 million euros in non-repayable grants. The necessary funds for implementing motorway and expressway construction projects will be secured through the Western Balkans Investment Framework, via favorable loans from the European Bank for Reconstruction and Development and non-repayable funds from the European Commission, covering 40 percent of the construction costs. Additional financing will come from public-private partnership models, concessions, the state budget, and finally, EU funds, which Montenegro will gain access to upon becoming a full EU member.

Q: What are the main challenges in implementing the road reconstruction program and the remediation of landslides, bridges, and slopes, and how does the Ministry plan to address them?

A: In addition to investing in the development of the primary road network, the government is also allocating significant financial resources for the development of road infrastructure through the construction of new state roads and the reconstruction of existing ones across the country. This improves traffic connectivity, reduces congestion, and improves road safety.

The 2025 program for the construction, reconstruction, maintenance, and protection of main and regional roads envisages an allocation of €72,779,013.00 for routine and investment maintenance, reconstruction, and construction of state roads.

The program includes the continuation or commencement of construction and reconstruction works on approximately 323 km of regional and main roads—16 percent of their total length—distributed as follows: 130 km in the northern region, 135 km in the central region, and 58 km in the coastal region.

The program is structured into three sub-programs:

Reconstruction of main and regional roads in Montenegro – 54 projects (including construction, reconstruction, design, and supervision), with planned funding of €47,805,013.00.

Resolving traffic bottlenecks in Montenegro – three projects, with planned funding of €5,241,000.00.

Remediation of bridges, landslides, and slopes – 15 projects, with planned funding of €6,738,000.00.

The main challenges for these projects include resolving land expropriation procedures and the poor quality of underground utility records, which, in many cases, delay and increase the cost of implementation.

Q: How are the planning and implementation of expressway sections progressing, and what are the priorities for their construction?

A: In cooperation with Monteput, the Ministry of Transport has identified, as a mid-term priority, the construction of the Bar–Boljar motorway and the expressway along Montenegro's coastline. These are part of EU corridors (Western Balkans – Eastern Mediterranean) and are crucial for the country's economic development, enhancement of the tourism offering, and the strategic utilization of the Port of Bar, without neglecting the construction and reconstruction of other state roads.

Due to the considerable time that has passed since the contracting of the Smokovac–Mateševo section and the lack of sufficiently developed technical documentation for other motorway and expressway sections, over the past six months, we have prioritized the development of technical documentation. This is essential for accurately estimating investment costs, submitting project proposals to available funding sources, and securing financial means for implementation.

We are proud to report that the preparation or contracting of technical documentation for all motorway and expressway sections is now in the final phase. We expect that a public tender will be announced next year for two priority expressway sections – the Budva bypass and the Bar bypass.

Interview by Milena Maglovski

Photographs: (on the previous page) Unsplash/Damir Babacic; Pixabay/Tania

DIGITAL AND GREEN TRANSFORMATION OF KRAGUJEVAC

From the innovative platform Be Part of the Plan, which allows citizens to actively participate in urban planning, to ambitious ecological projects and infrastructure modernization, Kragujevac is laying the foundations for future smart and sustainable communities. We spoke with Nikola Dašić, the Mayor of Kragujevac, about the key projects steering the city towards a smart city status and creating a greener, more efficient living environment.

Q: Could you tell us more about the Be Part of the Plan platform and how it came to win a prestigious award at the Seoul Smart City Prize competition?

A: Kragujevac is the first city in Serbia to enhance the transparency of local and urban planning processes. The Be Part of the Plan platform is an innovative tool that enables citizens and businesses in Kragujevac to engage actively in the city's urban planning. Its goal is to notify all interested parties in real time when an initiative to amend any planning document is launched, allowing them to participate from the very beginning.

By registering on the Be Part of the Plan platform, citizens receive notifications via email, text message, or Viber, significantly increasing the transparency of local government operations and facilitating better communication between institutions and the community. Any objections can be submitted within the legal timeframe through the platform's Objections section.

The project was implemented in collaboration with NALED, supported by the Faculty of Geography in Belgrade, and gained global recognition by securing third place in the Human-CentriCity category at the prestigious Seoul Smart City Prize competition, organized by the World Smart Sustainable Cities Organization (WeGO) and the Seoul Metropolitan Government. This award is given to projects that demonstrate that smart cities should be people-oriented, not solely focused on technological advancement. Out of 280 projects submitted worldwide, Kragujevac stood out due to its inclusive approach to urban planning and the use of digital tools to enhance citizen and business participation in creating the city's development plans.

Photographs: Zoran Lazarević

Q: Does this recognition mean Kragujevac is on the path to becoming a smart city? What are the next steps in that direction?

A: Thanks to the Serbian Government's commitment to digital transformation, we are building a city that utilizes data and innovations to address contemporary challenges. Our journey began with the construction of the State Data Centre and continued in 2021 with the launch of the first national artificial intelligence platform. Today, we live in a reality where artificial intelligence contributes to national health prevention, public administration, industry, and education. In just a few years, Kragujevac and Serbia have positioned themselves as significant hubs of digitalization, creativity, and innovation. The crown jewel is the Innovation District – the third phase of the State Data Centre, whose construction began in February last year. This will become the heart of the digital economy, housing the Science and Technology Park, the National Centre for Information Security, a Smart City centre for developing intelligent energy systems, a location for another supercomputer, business incubators, and a robotics development centre. With the support of the first municipal cloud data centre, a donation from the People's Republic of China, operational since 2019, the entire ICT system of the public sector under the City's jurisdiction has been centralized. This has enabled efficient data exchange and a significant number of smart projects.

One such project is eKGrađanin, a mobile application and web portal that allows citizens to report communal issues and suggestions, send photos, or share locations. Additionally, installing a LoRaWAN wireless network has commenced for sensor communication in smart systems. Since 2018, PUC Waterworks and Sewerage (JKP Vodovod i Kanalizacija) has initiated a project for smart water meters, enabling remote water consumption readings.

Kragujevac is also the first city in Serbia to become part of the Google Transit system, making the entire urban and suburban transport network freely available on Google Maps. Since 2005, Kragujevac has been among the pioneers in Serbia in introducing LED traffic lights, with almost all intersections digitalized through a remote monitoring and management system. Given the increase in vehicles in the city, we plan to introduce an adaptive management system and artificial intelligence, involving the installation of detectors at each intersection. The goal is to reduce travel time, alleviate traffic congestion, and, from an ecological perspective, decrease exhaust emissions.

The era of smart cities has evidently arrived, where modern technology allows us to understand the city. We have much work ahead in finding solutions to various challenges. It's crucial to reach optimal solutions that meet the needs of all citizens while saving time, energy, and money. In short, every smart city should be the best version of itself.

Q: A sustainable city cannot exist without renewable energy sources. What are the results so far?

A: The Balkan Solar Roofs project is just one of many initiatives Kragujevac is implementing to reduce greenhouse gas emissions. Compared to 1990 levels, we have set a target to reduce emissions by 40% by 2030, with a long-term goal of carbon neutrality by 2050. To achieve these objectives, we have implemented various measures, such as improving energy efficiency in buildings, increasing the use of renewable energy sources, and promoting sustainable mobility. The results indicate that we have significantly contributed to this global effort.

Nikola Dašić
Mayor of Kragujevac

Solar power plants have been built on five public buildings in Kragujevac to produce electricity for their own needs: the Zeka kindergarten, the Kneginja Ljubica Centre for the Development of Social Protection Services, the Public Garage, the Secondary Vocational School, and the Iskra Centre for Sports and Recreation of Persons with Disabilities. Additionally, a solar power plant for the indoor pool is currently being approved. As part of the Solar Panels in Schools of the Western Balkans project, six elementary schools – 21 Oktobar, Sveti Sava, Miloje Simović in Dragobraća, Natalija Nana Nedeljković in Veliko Polje, Dositej Obradović in Erdeč, and Sreten Mladenović in Desimirovac – will gain the status of prosumers, meaning they will both produce and consume electricity.

Our priority is a green, sustainable system, and we began with energy. Thanks to strong support from the President of Serbia, the Government, and the EBRD, coal-fired boilers were replaced with gas boilers. In the very first heating season, air pollution was reduced by 70 percent.

Two additional projects, supported by the relevant ministry, represent the next step forward. To save energy for district heating, the renewable energy source will be waste heat generated by the State Data Centre, which houses 1,080 server racks. There will be no increase in costs for residents, the heating plant, or the local government, while the project will significantly contribute to improving environmental quality and reducing air pollution. The project will enhance the reliability of the heat supply and reduce dependence on imported natural gas. Additionally, we are promoting energy efficiency and environmental protection, including initiatives to reduce pollution from individual heating sources and residential buildings. We are also taking steps toward becoming a green city, such as requiring hospitality establishments to install activated carbon filters and mandating that investors plant one tree for every newly built flat or commercial unit. This is no longer just a matter of goodwill – it is our obligation to future generations. Cities are key hotspots of climate impact, but they are also places where the most significant changes can be made to slow down the process and mitigate its harmful effects.

Q: How would you assess the current public transport system in Kragujevac? Is there room for innovation and improvement?

A: The annual survey conducted by the public utility Šumadija, in accordance with the Law on Communal Services, is an important mechanism that allows citizens to express their opinions and needs, helping us jointly improve service quality. Positive feedback, with over 90 percent of citizens satisfied with public transport, is certainly encouraging. Since November 2023, a total of 72 new buses have been delivered in phases, all meeting modern standards. These include information displays showing vehicle locations, electronic check-ins, video surveillance, and Wi-Fi devices. However, there is always room for improvement. We have set ambitious goals and are aware that we must continue to work hard to achieve them and further improve the quality of life in our city.

Q: What are the most important infrastructure projects in Kragujevac? Which area is receiving the most investment and why?

A: The northern bypass is one of the most significant and largest infra-

structure projects undertaken by the state in Kragujevac. Following the road to Batočina that connects to Corridor 10, the northern bypass is the most important road for Kragujevac, designed to connect the city with the Morava Corridor and the Miloš Veliki motorway leading to Montenegro. The total length of the northern bypass is 22 kilometers. The first five kilometers are being constructed from the Kragujevac–Batočina road to the planned junction in Cvetojevac, where an industrial zone will be developed. This new industrial zone is urgently needed, as the city lacks available plots to offer interested investors. The northern bypass is not only a strategically important in-

frastructure endeavor but also a key driver of the city's economic development. It will enhance traffic management, ease transit through the city center, and thereby reduce air pollution.

Q: Air pollution is a serious issue in Serbia, particularly during winter. What is the situation in Kragujevac, and is the city taking steps to reduce air pollution?

A: Air pollution is a challenge, especially in winter, and Kragujevac is taking concrete measures to address it. The city is implementing Air

The data is continuously analyzed to define effective measures for improving air quality. For 2025, a total of 5.2 million dinars has been allocated to these programs, with implementation overseen by the City Health Council.

The biggest issue now lies with individual heating systems, as the replacement of coal-fired boilers with gas boilers at the city heating plant has already reduced air pollution by 70 percent in the very first heating season.

In cooperation with the Ministry of Environmental Protection, Kragujevac is gradually addressing this issue by providing subsidies to citizens who wish to replace coal and wood boilers with pellet or gas systems.

Q: How is wastewater treated in Kragujevac? Are there plans to improve the system?

A: Wastewater in Kragujevac is treated at the Central Plant located in the village of Cvetojevac, which purifies industrial and sanitary water before it is discharged into the Lepenica River. The project was modelled after plants that already existed in the former Federal Republic of Germany. The construction of this facility was a pilot project in the former Yugoslavia, as at that time no one in the region had even seriously begun planning such infrastructure.

In addition to the plant, a network of secondary and primary collectors was built in the city to collect and transport wastewater to the facility for treatment. Kragujevac received this facility in 1990 and has been continuously operating since, fulfilling its intended purpose. However, based on European and global experience, the facility is nearing the end of its operational life, and it is now time either to revitalize it or to construct a new plant at the same location. Studies have shown that it would be more effective and cost-efficient to build a new facility, which would yield better results both in terms of water treatment quality and economic efficiency.

Q: Mount Rudnik, part of which lies within the territory of Kragujevac, was recently declared an area of exceptional features. Are there any other initiatives to protect natural resources within the city's boundaries?

A: Declaring Mount Rudnik as an area of exceptional features is a significant step in protecting natural resources. Mount Rudnik lies within the territories of Kragujevac, Gornji Milanovac, and Topola municipalities, covering an area of over ten thousand hectares. It is characterized by dominant forests of Turkish oak and Hungarian oak, as well as beech forests, which cover around 90 percent of the area. According to available data, the flora includes 698 groups of living organisms, 13 of which are strictly protected. A total of 117 bird species have been recorded, accounting for 32.5 percent of Serbia's overall bird diversity, along with 10 species of fish and 20 species of amphibians and reptiles.

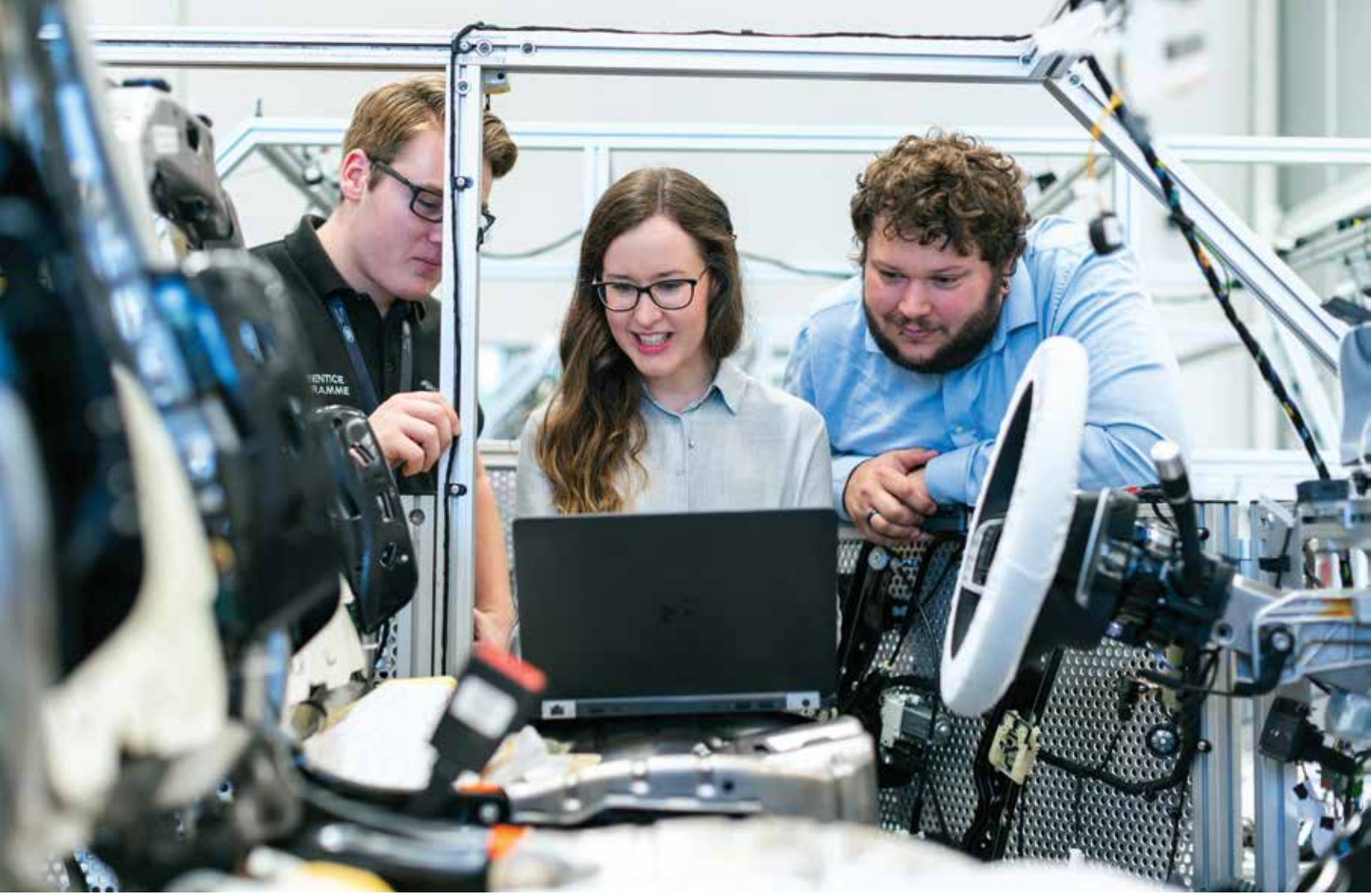
The Kragujevac City Tourist Organization has been appointed as the managing body, which means we have procedural obligations to establish relevant services, particularly a ranger service, to protect the area. This is also important for us to develop tourism capacities and associated facilities further.

Q: Which environmental issue would you single out as a priority, and how do you plan to address it?

A: The top priority is the reconstruction of the outdated sewer network and the construction of new infrastructure where it does not exist. The first phase, covering 42 kilometers, has been completed thanks to the national Clean Serbia program. This project will provide coverage for every house and household in and around the city, effectively resolving the issue of so-called illegal connections that currently discharge directly into rivers instead of into the Public Utility Company Waterworks and Sewerage system. This means we will, in a civilized and proper way, clean up our waterways and leave them to future generations in much better condition than we found them.

The project foresees the reconstruction and construction of 360 kilometers of a new sewer network. More has been achieved in two years in the first phase than in the previous 15. The second phase will focus on reconstructing the central urban sewer lines.

Interview by Milena Maglovski



STRENGTHENING THE VALUE CHAIN FOR THE RECOVERY OF THE EUROPEAN AUTOMOTIVE INDUSTRY

The electrification of transport is one of the key priorities for achieving climate goals and reducing air pollution. In recent years, the European Union (EU) has, therefore, focused particularly on adopting regulatory measures and advancing technology in this sector. Nevertheless, despite electric vehicles gaining a larger share of the total vehicle fleet, significant challenges facing the industry need to be overcome to achieve the established goals. This article examines those challenges and how they influence the acceleration of the transport transition.

The European Automobile Manufacturers' Association (ACEA) publishes a monthly report comparing the number of new vehicles registered in the EU with the same month of the previous year. One of the latest reports noted that in January 2025, battery electric vehicles accounted for 15 percent of the market share, an increase from January 2024, when the share was 10.9

Photograph: Pexels/ThisIsEngineering

Cooperation and Tariff Rates

The European Commission conducted an investigation to identify which Chinese battery electric vehicle (BEV) manufacturers receive government subsidies that are considered unfair by the EU. Chinese companies cooperating in the investigation and providing the required data received lower tariff rates: BYD 17 percent, Geely 18.8 percent, and other cooperating companies 20.7 percent. Although Tesla was not part of the standard sample in the investigation, it submitted a request for a special review of its business data, which resulted in a tariff of 7.8 percent. On the other hand, SAIC and all other companies that failed to provide the required information faced the highest tariff, 35.3 percent.

percent. As for hybrid electric vehicles, they continued to perform well, reaching a market share of 34.9 percent, indicating that EU car buyers most frequently opt for this powertrain type.

Diesel and gasoline vehicles, taken together, saw a decline. In January 2024, their market share was 48.7 percent, while a year later, it fell to 39.4 percent.

Despite existing regulations, ACEA points out that regulations alone are not sufficient for the successful transition of the automotive industry to zero-emission vehicle production. A holistic approach is needed—namely, strengthening the entire automotive value chain. According to Sigrid de Vries, ACEA Director General, the shift to zero emissions requires a broader ecosystem approach and new partnerships within the value chain. Regulating individual steps will not enable the industry to lead the transition, so reform and a change in approach to incentivizing and regulating the automotive industry are necessary for Europe to become a leader in zero-emission vehicle production.

The automotive industry is undergoing a profound transformation, facing challenges while remaining a key segment of the European economy

How the Draghi Report Views the Challenges of the Automotive Industry

The value chain in the automotive industry was thoroughly analyzed in a report prepared by Mario Draghi, former President of the European Central Bank (ECB) and a prominent figure in European economics. Draghi was commissioned by the European Commission to create a report outlining his vision for the future of European competitiveness. Known as the Draghi Report, it includes, among other things, the challenges currently facing the automotive industry.

The automotive industry is undergoing a profound transformation, facing challenges while remaining a crucial segment of the European economy, providing jobs for over 13 million people. As a leader in innovation, the industry has experienced the most significant structural shift in the last hundred years, expanding its value chain and integrating with new sectors, including electronics, software, new financial models, and the circular economy.

By 2030, it is estimated that electronics and software will make up as much as 50 percent of a vehicle's total value. Technologies such as artificial intelligence (AI) and digitalization will significantly change how we use vehicles, especially in areas like vehicle connectivity, advanced driver-assistance systems, and the development of autonomous vehicles. This digitalization will require the introduction of new skills and the development of appropriate infrastructure in vehicle manufacturing as well as in the mobility services sector. It will also require substantial

Photograph: Freepik

In late October 2024, the European Commission imposed high tariffs—up to 35 percent—on imports of battery electric vehicles (BEVs) from China

investment in new production processes, workforce retraining, and efficient charging infrastructure for electric vehicles. Furthermore, the shift to electric vehicles and digitalization impacts broader industrial integration, creating new business models and challenges in the supply of new resources and materials needed for production, the report states.

This transformation is driven by forecasts suggesting that the market share of newly registered electric vehicles in the passenger car segment will reach 30 percent by 2026, up from 22.3 percent in 2023. This trend will create significant pressure on the industry to adjust production capacities, improve infrastructure for electric vehicle support, and implement new technologies that will enable a faster and more efficient transition to a more sustainable mobility sector.

Market Competitiveness

The EU is facing intense competition in the automotive market. As highlighted in Mario Draghi's report, the EU has not yet fully adapted its value chain to electric vehicles. In contrast, China has made much faster progress thanks to strategic investments and swift coordination across the entire EV value chain. Since 2012, China has invested massive financial resources in the whole production cycle—from raw material extraction to battery recycling. By creating large production capacities, China has reduced production costs. Moreover, labor costs in China are lower than in the EU. Through various strategies, China has encouraged foreign automakers to participate in its market or establish partnerships with Chinese manufacturers. Today, China is the largest electric vehicle market in the world.

Faced with growing competition from China, the United States has

Photographs: (top) Pexels/Hyundai Motor Group; (middle) Pexels/Kindel Media

The EU has not yet fully adapted its value chain to electric vehicles

taken several key steps to protect its industry. One such measure was increasing tariffs on Chinese products, particularly vehicles: the base tariff was 27.5 percent, while it was raised to 100 percent for electric vehicles. Additionally, the U.S. introduced substantial incentives to encourage domestic manufacturers and consumers to participate in the electric vehicle market. These incentives include subsidies for building new battery gigafactories and tax reliefs.

Although the EU has an advantage thanks to its solid regulations and developed infrastructure, it still faces challenges such as high costs. In response to the competition, the EU has taken several necessary steps. One of the most significant was raising tariffs on Chinese electric vehicles. In late October 2024, the European Commission imposed high tariffs—up to 35 percent—on imports of battery electric vehicles (BEVs) from China for a five-year period. This decision came after an investigation showed that China's BEV value chain benefits from subsidies that the EU deems unfair, as they distort the natural dynamics of the free market. Through these measures, the EU aims to protect its e-mobility market. Although EU incentives are not on the same level as those in the U.S. and China, there are programs that support domestic manufacturers, particularly in reducing CO_2 emissions and promoting sustainable technologies.

The EU has set an ambitious goal of banning the sale of new internal combustion engine vehicles in its market by 2035. This decision is part of a broader strategy to achieve climate neutrality by 2050, marking a major step toward a more sustainable future.

Prepared by Katarina Vuinac

Photographs: (top) Pexels/Kindel Media; (bottom) Pixabay/httpmegapixel.click - betexion

BRESTOVAC PAVES THE WAY FOR ENERGY TRANSITION THROUGH SOLAR ENERGY

The south of Serbia is known for its mountainous landscapes, specialties, and hospitality – traits recognized far beyond the region. While the residents of this area carefully preserve what makes it special, they simultaneously open the door to new opportunities that benefit both the present and the future. One such opportunity is using clean energy, which is increasingly finding its place in this part of the country.

Brestovac, a settlement within the city of Leskovac, has recognized the importance of renewable energy sources by allocating its land to produce green energy. On an area of 2.5 hectares, the company MT-KOMEX began the construction of the solar power plant – Solar Elektro at the end of February this year. The investor of this project, Solar Elektro d.o.o. Kragujevac entrusted the construction to MT-KOMEX, a company recognized for its extensive experience and reliability as a partner. With over 250 ground and rooftop solar power projects implemented, this company has installed over 350,000 solar panels.

For the realization of this project, the company's expert team will install 2,600 solar panels, each with a capacity of 640 Wp, manufactured by Aiko. The total installed capacity of the solar power plant will be 1,664 MWp, while the active power will be 1,500 kW. The quality of a solar power plant is reflected in careful planning and precise execution. To maximize electricity production during the summer months, the solar panels will be vertically oriented and mounted on a supporting substructure at a tilt angle of 20°, facing south. The southern and southwestern parts of Serbia are among the sunniest regions in the country, making them ideal for developing solar power plants and enhancing long-term energy stability.

The project envisages a total of 15 inverters with an individual power of 100 kW, manufactured by Huawei

Photographs: MT-KOMEX

The Potential of Solar Energy in Serbia

Serbia has significant potential for harnessing solar energy due to favorable climatic conditions and many sunny hours per year. On average, Serbia receives between 1,800 and 2,200 hours of sunshine annually, with the southern and southeastern regions being particularly suitable for solar power plants. This renewable energy source can play a key role in the country's energy transition, enabling the diversification of energy sources and reducing dependence on fossil fuels.

The investor of this project, Solar Elektro d.o.o. Kragujevac entrusted the construction of the power plant to MT-KOMEX, a company recognized for its extensive experience and reliability as a partner

(model – SUN2000-100KTL-M2). The inverter automatically synchronizes with the grid at a voltage of 0.4 kV. Once operational, the solar power plant will deliver all the electricity it generates to the power distribution system. Annual production is expected to reach approximately 2,335.4 MWh, representing a significant contribution to increasing the share of solar energy in the overall power grid.

To ensure the highest level of safety for the solar power plant, a lightning protection system with an early steamer emission device is planned to protect the facility from atmospheric discharges. Sensors will be installed within the power plant to monitor local meteorological data relevant to the plant's operation. These sensors will measure four key parameters: solar radiation intensity, wind speed, ambient temperature, and the temperature of the solar panels.

In addition to producing clean energy, this project will also contribute to reducing carbon dioxide emissions. On an annual basis, the power plant is expected to lower CO_2 emissions by 2,246 kilograms, further supporting environmental protection and improving air quality in the region.

This solar project lays the foundation for an energy-independent and environmentally responsible community in Brestovac, contributing to a sustainable future for Serbia as a whole.

Prepared by Katarina Vuinac

EBRD – DRIVING SERBIA'S GREEN TRANSITION AND SUSTAINABLE DEVELOPMENT

As Serbia accelerates its journey towards a more sustainable and competitive economy, the European Bank for Reconstruction and Development (EBRD) remains one of its key investors and partners. With annual investments exceeding 800 million euros, the EBRD actively supports projects that contribute to the energy transition, infrastructure modernization, and strengthening the private sector.

We spoke with Jelena Čeperković, Deputy Head of the EBRD for Serbia, about how the EBRD's strategy is reflected in concrete projects across the country – from the rehabilitation of hydropower plants and wind farms, to modernizing rail and air transport, as well as investments in environmental infrastructure and energy efficiency.

Q: How much did the EBRD invest in Serbia in 2024, and how much additional funding was mobilized from other sources?

A: The EBRD is the leading institutional investor in Serbia, with an active portfolio currently exceeding three billion euros. In 2024, for the second year in a row, we invested more than 800 million euros and mobilized an additional 395 million euros from other investors. We work closely with the European Union and other donors, and we also mobilize our own resources to complement the projects we finance with grants where most appropriate.

Q: How many projects did the EBRD support in Serbia last year, and which sector received the highest investment?

Photograph: Unsplash/Goxy Bgd

A: Last year, we supported a record 37 projects in Serbia, with total investments amounting to 807 million euros. These investments spanned various economic sectors, with a strategic focus on the transition to a green economy, strengthening the capacity of the private sector, and financing sustainable infrastructure.

Most of last year's investments – nearly 500 million euros – were directed towards the green transition, primarily through renewable energy projects, decarbonizing district heating systems, and improvements to environmental infrastructure. We also supported several key infrastructure projects in the railway and aviation sectors and the rollout of high-speed broadband internet in rural areas.

Additionally, we continued efforts to boost the competitiveness of the private sector through both direct investments and advisory support aimed at improving access to finance and business practices for SMEs. Most of the real economy financing was achieved in collaboration with local banks, through which we provide targeted credit lines for SMEs.

Q: What are the key projects funded in the area of green transition and renewable energy?

A: Since 2020, the EBRD has invested nearly one billion euros in 23 energy sector projects across the Western Balkans. Although a significant part of this investment includes liquidity credit lines granted during the 2023 energy crisis, our primary priority remains expanding the capacity of renewable energy sources.

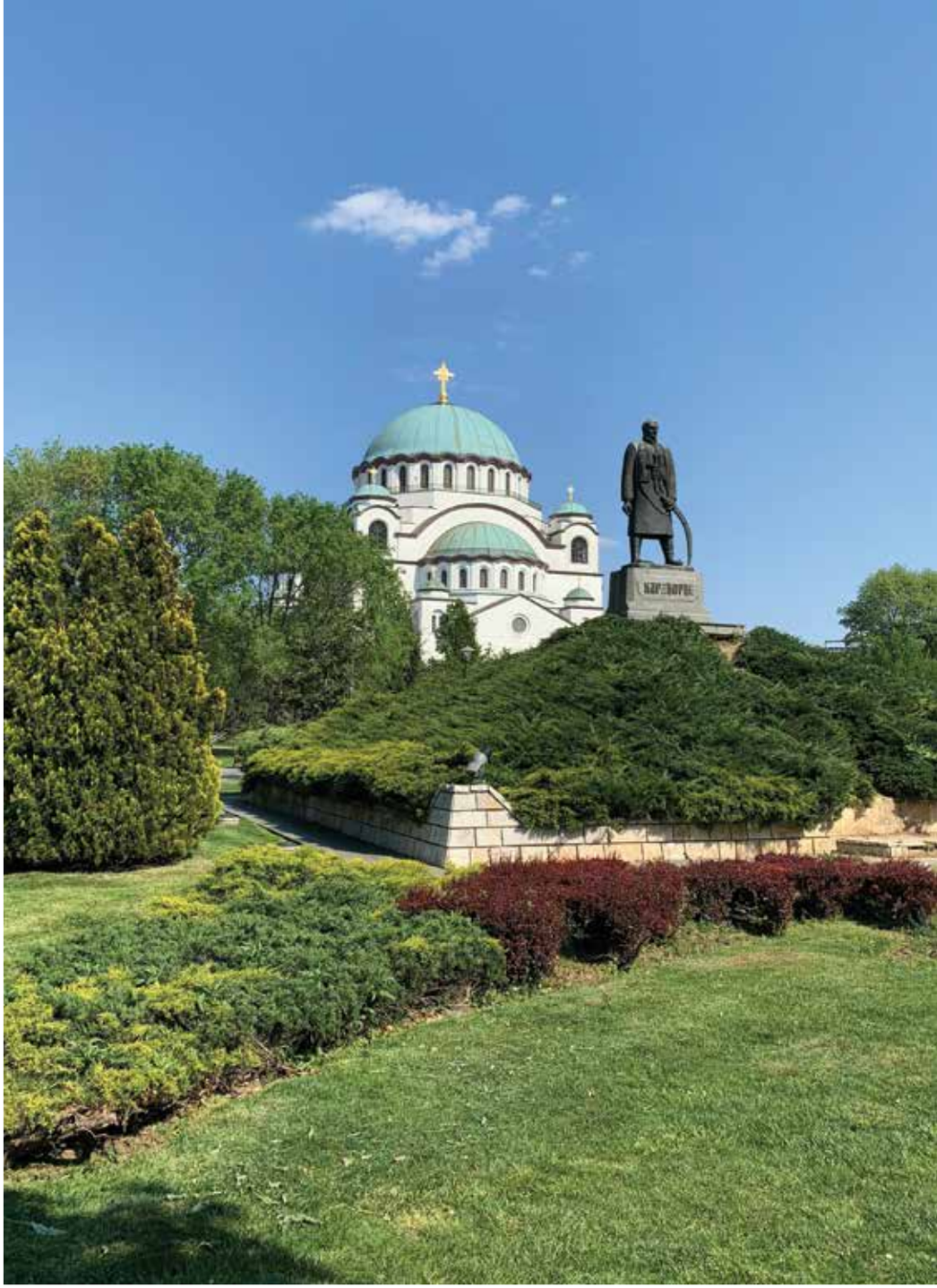
Jelena Čeperković
Deputy Head of the EBRD for Serbia

Last year, we supported a record 37 projects in Serbia, with total investments amounting to 807 million euros

Photograph: (Čeperković) courtesy of Jelena Čeperković

In Serbia, we are currently financing projects in both the public sector, through EPS and EDS, and with private investors. We recently secured a 67-million-euro loan and an investment grant of over 15 million euros from the Western Balkans Investment Framework (WBIF) to fund the rehabilitation of the Vlasina hydropower plants, among the oldest in the EPS system, which will result in modernization and increased capacity. In addition, we are financing the Pupin wind farm, the first project built under the initial round of auctions for solar and wind power held in 2023.

Alongside direct financing, we place great emphasis on maintaining ongoing dialogue with the government on energy sector reform, further decarbonization, and greater sustainability. One example is the technical assistance provided to the relevant ministry in designing and implementing a three-year plan for auctioning 1,300 MW of wind and solar capacity, realized in partnership with the Swiss government, and delivering excellent results. We also offer EPS a comprehensive advisory support package in key areas such as decarbonization, corporate governance, and human capital development.



Q: How has the EBRD supported modernizing Serbia's railway and air transport systems?

A: Railway sector modernization is one of the EBRD's priorities in Serbia, as evidenced by over one billion euros in investment to date. The most significant project in this area is the reconstruction of the high-speed railway from Belgrade to Niš, financed jointly with our partners from the EIB and the EU. This project aims to ensure fast, reliable, and safe transport of passengers and goods along this corridor while also supporting the country's overall economic development and local and regional connectivity. In recent years, we have also financed the procurement of new rolling stock for Srbija Voz and Srbija Kargo, which, along with infrastructure improvements, should enhance the competitiveness of rail as one of the greenest modes of transport. Additionally, through advisory support linked to these projects, we are working to improve corporate governance and commercialization and to modernize curricula in secondary and higher railway schools, including the implementation of dual education to attract suitable future talent for the railway sector.

As for air transport, last year we continued our successful cooperation and provided new funding to the Serbia and Montenegro Air Traffic Services Agency (SMATSA) to facilitate the transition to the latest version of the air traffic management system, thereby improving safety, efficiency, and service quality.

Q: Which national programs received additional EBRD funding in 2024?

A We support several programs crucial for decarbonizing district heating systems and improving energy efficiency in public and residential bui-

Photograph: Unsplash/Dušan Pokuševski

ldings. These areas have significant potential for improvement, given that Serbia's district heating systems rely almost entirely on fossil fuels. However, although the intensity of energy consumption has decreased over the past decade, it remains significantly higher than in the EU.

Last year, we secured 135 million euros to introduce new technologies and renewable energy sources into existing district heating systems in 11 cities across Serbia. This will allow for an expansion of production capacity, reduce reliance on imported gas, and contribute to improved air quality. For example, the solar thermal power plant in Novi Sad will feature one of the world's largest seasonal heat storage facilities, with a capacity of 850,000 cubic meters. These solutions are not only highly innovative for Serbia and the Western Balkans, but they also represent cutting-edge achievements in district heating on a global scale.

Regarding energy efficiency, support is planned this year for two major programs worth over 160 million euros. One involves introducing energy efficiency measures in multi-apartment buildings connected to district heating systems in 14 municipalities, prioritizing those buildings with above-average energy consumption to achieve the most significant savings. The other focuses on implementing energy efficiency measures in 70 schools across Serbia.

Additionally, a program worth 50 million euros is currently being prepared to decommission environmentally harmful boiler rooms across Serbia to improve air quality. This will involve investments in sustainable heat sources (heat pumps, solar thermal systems, industrial waste heat, and biomass), and connecting buildings to the district heating network where possible.

In the field of environmental infrastructure, we continue to finance the national program for constructing modern solid waste management centers. Covering 47 municipalities across Serbia, the program aims to align waste management with EU standards, increase recycling rates, and close unregulated landfills.

Q: How does the EBRD see its role in Serbia's continued economic development?

A It is important that Serbia continues its path towards EU accession, secures greater access to the single market, and deepens its integration into European value chains, while focusing on investment in infrastructure projects, energy, and human capital. As before, our contribution to further development is primarily reflected through strategic investments that support sustainable growth, strengthen the private sector, and improve infrastructure. Despite an exceptionally volatile external environment, our priorities remain essentially unchanged and continue to focus on these key areas.

Interview by Katarina Vuinac

Photographs: (middle) Unsplash/Thomas Reaubourg; (bottom) Unsplash/Smiljana Peters

THE DEVELOPMENT OF ELECTRIC VEHICLES IN SERBIA – A RETROSPECTIVE AND A LOOK AHEAD

The beginnings of electric vehicle development in Serbia date back to the mid-1970s. Sharp increases in oil prices and the first oil crisis of 1973, known as the first oil shock, spurred the consolidation of knowledge and pioneering research in the field of electric car development. In 1976, under the leadership of academician Aleksandar Despić, the first electric delivery vehicle in Serbia, the TAM 2001 (an electric "baker's" E-mobile), was developed at the Bureau for Autonomous Electric Vehicles within the Institute of Technical Sciences of the Serbian Academy of Sciences and Arts (SANU).

Three years later, in 1979, the Institute for Chemical Power Sources (IHIS) built a delivery vehicle based on the Zastava 435F. This vehicle

Photographs: (top) Unsplash/Klemen Vrankar; (bottom) Unsplash/Annie Spratt

became the first registered electric vehicle in the country and operated on public roads for several years.

That same year, the first eco-friendly electric passenger car in former Yugoslavia was produced in Belgrade. Its designer was Professor Stojiljković, my mentor during my doctoral studies at the Faculty of Electrical Engineering in Belgrade. He modified a standard Trabant vehicle and designed a regulated electric motor drive using a direct current motor, along with a supporting DC/DC converter (a so-called chopper). The drive had an output power of around four kilowatts (kW), powered by a 140V/50Ah battery pack in the front of the vehicle. The Elektrotrabant reached a speed of around 50 km/h, with a range between 70 and 80 km, and was registered and used on the route from Block 45 (New Belgrade) to Zemun Polje. This reconstruction was carried out at the Centre for Chemical Power Sources of the Institute for Chemistry, Technology and Metallurgy (IHTM).

Interest in electric vehicles grew again during the sanctions and oil shortages from 1992

Interest in electric vehicles grew again during the sanctions and oil shortages from 1992. At that time, several specialized electric vehicles were developed, such as mopeds, bicycles, vehicles for disabled persons, and transport vehicles for multiple passengers in tourist centers. These

ŽELJKO V. DESPOTOVIĆ was born in Prijepolje. He graduated in 1990 from the Faculty of Electrical Engineering in Belgrade, specializing in Power Engineering – Department of Power Converters and Drives (EPP). At the same faculty and department, he completed his master's degree in 2003 and earned his PhD in 2007. Since 1991, he has been permanently employed at the Mihajlo Pupin Institute, where he continues to work on developing and designing devices in power electronics and mechatronics. Throughout his professional, research, and scientific career, he has led and participated in numerous major investment projects of national interest in the electricity sector, process industry, water management, and defense industry. His research includes mechanical systems and mechanism control, hydraulic and hydrodynamic systems, vibration control, the development of various power converter topologies, their control, and application in various mechatronic systems and electric drives. In the field of ecology, he has worked on applying power electronics and developing power converters for powering electrostatic filters used in thermal power plants and heating plants.

Photographs: (middle) Unsplash/Nemanja Stević; (Despotović) coutresy of Zeljko Despotović

vehicles had a maximum speed of 15 km/h and a range of up to 50 km.

The company Melbat developed the first commercial electric vehicle for everyday use at the end of 1994 and the beginning of 1995 – a reconstructed Lada Niva-E, used for municipal services in Belgrade.

In 1996, two autonomous electric Yugo-E vehicles were reconstructed to meet the needs of Elektrodistribucija Beograd.

The Fast Black Lada electric vehicle was launched at the beginning of 1998. It weighed about two tons and had a top speed of 60 km/h. It was later used in Belgrade cemeteries, but its speed and range were reduced.

At the end of the 20th century, the development of electric vehicles with alternating (asynchronous) motors began. Under the leadership of engineer Bojan Kragić, the Raskovnik Company developed several light electric vehicles with asynchronous motors up to four kilowatts. These vehicles represented a serious step toward potential serial production, based entirely on domestic expertise and multidisciplinary development.

Electric bicycles do not harm the environment, maintenance is inexpensive, and they help avoid city traffic, long waits, and congestion

Independent of Raskovnik, in cooperation with the factories Crvena Zastava from Kragujevac, the Faculty of Electrical Engineering in Belgrade, Sever from Subotica, and Krušik from Valjevo, a Yugo-Elektra vehicle was reconstructed under the leadership of Professor Slobodan Vukosavić. It featured a 7.5 kW asynchronous electric motor. Despite NATO bombing, development was not halted. The vehicle was officially unveiled in 2002.

By the beginning of the 21st century, the development of electric vehicles in Serbia had progressed gradually, with many attempts and innovations. However, the only program that achieved a broader commercial application was the series known as the Black Ladas.

Since 2004, the development of electric vehicles has nearly come to a halt. I remember that Professor Stojiljković, Professor Vukosavić, and I, then a doctoral student at the Mihajlo Pupin Institute and the Department of Power Converters and Drives at the Faculty of Electrical Engineering, developed Project 006214: Development of Software and Electronic Control Units for Traction Drives and Battery Converters in Eco Vehicles. The project was conceived as a continuation of the development of the electric Yugo, in collaboration with Zastava Automobili d.o.o. Unfortunately, even

Photograph: Unsplash/Trac Vu

though Zastava was on its last legs at the time, the project did not receive support in the call for proposals issued by the then Ministry of Science and Environmental Protection. Nevertheless, the ideas endured and could still find a path to implementation and application today.

Electric Bicycles – Success Stories

Electric bicycles, it could be said, have almost no downsides. They do not harm the environment, maintenance is inexpensive, and they help avoid city traffic, long waits, and congestion.

One of the most notable models is the Archont, an electric bicycle by the local company Ono Bikes (run by brothers Marko and Saša Šćepanović). In 2016, the BBC named it the most beautiful electric bicycle in the world. The company's website, onobikes.com, features six different Archont models with electric motors tailored to various user needs. Particularly noteworthy is the Archont E60 model, equipped with a six-kilowatt motor, offering excellent acceleration and a top speed of 75 km/h. It uses a lithium-ion battery with a capacity of 1.44 kWh, providing a range of more than 120 km per charge.

The E-Prime team, led by Milan Manojlović, showcased electric bicycles and rickshaws at the 2019 International Energy Fair in Belgrade, which visitors were able to test. Their best-selling models are the Effecto and Effecta. The Cargo model is designed for light parcel delivery, and the Experience model stands out for its unique design.

Students from the Faculty of Electrical Engineering in Belgrade developed a prototype electric bicycle, which they presented at the final energy electronics competition in Madison (USA) in July 2019. Their system – composed of a battery, power converter, electric motor, and mobile app – won the Grand Prize. It demonstrated an efficiency of 97.8 percent, an output power of 750 W at 400 V, and featured an innovative clutch. The team included students from various departments of the Faculty, mentored by Prof. Slobodan N. Vukosavić, PhD, and assistant Aleksandar Milić.

Photograph: Unsplash/Ernest Ojeh

Plans and the Future

The Institute plans to install multiple AC charging stations for hybrid and electric vehicles. My involvement in mentoring master's students and collaboration with the Charge&GO Company has paved the way for practical activities, such as testing DC fast chargers (120 kW and 240 kW) and evaluating their impact on the power grid. Plans also include solar parking installations with AC chargers for cars and bicycles within the Institute's premises.

There are also plans to develop autonomous electric vehicles equipped with a robotic arm and smart camera for parasite inspection in greenhouses and hothouses. Alongside these, an OFF-grid mini charging station powered solely by solar energy is planned.

Another intriguing project involves the development of an OFF-grid mobile fish feeder, using vibratory transport of fine-grained materials, operating in mechanical resonance to minimize losses and increase efficiency.

The Ministry of Science, Technological Development, and Innovation is currently implementing a range of activities that may contribute to the development of infrastructure for electric and hybrid vehicles and small-scale sustainable e-mobility systems. Several reputable companies have already decided to establish their research and development centers in Serbia. This represents a valuable opportunity for our educational and scientific institutions to apply their knowledge in energy systems, electronics, telecommunications, ICT, artificial intelligence, and other fields.

Considering all of the above, it can be said there is real potential for domestic innovations to become part of global e-mobility trends. It remains to be seen in which direction these efforts will develop in the future.

Željko Despotović, PhD, electrical engineer

WIND FARMS ALIBUNAR 1 AND 2 BRING NEW ENERGY TO SERBIA

Wind energy is one of the key renewable energy sources in Serbia and the wider region, with significant potential for further development. Serbia possesses favorable wind conditions, particularly in Vojvodina, eastern Serbia, and mountainous areas, where average wind speeds enable efficient electricity generation. According to estimates, Serbia has the potential to generate several gigawatts of capacity from wind energy, which could significantly contribute to the diversification of the energy mix and the reduction of dependence on fossil fuels.

The development of wind farms contributes to energy stability, is environmentally sustainable, and allows for the reduction of carbon dioxide emissions, bringing Serbia closer to sustainable development goals and European energy standards. Investments in this sector create new jobs, stimulate the local economy, and improve the overall energy security of the country.

The Alibunar 1 and Alibunar 2 wind farms will soon become important to Serbia's energy sector, delivering as much as 480 gigawatt-hours of green energy annually. These projects, led by SANY Renewable Energy, were developed in cooperation with Norwegian company Emergy and Dutch company WV-International, which has long-standing experience in the renewable energy sector in Serbia.

We spoke with Neda Lazendić, Director of WV-International in Serbia, about the construction plans, the importance of these wind farms, and future investments.

Q: Alibunar 1 and 2 wind farms were ranked highly in the Renewable energy auctions. Could you tell us more about these projects?

A: Yes, it's true that our projects, Alibunar 1 and Alibunar 2, ranked second and third, respectively, on the

Photograph: Wikipedia/Vanilica

final list of wind farms in the second round of renewable energy auctions organized by the Ministry of Mining and Energy of Serbia. The planned installed capacity of Alibunar 1 is 96.6 MW, and for Alibunar 2 it is 71.4 MW. These facilities will significantly contribute to increasing the capacity of green energy in Serbia's energy mix.

Q: Who is currently behind these projects, and how were they developed?
A: The projects are majority-owned by SANY Renewable Energy, a global leader in wind turbine manufacturing based in China. They were developed in partnership with Norwegian developer Emergy, while WV-International, a Dutch company and one of the pioneers of renewable energy in Serbia, played a key role in their development, which began back in 2013.

Q: When does the construction of the wind farms begin, and which turbine model will be used?
A: We are currently in the pre-construction phase, with the start of works planned for the fourth quarter of this year. As for the turbines, we will use the SANY S168 model, manufactured by SANY Renewable Energy, with a capacity of 4.2 MW.

Q: How will the electricity be sold after construction is completed?
A: After the construction is completed and the farms are connected to the transmission grid, 100 percent of the planned production will be sold to Elektroprivreda Srbije AD (EPS). We already have a signed Pre-Contract with EPS for electricity sales over a period of 15 years.

Q: How much will the wind farms contribute to electricity production in Serbia?
A: Once operational, Alibunar 1 and Alibunar 2 will produce approximately 480 gigawatt-hours of electricity annually. This will significantly contribute to increasing the share of clean and green energy in the country's overall energy mix and to the decarbonization of the energy mix of Elektroprivreda Srbije AD.

The Alibunar 1 and Alibunar 2 wind farms will soon become important to Serbia's energy sector, delivering as much as 480 gigawatt-hours of green energy annually

Neda Lazendić
Director of WV International Serbia

Q: Is WV-International planning new projects in Serbia?
A: Yes, WV-International and Emergy are continuing the development of wind farms with a total capacity of 571 MW within the Banat project complex. Additionally, we are working on the development of a 125 MW hybrid power plant that will combine wind and solar energy.

Interview by Milena Maglovski

Photographs: Wikipedia/Vanilica, (Lazendić) coutresy of Neda Lazendić

SECOND ROUND OF AUCTIONS FOR RES – RECORD PARTICIPATION AND A SIGNIFICANT STEP TOWARD ENERGY TRANSITION

In the second round of auctions for the allocation of market premiums for renewable energy source (RES) projects, announced by the Ministry of Mining and Energy in November 2024, investor interest exceeded all expectations. A total of 41 projects were submitted, and the offered quota of 424.8 megawatts for solar and wind power plants was significantly surpassed. Incentives were awarded to a total of 645 megawatts of capacity. In contrast, the total planned investment value reached 782 million euros, according to a statement from the Ministry of Mining and Energy of the Republic of Serbia.

Minister of Mining and Energy Dubravka Đedović Handanović assessed this auction round as highly successful, both in terms of the volume of submitted capacities and the competitiveness of the offered prices. She emphasized that all the energy produced by the new plants will be designated for supplying domestic businesses and citizens, as it will be purchased by Elektroprivreda Srbije (EPS).

Seven projects were submitted for wind power plants, while 34 applications were received for solar power plants. The offered quota was fully utilized, and 10 new wind and solar power plants will be constructed in the upcoming period.

Photograph: MT-KOMEX

plants—30 MW of which are owned by the company—said that they participated in the auctions with three solar power plants, but the market premium was awarded to one—the Kobra solar power plant, with a capacity of 9.99 MW. In comparison, the offered capacity at the auction was 7.5 MW.

Kostić pointed out that this year's auction prices for electricity from solar power plants are significantly lower than in previous auctions and added that this may nevertheless discourage potential investors.

The lowest offered price for solar this year was 50.9 euros per megawatt-hour (MWh), while in 2023 it was 88.65 euros/MWh. As for wind energy, the lowest offered price this year was 53.59 euros/MWh, compared to 64.48 euros/MWh in 2023, said Kostić.

The prices offered by investors were very favorable, as they were below market levels. Under the market premium model applied by Serbia, this means that no state subsidies are expected for these projects. On the contrary, investors will return part of their excess profits to the state if market prices remain higher than those offered.

Miloš Kostić, director of the company MT-KOMEX, which has built a total of 150 MW of solar power

Although prices for solar and wind are lower this year than in previous auctions, the minister noted that Serbia's market premium model brings numerous benefits—stability for investors and financial gains for the state and EPS.

The new power plants will contribute to increasing energy security, as all investors have offered to sell the produced energy to domestic consumers over the next 15 years. This means that green energy will stay in Serbia and will not be exported to other markets, emphasized Đedović Handanović.She reminded us that the state is actively investing in renewable energy sources. This year, the Kostolac wind farm and the Petka solar power plant will be connected to the grid. In contrast, over the next three years, construction is planned for an additional 1 GW of self-balancing solar power plants equipped with battery storage.

Strong interest from both domestic and international investors—from the PR China, the USA, and France—confirms that Serbia is recognized as an attractive destination for investment in green energy. According to the minister, this proves that the legal framework in the RES field provides a stable and predictable environment in which the interests of investors and the country's energy security are balanced.

The three-year incentive plan adopted by the Government in 2023 envisions market premiums for 1,300 MW of capacity from renewable sources. After the first round of auctions in 2023, an additional 715 MW of green energy will be connected to the grid by the end of 2025.

The market premium functions as a safeguard mechanism for producers, ensuring the difference between the market electricity price and the auction-offered price. The state covers the difference if the market price falls below the offered price. However, when the market price exceeds the offered price, investors must pay the difference to the state. The reference price for calculating the premium is the electricity price on the domestic SEEPEX exchange.

With the successful completion of this second round of auctions, Serbia is making another significant step toward achieving its strategic goal of generating half of its electricity from renewable sources by 2030.

Prepared by Milena Maglovski

Photograph: SANY Renewable Energy

FROM EUROPE TO ASIA – LEADING STANDARDS FOR BATTERIES AND CHARGERS

Photograph: Unsplash/Yrka Pictured

Today's electric vehicles are far more advanced and thoroughly researched than they were at the beginning of this decade. Some of the world's pioneering electric vehicle (EV) models were launched in the late 2000s and early 2010s, marking the start of wider acceptance and commercialization of electric vehicles across Europe. During that period, European manufacturers began entering the world of electric mobility, but their offerings were not as extensive as they are today. Exactly ten years ago, the sale of electric and hybrid vehicles in the European Union surged, with approximately 300,000 units delivered in the first half of the year alone. In contrast, Serbia's market at that time recorded only symbolic sales figures, primarily due to high prices and a lack of government subsidies. Since then, the situation has significantly improved in terms of technological development, infrastructure, and the variety of EV models available in the automotive industry.

Although EVs are becoming increasingly ubiquitous, there is no universally adopted standard for charging connectors, which can be confusing for drivers traveling across multiple countries

Battery Technology – The Heart of an Electric Vehicle

Electric cars can use various types of batteries. The type of battery directly affects vehicle range, charging speed, safety, cost, and lifespan. Over the years, several battery types have been developed, but only a few have proven practical for widespread use in the automotive sector.

The most common technology today is the lithium-ion battery, used in nearly all modern EVs due to its high energy density, good balance between capacity and weight, and relatively fast charging capability. However, concerns about the environmental impacts of lithium mining, as well as some drawbacks, such as overheating, have sparked ongoing debate. Nevertheless, lithium batteries remain the primary choice for most manufacturers.

Another increasingly common variant is lithium iron phosphate (LFP) batteries. This newer type of lithium-ion battery has slightly lower energy density but offers greater thermal stability and a longer life span. It also avoids the use of costly and ethically problematic materials, such as cobalt, which is why it has gained popularity among Chinese manufacturers.

It's also worth mentioning solid-state batteries, which, unlike lithium-ion batteries, are not yet commercially available but promise a revolution in the coming years. Instead of liquid electrolytes, they use solid materials, which increases safety, enables significantly higher capacity in a smaller volume, and offers up to 40 percent lower carbon footprint compared to currently available batteries. Though still in development, some manufacturers

Photograph: Unsplash/Roger Starnes

are investing in them due to their potential to deliver longer range, faster charging, and greater consumer confidence in EV reliability.

Types of Electric Vehicle Charging Connectors

Although EVs are becoming increasingly ubiquitous, there is no universally adopted standard for charging connectors, which can be confusing for drivers traveling across multiple countries. Connectors vary by charging type (slower AC or fast DC charging) and vehicle manufacturer.

In North America and Japan, the most commonly used connector is known as Type 1. This connector enables single-phase AC charging and is the standard for home charging in these regions. While functional, Type 1 is increasingly rare in Europe, as it does not support the three-phase charging common in European power networks.

Europe's counterpart to Type 1 is the Type 2 connector, which has become the standard across the European Union. This type is mandatory on all new public chargers in the EU, aiming to standardize the market and make charging infrastructure more accessible without the need for adapters.

For fast DC charging, the dominant connector is the CCS (Combined Charging System), which is now widely adopted in both Europe and internationally. CCS is practical because it combines the Type 2 connector with additional pins for fast charging. This makes CCS highly versatile, supporting both AC and DC charging, depending on the charging station.

If a driver owns an EV in Europe, they will most likely use Type 2 for regular charging and CCS for fast charging.

Another connector, now declining in use, is Japan's CHAdeMO standard for fast DC charging. While it was one of the earliest fast-charging standards, it is now being gradually phased out in Europe in favor of CCS, although it remains in widespread use in Japan.

Tesla has developed its own connector, known as NACS (North American Charging Standard), which combines AC and DC charging in a single port and is compatible with Tesla's Supercharger network in the U.S. In Europe, however, Tesla has adapted to the market, allowing its vehicles to use the CCS standard instead of relying exclusively on the American connector.

A notable exception is China, which utilizes its national GB/T standard—a system not widely adopted outside China. While GB/T differs technically from other systems, the Chinese government supports future compatibility with international standards, such as CCS.

Overall, there is a clear trend toward standardizing chargers, with CCS being increasingly recognized as the global standard for fast charging. At the same time, Type 2 remains the dominant choice for home and slow public charging in Europe.

Photographs: Unsplash/Sophie Jonas

The Potential of Alternative Fuels

Amidst the numerous developments in electric mobility, the question arises about the role of alternative fuels in decarbonizing transportation. Mario Draghi, economist and former President of the European Central Bank, was tasked with preparing a report for the European Commission on the future of European competitiveness, in which he addressed the potential of alternative fuels.

The European Union defines alternative fuels as those that can at least partially replace fossil fuels and contribute to reducing overall transport emissions.

While electric vehicles are the most widespread solution, there are numerous other alternatives, particularly in segments where electrification is not easily feasible, such as heavy-duty vehicles or remote regions with limited charging infrastructure.

Entire fleets of internal combustion engine (ICE) vehicles remain in operation, and replacing them with EVs is not feasible in the short term. In such cases, alternative fuels—including biodiesel, ethanol, e-fuels, and biogas—offer a way to reduce emissions without requiring a complete transition to electric vehicles.

E-fuels, created by combining hydrogen and CO_2, can also be used in existing engines

For example, biodiesel, one of the most common biofuels, is made from plant oils and animal fats and can be blended with conventional diesel for use in existing engines, without additional infrastructure changes.

There is also renewable diesel (synthetic diesel), produced by processing biomass, including fats and oils. It can fully replace fossil diesel, with lower CO_2 emissions and no need for vehicle modifications.

Next is ethanol, usually made from corn or cellulose, and commonly added to gasoline. However, vehicles must be adapted for higher ethanol concentrations.

E-fuels, created by combining hydrogen and CO_2, can also be used in existing engines; however, their production process has a significant downside, resulting in high energy consumption and making them less efficient compared to battery-electric vehicles.

Beyond liquid fuels, there are biogas and natural gas, both of which are suitable for long-haul vehicles. Biogas helps reduce emissions, while natural gas has a lower CO_2 output compared to gasoline and diesel.

Autogas (propane and butane), a byproduct of natural gas processing and oil refining, benefits from a partially developed infrastructure within the EU, with approximately 46,000 refueling stations. Around 15 million vehicles in the EU rely on this fuel type, particularly in commercial fleets and public transportation.

Hydrogen is increasingly being considered a fuel of the future, particularly for heavy vehicles and buses, as it emits no harmful gases during use. However, storage technology and other complexities remain unresolved challenges.

Although hydrogen vehicles cannot currently replace EVs across the board, they represent an essential solution for sectors where electrification is not yet a viable pathway.

Prepared by Milica Vučković

ABB SETS NEW STANDARDS IN EV CHARGING WITH A400 AND C50 CHARGERS

At a time when electric mobility is becoming one of the key factors for a sustainable future, ABB's E-Mobility business sector continues to lead the industry through innovation and technological advancement. Ten months after the introduction of the A400 All-in-One Charger at ACT Expo 2024—which pushed the boundaries in fast and efficient electric vehicle charging—the company is now launching the C50, a premium compact charger designed to improve charging infrastructure in urban environments and along travel routes.

ABB A400 – Powerful, Reliable, and Smart

The ABB A400 represents the pinnacle of ABB's engineering in the field of electric vehicle chargers. It delivers the highest charging power with minimal losses, provides a seamless user experience, and offers advanced remote management options. This charger directly addresses three key industry challenges: lack of driver confidence, usage complexity, and low return on investment for EV operators and fleet owners.

One of the major issues EV drivers face is a low charging success rate, which often falls below 70 percent. Users encounter difficulties with payments, connectivity issues, or unclear charging processes. The ABB A400 is designed to eliminate these issues, raising the charging success rate to as high as 99 percent.

With a large 32-inch screen and an intuitive user interface, the ABB A400 delivers a smartphone-like experience. Users can easily monitor the charging process, receive clear start and end confirmation, and get real-time charging status updates.

The technical solutions implemented in the A400 enable a long service life and high efficiency. The charger uses silicon carbide-based

Photographs: ABB

power modules, allowing optimal power management and reduced energy losses. Dynamic power sharing in 50 kW charging patterns offers operational flexibility, while the air cooling system contributes to the device's reliability.

One of the key innovations in the A400 is implementing two-phase cooling technology (based on the phase change of the coolant –liquid to vapor to liquid) into a charger connector. This patented technology enables charging up to 600 amps while reducing maintenance costs and providing better long-term reliability than traditional cooling systems.

Additionally, the ABB A400 comes with remote management services via a cloud platform, allowing operators to monitor and optimize charger operation 24/7. ABB service agreements guarantee a 97 percent service response efficiency rate, further increasing this system's reliability.

C50 – A Smart Solution for Urban Infrastructure

Following the successful launch of the A400, ABB E-Mobility now presents the C50 – a premium compact charger tailored for urban environments and public spaces. This model arrives at the right time, considering the growing need for accessible and efficient public charging, especially in cities where many people lack home charging options.

The C50 delivers 50 kW of power, enabling fast charging during everyday activities such as visits to shopping centers, retail locations, and rest stops. With dual 25 kW outputs, it allows simultaneous charging of two vehicles, thus increasing charger utilization and reducing the need for additional infrastructure investments.

Designed with practicality, the C50 features an ultra-slim profile of just 23.5 cm and premium materials that allow easy integration into various spaces. Its user interface, with a 21.5-inch screen, ensures simple and intuitive use, while the display colors can be adjusted to meet clients' visual preferences.

Another advantage of the C50 model is that it comes as a fully managed solution. ABB takes care of all aspects – from planning and implementation to management, service, and maintenance. This enables companies to easily integrate chargers into their operations without needing additional expertise in electric mobility. In this way, they can focus on their core business while enjoying all the benefits of electrifying their locations while retaining ownership.

The A400 and C50 were designed from the ground up to provide reliable and cost-effective charging, enabling our customers to manage their networks at the highest level

ABB E-Mobility is Redefining the Future of EV Charging

With the launch of the A400 and C50 models, ABB E-Mobility is setting new industry standards in EV charging. Their mission is not just to increase the number of chargers on the market but to improve the quality and reliability of infrastructure to accelerate the development of electric mobility.

EV charging networks represent a critical factor in the mission toward energy-efficient and climate-neutral mobility. The A400 and C50 were designed from the ground up to provide reliable and cost-effective charging, enabling our customers to manage their networks at the highest level.

ABB

FARIZON AND THE FUTURE OF ELECTRIC COMMERCIAL VEHICLES

Lazar Radanov Radičev
Director of Delta Auto Group

The development of electromobility in Serbia presents numerous challenges and great opportunities for transforming the transport sector. Lazar Radanov Radičev, Director of Delta Auto Group, speaks about the potential of electric commercial vehicles, the advantages of the Farizon model, and the readiness of companies to transition to sustainable transport solutions.

Q: What are the key challenges and opportunities that Delta Auto Group sees in developing electromobility and sustainable transport solutions in Serbia and the region?

A: The low market share of electric vehicles represents significant development potential, especially in the light commercial vehicle segment, where purchasing decisions are based on cost-efficiency, unlike passenger vehicles, where decisions often involve emotional factors. Analysis shows that electric vehicles have clear advantages in the last-mile delivery segment, where vehicles travel up to 150 km daily, follow predictable routes, and are parked at company premises, making battery charging easier. As a result, range and public charging infrastructure become less relevant topics. In the case of the Farizon V6E, driving 150 km per day, 22 working days a month, we estimated savings of €25,000 over five years compared to a diesel vehicle. These savings come from lower fuel and maintenance costs—there's no engine oil or most filters, and brake pads can last up to three times longer.

Q: Farizon is bringing a revolution to the segment of eco-friendly commercial vehicles. How do you assess its potential in the Serbian and regional markets?

A: We see no rational obstacles to the transition of urban delivery fleets and last-mile operators to electric vehicles. In this respect, Farizon has enormous potential in Serbia and the region. With the development of charging infrastructure and the broader availability of fast chargers, we believe intercity transport will follow this trend. Since the brand's promotion in November 2024, and especially after the Auto Show in March, we've seen growing interest from companies in such solutions. Of course, additional consultations and time are needed for customers to choose the vehicle variant that best suits their needs.

Q: What key innovations and technologies set Farizon vehicles apart from the competition?

A: Thanks to advanced technologies, Farizon offers greater road safety, lower maintenance costs, and optimal space utilization. The vehicle omits the traditional B-pillar, allowing the interior to be flexibly configured to meet various needs, resulting in more cargo space and easier access. There are also advanced safety features such as ASR (anti-slip regulation), AEB (automatic emergency braking), and TPMS (tire pressure monitoring system), all contributing to safer driving. Farizon also employs a drive-by-wire system, which improves vehicle handling by 300 percent and reduces braking distance by 10 percent.

Q: How ready are premium and luxury brands, such as Maserati, for a full transition to sustainable mobility?

A: These brands are actually leading the transition to sustainable mobility. The first electric model in Serbia was the BMW i3, conceived as a complete sustainability showcase: it was built using recycled materials, the factory operated on 100 percent renewable energy, and production involved 50% less energy and 70 percent less water consumption. Luxury brands see an opportunity in electrification not only for reducing emissions, but also for enhancing performance. For example, the gasoline Maserati Trofeo offers 550 hp and 0–100 km/h acceleration in 3.5 seconds, while the electric Maserati GranTurismo Folgore delivers 761 hp, an incredible 1,350 Nm of torque, and acceleration in 2.5 seconds. This and similar models also use new eco-friendly and composite materials, making the vehicle more efficient.

Interview by Milena Maglovski

Photograph: coutresy of Lazar Radinov

CROATIAN GAS ASSOCIATION
MEMBER OF IGU
CROATIAN GAS CENTER Ltd.

40TH INTERNATIONAL SCIENTIFIC & EXPERT MEETING OF GAS PROFESSIONALS

OPATIJA, CROATIA, 7 - 9 MAY 2025

JOIN THE LARGEST CONFERENCE & EXHIBITION IN SE EUROPE 100% DEDICATED TO NATURAL GAS, LNG & LOW-CARBON SOLUTIONS!

60+ speakers / 600+ high ranking gas and energy experts, managers and decision makers / 20+ partners / 40+ exhibitors

1. The role of natural gas in global energy transition
2. Development and maintenance of gas infrastructure
3. The strategic role of hydrogen in the decarbonization of the energy sector
4. Biogas and synthetic methane as key factors in the development of green industries
5. Growing trend in the use of LNG in Europe
6. Issues relating to the transport, distribution and storage of gas
7. Smart technologies and digital transformation in the modernization of the gas and energy sector
8. Use of CNG, LNG, and LPG and the potential of fuels from renewable sources for the decarbonization of transport
9. POSTER SESSION: Issues surrounding the gas and energy industries
10. Legal regulations, technical rules, rules of the profession and consumer rights in the gas and energy sectors

Confirmed key speakers:

- Andrea Stegher, Vice President, International Gas Union
- Norbert Jansen, Borealis Polymere GmbH
- Stefano Menghini, AUTOMA S.R.L
- Klaus Payrhuber, INNIO Jenbacher GmbH & Co OG
- Laslo Farkaš Višontai, Podzemno skladište plina d.o.o.
- Marija Gilja, Plinacro d.o.o.
- Darko Pavlović, Plinacro d.o.o.
- Krešimir Marijanović, Brod-plin d.o.o.
- Damir Jeličić, Pico Flow Controls d.o.o.
- Joey Walker, EffecTech Limited

Pre-event matchmaking tools and on-site social events will help delegates to network and meet international delegates and key speakers.

CHECK OUT THE PROGRAMME:
https://susret.hsup.hr/en/programme/

REGISTER NOW:
https://susret.hsup.hr/en/registration-of-participants/

Croatian Gas Center Ltd., Ulica Vjekoslava Heinzela 9/II, 10000 Zagreb, Croatia, **phone:** +385 (0)1 6189 590, **e-mail:** opatija@hsup.hr

RES DAYS 2025: SPLIT AS THE ENERGY HUB OF THE REGION

From May 21 to 23, 2025, Split will become the center of the region's green energy transition, hosting leading experts and decision-makers from the field of renewable energy sources (RES). In the luxurious setting of the Le Meridien Lav Hotel, the RES Days 2025 conference will take place—an event symbolizing the beginning of a new investment era and the accelerated implementation of projects in the RES sector.

The conference will bring together all the key stakeholders in the transition to cleaner energy—from representatives of state institutions and energy companies to the financial and legal sectors, academia, and consulting firms from Croatia and abroad. Today, Croatia has all the prerequisites for a significant leap forward in RES development—abundant natural resources, available technologies, and ready investors. However, despite this considerable potential, the sector has long been held back by administrative barriers, legal uncertainty, and slow reform implementation. Now, finally, the time for concrete action has arrived. Projects are moving from planning to construction, and RES Days 2025 is the platform that symbolizes this shift.

During the three dynamic days, participants will have the opportunity to engage in inspiring discussions and share knowledge and experiences across eight panel sessions:

Panel 1: Renewable Energy and Nuclear Power – Conflict or Synergy?
Renewable energy sources today form the backbone of decarbonization and a key lever for Europe's energy independence. At the same time, nuclear energy is regaining a place in energy strategies as a reliable, low-carbon source, capable of stabilizing the intermittent nature of RES production.

This panel will open an important debate: Are renewables and nuclear energy competitive or

Photographs: RES Croatia

complementary? The focus will be on the technical, societal, and political challenges of their parallel development and the possibilities for their balanced coexistence within the long-term strategic framework of Croatia and Europe.

Panel 2: Croatia's Energy Independence – Between Regulations and Practice
This session will examine the concrete steps taken toward achieving national energy self-sufficiency. It will analyze the obstacles stemming from a fragmented legal framework, the challenges of organizing public tenders for granting energy approvals (EO), and the extent to which regulatory policies align with the strategic goals of the green transition. The panel will offer insight into the gap between formal regulation and real-world implementation challenges.

Panel 3: Grid Connection of RES – Challenges and Solutions for Faster Integration
Efficient grid connection of renewable energy plants is one of the key issues in accelerating the energy transition. This panel will explore regulatory and technical barriers currently slowing down integration and potential solutions, ranging from flexible contract models and safeguard mechanisms to the development of smart grids and energy storage systems.

Panel 4: RES Project Construction – Financial Sustainability and Operational Challenges
The focus is on financial models for RES project implementation, including Power Purchase Agreements (PPA and cPPA), market premiums, bank guarantees, and purchase prices. The panel will also address operational challenges on construction sites—from permitting and engaging qualified labor to technical execution and project management in the field.

Panel 5: RES Capacity Revitalization – Innovations for a New Generation of Plants
How can we extend the life of existing power plants and improve their efficiency? This panel will focus on technical solutions for reconstruction and repowering, introducing energy storage as an additional component, and ecological aspects of revitalization, including spatial planning and environmental protection. The discussion will highlight innovations that open a new chapter in the development of RES infrastructure.

Panel 6: Cogeneration Plants – Sustainable Energy Models in Practice
Decentralized energy models based on cogeneration are gaining importance, especially within local communities. The panel will explore biogas, digestate, and biomass-based cogeneration, including the concept of biomethane injection into the grid. Examples of the use of alternative fuels will be presented, along with the practical development potential of geothermal energy.

Panel 7: The Role of Local Government Units in RES Development
The rapid growth of RES projects demands the active engagement of local governments. This panel will address spatial planning challenges, the communal contribution system, and the inconsistencies in permit issuance practices. Participants will also discuss planned amendments to the laws on planning and construction, with special emphasis on regulating energy storage projects and ensuring a stable regulatory framework at the local level.

Panel 8: RES Development and Nature Conservation – Practice, Challenges, and Solutions
How can the rapid development of renewable energy be harmonized with the protection of biodiversity and natural values? This panel will tackle the applicability of protective measures in practice, including automated bird protection for wind turbines, environmental impact assessments in revitalization processes, and the concept of acceleration areas—specifically designated zones for faster RES development with mandatory ecological safeguards. The discussion will shed light on how to align energy goals with the principles of sustainable development.

The conference will bring together all the key stakeholders in the transition to cleaner energy

RES Croatia

Realized projects
in numbers:

250 MW of
solar power
plants

66 MW wind
power plants

30 MW
CHP and gas
power plants

Where you see the numbers,
we see the way to save

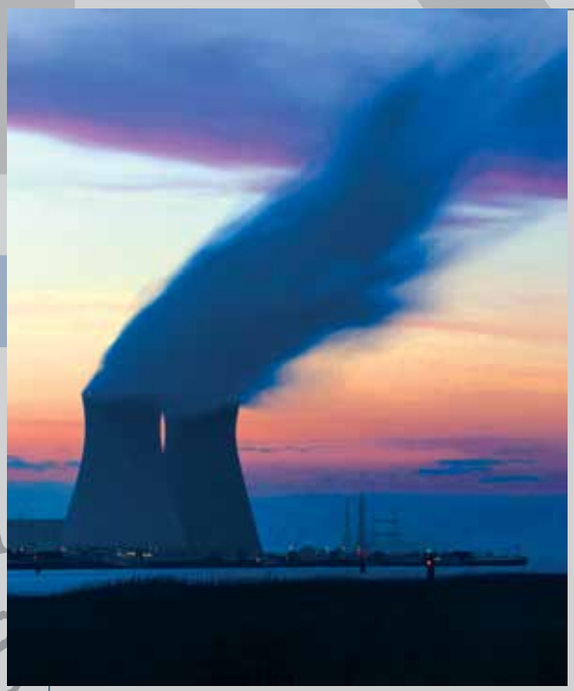
- Conducting preliminary, short, and detailed energy audits
- Preparation of feasibility studies for the introduction of energy technologies and energy efficiency measures
- Creation of feasibility studies with conceptual design
- Development of projects for obtaining permits and contractor projects for the construction and use of renewable energy sources
- Consulting and obtaining all conditions, consents and permits for RES, as well as preparation of all types of project documentation (conceptual design, preliminary design, main design, and as-built design)
- Consulting in preparing and introducing energy management systems in industrial companies and at the local level (municipalities and cities)
- Creation of business plans, investment studies and/or financial and economic analyses

More than 500 companies
in Serbia and the region
have achieved their energy goals
with our help

For the best energy solution, rely on our team for design, consulting and obtaining all documents

Ceefor

Bulevar oslobođenja 103, 11010 Belgrade
+381 11 39 62 359, +381 11 77 04 566
info@ceefor.co.rs
www.ceefor.co.rs



FINLAND DEVELOPS THE MOST ADVANCED RADIOACTIVE WASTE DISPOSAL SYSTEM

Finland has recently completed a trial operation of its nuclear waste encapsulation facility, aiming to establish a safer and longer-lasting method of storing high-level radioactive material until its radioactivity decays to a safe level over several decades. This is one of the most advanced solutions in nuclear waste management, and its successful implementation could serve as a model for other countries facing the same challenge.

What is Encapsulation and Why It Matters

Encapsulation is a technological process in which high-level radioactive waste, such as spent fuel rods from nuclear reactors, is hermetically sealed in specially designed containers resistant to corrosion and mechanical damage. These containers are then transported and placed in deep geological repositories located in stable rock formations at great depths. This process aims to isolate radioactive material for thousands of years, until radiation levels drop to a safe threshold.

Finland's encapsulation facility is part of a broader complex dedicated to the final disposal of nuclear waste. Once final disposal begins, spent nuclear fuel will be transported from temporary storage to this facility, where the containers will be transferred to underground repository tunnels, at depths between 400 and 450 meters, and placed into specially designed deposition holes lined with bentonite clay, which provides an additional barrier against potential radioactive leakage, as explained by World Nuclear News (WNN).

Milica Vučković

JAPANESE RESEARCHERS DEVELOP PLASTIC THAT DEGRADES IN SEAWATER WITHIN A DAY, RETURNING PHOSPHORUS AND NITROGEN TO NATURE

Japanese researchers have developed a revolutionary material that not only serves as an alternative to traditional plastic but is also significantly more sustainable than existing biodegradable materials. A team from the RIKEN Centre for Emergent Matter Science explains that this material is a type of plastic that completely degrades in seawater within a few hours, while it breaks down in soil in about 10 days.

What sets this plastic apart from conventional ones is what remains after its decomposition. Traditional plastics, even when degraded into microplastics, persist in nature for hundreds of years and pose a serious threat to the environment. Microplastics can be extremely hazardous to living organisms.

In contrast, research on this innovative plastic has shown that, upon decomposition in soil, it releases phosphorus and nitrogen, which act as natural fertilizers for plants. This groundbreaking plastic employs supramolecules consisting of molecules held together by weak bonds. Thanks to this structure, the bonds break easily, allowing the plastic to quickly revert to its basic form—a monomer that can be reused.

During production, the team combined two simple monomers: sodium hexametaphosphate, commonly used in food additives and fertilizers, and guanidinium sulfate, which can be easily derived from natural raw materials. When these monomers are mixed in water at room temperature, they form two layers—a liquid and a gel-like one. Upon drying the gel, a glassy, transparent plastic is obtained. Although the plastic is fire- and heat-resistant, when it comes into contact with saltwater, it breaks down into its monomers within just a few hours.

However, if greater durability in marine conditions is required, it can be coated with an environmentally friendly waterproof film.

Katarina Vuinac

Photographs: (left) Unsplash/Frederic Paulussen; (right) Unsplash/Naja Bertolt Jensen

TURKEY'S SOLAR AND WIND POTENTIAL ON THE RISE

The combined share of wind and solar energy in Turkey's electricity generation reached 18 percent last year, according to Ember's Turkey Electricity Review 2025, published for the fourth consecutive year, which analyzes electricity generation and consumption data.

In 2024, solar electricity generation in Turkey increased by 7.3 TWh, representing a 39 percent jump compared to the previous year. This one-year growth nearly reached the entire solar production level of 2018 (7.8 TWh).

The report reveals that the key factor enabling this leap was the opening of pathways for the construction of self-consumption solar power plants. The 7.3 TWh increase in solar production accounted for 32 percent of the total increase in electricity generation.

The highest output was recorded in June, when 3.2 TWh was produced. The share of solar energy in Turkey's electricity generation reached 7.5 percent in 2024, compared to 5.7 percent in 2023.

"Compared to the 20 European countries with the highest electricity consumption, Turkey in 2024 surpassed Switzerland in terms of solar energy share but remained behind Romania. Romania doubled its solar share from 3.9 percent in 2023 to 7.8 percent in 2024", the report states.

Slowed Growth in Wind Energy

Wind electricity generation grew by only 5 percent between 2022 and 2024, while capacity increased by 13 percent. Due to the slow construction of new wind farms and growing electricity demand, the share of wind power in total production showed only marginal growth, reaching 10.7 percent in 2024, up from 10.6 percent in 2023.

Nevertheless, Turkey still outperforms Norway, Italy, and France regarding the share of wind energy in electricity generation in 2024.

Jasna Dragojević

NEW GENERATION OF SOLAR CELLS – FULLY RECYCLABLE AND ENVIRONMENTALLY FRIENDLY

Researchers at Linköping University in Sweden have developed a revolutionary method for recycling next-generation solar cells. This innovation, published in the journal Nature, could help solve the problem of electronic waste and significantly advance the sustainable energy transition.

Unlike traditional silicon panels, which typically end up in landfills after their service life, the new perovskite solar cells can be recycled entirely, using only ordinary water as a solvent. Even more impressively, the recycled cells retain the same efficiency as the original ones, up to 25 percent of solar energy converted into electricity.

What Are Perovskite Solar Cells and Why Are They Superior?

Perovskite solar cells are a type of photovoltaic cell made from perovskite materials. They are known for their unique crystal structure, which is suited for high-efficiency conversion of sunlight into electricity. These cells are lightweight, flexible, and transparent, making them suitable for use on a variety of surfaces—from traditional solar panels to windows and even textiles.

Unlike silicon-based solar cells, which require high temperatures and complex manufacturing processes, perovskite cells can be produced more cheaply and with lower energy consumption. They also have the potential to perform better under low-light conditions, making them ideal for diverse climates.

A Revolutionary Recycling Method – Without Harmful Chemicals

Current recycling methods for perovskite cells rely on toxic solvents like dimethylformamide, which are hazardous to the environment and human health. However, researchers from Linköping have developed an innovative approach that uses water as the only solvent.

Their method allows for the careful disassembly of solar cells in water, during which all key materials—including glass layers, electrodes, perovskite layers, and charge transport layers—can be reused in new cells without performance loss.

Milena Maglovski

Photographs: (left) Thomas Richter (right) Unsplash/Naja Bertolt Jensen

UNDER PRESSURE FROM THE AUTOMOTIVE INDUSTRY – EU REVISES 2025 ELECTRIFICATION TARGETS

Under one of its transport sector regulations, the European Union set a binding target to reduce average CO_2 emissions from new cars by 55 percent by 2030 compared to 2021 levels. However, the same regulation also included a specific interim target for 2025 to reduce CO_2 emissions from new passenger cars and light commercial vehicles. This 2025 target has recently been revised due to mounting pressure from the automotive industry.

Weakened 2025 Targets

In early March 2025, the European Commission announced a decision to relax the emission reduction targets for 2025 concerning new passenger cars and light commercial vehicles. The new approach introduces a more flexible emissions monitoring mechanism. Rather than requiring manufacturers to meet the 2025 target within that calendar year strictly, they are now allowed to achieve the goal based on a three-year average of emissions, covering the period of 2025, 2026, and 2027. This means that if a manufacturer fails to meet the prescribed limits in 2025, it will have two more years to make up for the shortfall, provided that the average emissions across the three years remain within the limits set initially for 2025.

This decision, part of the broader Automotive Industry Action Plan, follows intense lobbying from car manufacturers who have warned of the challenges in meeting stringent environmental standards, particularly in light of the recent slowdown in electric vehicle sales. The situation has also led to factory closures and job losses among traditional car and parts manufacturers across Europe.

Nevertheless, the long-term goals for 2030 and 2035 remain unchanged, including the plan to reach zero-emission new vehicles by 2035. The short-term relaxation has sparked mixed reactions. While some believe that the additional time will give the industry space to adapt and invest in emission-reduction technologies, rather than paying penalties, others warn it could delay the shift to electric mobility.

Milica Vučković

WHAT HAPPENS WHEN NEARLY AN ENTIRE COUNTRY LOSES POWER – CURFEW FOR CHILE

Chile experienced one of the most severe power outages in the past decade when, on the afternoon of February 25, 2025, the national electrical grid suddenly collapsed, cutting off power in more than 90 percent of the country, including the capital, Santiago.

Millions of citizens were left without electricity for nearly nine hours, causing traffic chaos, hampering emergency services, and forcing the temporary closure of the metro and numerous stores.

The government quickly declared a state of emergency and imposed a curfew. All major hospital centers and prisons had backup generators, which helped avoid a total collapse. However, international media reported that Santiago's metro, used daily by over two million passengers, had to evacuate passengers from trains and suspend operations.

In many areas of the country, people were trapped in elevators. Nearly all operations in banks and financial institutions were halted, sparking concerns about potential economic losses.

According to official data, power was restored to around 90 percent of households in the early hours of Wednesday, February 26, though some regions remained without a stable electricity supply.

As the country awaits an official report, many believe this incident may prompt a reassessment of the current privately managed energy model and lead to greater state investment in grid security.

Milica Vučković

Photographs: (left) Unsplash/Lenny Kuhne; (right) Unsplash/Matthew Henry

DROP IN RARE EARTH IMPORTS TO THE EU – A SHIFT IN SUPPLY STRATEGY?

In 2024, the European Union imported 12,900 tons of rare earth elements, marking a 29.3 percent decrease compared to the previous year. At the same time, exports remained relatively stable at 5,500 tons, down just 0.8 percent. These figures from Eurostat suggest a gradual restructuring of a market known for its high supply risk.

Despite their name, rare earth elements—named after their oxides—are not truly rare in the Earth's crust. However, economically viable concentrations occur in only a few regions. Through the new Critical Raw Materials Act, the EU aims to diversify imports, boost domestic processing and recycling, and secure a stable supply chain to support the green and digital transition.

Rare earth elements are essential to modern technologies. They are used in green energy, particularly in wind turbines, batteries, and magnets for electric vehicles; in smart devices such as screens, speakers, and vibration motors in phones and laptops; in medicine for MRI contrast agents, laser scalpels, and specific cancer treatments; and in aerospace and defense technologies.

However, securing a supply of these metals poses significant challenges. More than 60 percent of global mining and over 80 percent of processing occurs in China, creating a high geopolitical risk.

According to Eurostat data, China remained the EU's largest supplier in 2024, delivering 6,000 tons or 46.3 percent of total imports. Still, its market share gradually declines as the EU ramps up diversification efforts. Russia ranked second with 3,700 tons (28.4 percent), followed by Malaysia with 2,600 tons (19.9 percent). The drop in China's share aligns with the goals of the Critical Raw Materials Act, which came into force on May 23, 2024. The Act sets targets for 2030: at least 10 percent of demand to be met by domestic extraction, 40 percent by EU-based processing, and 25 percent through recycling.

This group includes 17 metals crucial to high-tech applications—from magnets in electric vehicles and wind turbines to laser scalpels and satellite navigation systems.

Energy Portal

SOCIAL MEDIA AS A TOOL FOR SPECIES MONITORING IN THE AGE OF CLIMATE CHANGE

Climate change also affects the range shifts of numerous species, which are typically documented through databases such as the Global Biodiversity Information Facility (GBIF). However, in recent times, rapid range changes have become difficult to track, making alternative data sources, such as social media, increasingly significant.

The habitats of many species are shifting, and these changes are generally monitored through formal tracking and research systems. However, these methods can struggle to detect rapid changes and may overlook urban areas.

A study led by the University of Exeter demonstrated the usefulness of social media. The study analyzed posts about Jersey tiger moths on Instagram and Flickr. Instagram posts revealed that these moths were unexpectedly common in cities. The researchers also considered including data from Twitter and Facebook, but could not find enough geolocated and verified images of the Jersey tiger moth (JTM) during the study period.

"Wildlife research is usually conducted in rural areas, so its data doesn't always reflect the vital importance of cities and urban environments. Our study shows that many people in towns and cities express interest in wildlife, which has the potential to strengthen their connection to nature," said Niall Stevenson, who led the study.

Data on JTM were collected using both GBIF and social media, based on user-uploaded photos and descriptions from the period 2000 to 2018, as these were the years during which comparable environmental data could be gathered and JTM was sufficiently sampled (at least 50 occurrences per year).

Nonetheless, scientists emphasize that social media cannot replace traditional monitoring methods.

Jasna Dragojević

Photographs: (left) Unsplash/Alexandre lallemand; (right)) Unsplash/Camilo Jimenez

TWO TREES FOR EVERY CHILD – A LOVE THAT GROWS IN NATURE

The energy brought forth by the birth of pure love has the power to travel for miles. For every love that begins to bloom with the birth or adoption of a child in Wales, two saplings simultaneously start to grow—one on Welsh soil and the other under the African sky. This symbolic message of the unbreakable connection between people and nature began its journey in 2008. Since then, thousands of trees have grown alongside generations of children.

The Plant! Program

More than fifteen years ago, the Welsh Government launched an initiative called Plant!, with the idea that for every child born or adopted in Wales, a tree would be planted in the country. The initiative, run by the government body Natural Resources Wales (NRW), lasted until 2023.

To learn more about this program, I visited the official website of the Welsh Government and found some fascinating details. The initiative was carried out automatically, with no need for parents or guardians to register. Once a tree was planted, a certificate was created and sent to the address of each child. Interestingly, this paper was environmentally friendly and made from sustainably managed forests. Along with the certificate, families received a letter with information about the tree's location so that they could follow its growth. In addition, the trees were not planted at random locations across Wales, but in specific areas that together formed new woodlands.

The Planting Continues

The charity Size of Wales, which works on reforestation and climate action, joined the Plant! program. Before continuing the story, it's important to note that this organization pays special attention to partner countries, such as Uganda, in carrying out its actions. This is important because in 2014, the Plant! program was expanded so that for every tree planted in Wales, another was planted in Uganda.

Size of Wales took over the implementation of this part of the program, which is why every child born or adopted in Wales now receives two trees. Although the government program ended in 2023, the organization has continued it to this day. Certificates with tree location details are particularly interesting when it comes to the trees planted in Uganda, considering they are located on another continent, thousands of kilometers away.

The Broader Mission of Size of Wales

If we look more closely at the name of the organization—Size of Wales—we'll notice that it means the size of Wales. This is no coincidence. The symbolism in the organization's name reflects its core mission: to protect and restore tropical forests worldwide, across a total area equal to the size of Wales.

Uganda holds a special place in the heart of this organization, given that it has one of the highest deforestation rates in the world. Data shows that between 2001 and 2020, Uganda lost nearly 920,000 hectares of trees. If this trend continues, Uganda could lose its entire forest cover by 2040.

Katarina Vuinac

Photograph: Unsplash/Syahrin seth

SUSTAINABLE MOBILITY ROOTED IN INNOVATION

Foton, a global leader in commercial vehicles with an innovative approach to sustainable mobility, showcased its latest advancements at the Eco Forum in Herceg Novi and the Belgrade Car Show.

The Foton eBus won the prestigious Vehicle of the Show award, reaffirming the company's dedication to innovation, sustainable transport, and brand recognition in the electric vehicle (EV) market.

During the exhibition, Foton attracted significant attention from visitors and industry professionals alike. The eBus demonstrated its advanced design, energy efficiency, and environmental advantages over traditional bus models. This recognition of quality is yet another indicator of the company's global strategy to contribute to the development of sustainable mobility and the reduction of greenhouse gas emissions.

"Visitors to Foton's booth had the opportunity to explore advanced charging solutions developed in partnership with Bexenergy. These solutions include intelligent charging systems that enable fast and efficient battery replenishment, optimize energy consumption, and help reduce operational costs for EV owners," Foton representatives stated.

Their vision of sustainable transport is based on a combination of innovative technology, high performance, and reliability. For years, Foton has invested in research and development to make the electrification of commercial transport the norm rather than the exception. With a global presence in over 100 markets, Foton can develop vehicles tailored to diverse user needs while maintaining environmental considerations as a top priority.

At the Eco Forum in Herceg Novi, the company presented several models reflecting this approach – two eView Grand models, along with the Tunland V9, Tunland V7, Tunland G7, and eAumark models. These vehicles exemplify modern transport solutions that combine cost-effectiveness, durability, and environmental friendliness. Featuring improved battery systems, higher efficiency, and reduced maintenance costs compared to conventional vehicles, Foton's models provide tangible benefits to companies seeking to modernize their fleets and lower their carbon footprint.

The event also served as an opportunity for dialogue with industry leaders, decision-makers, and partners shaping the future of sustainable transport, and participation in panel discussions.

Foton's models, such as the eAumark, prove that electric trucks are no longer just a concept for the future, but a real-world solution for companies aiming to optimize their operations.

Foton's presence at the Eco Forum in Herceg Novi is part of the company's broader strategy to position itself as a leader in sustainable transport in the region. The Serbian and Montenegrin markets are particularly significant.

Foton

Photograph: Bex

European Bank
for Reconstruction and Development

The European Bank for Reconstruction and Development

remains one of the **key investors** and partners in Serbia's energy transition process, with annual investments exceeding 800 million euros.

Kragujevac

is the first city in Serbia to enhance transparency in the development of local and urban plans through the **Be Part of the Plan platform** – an innovative tool that enables the citizens and businesses of Kragujevac to actively participate in shaping the city's urban development.

ABB

ABB A400, the latest product from ABB's portfolio, represents the pinnacle of engineering in the field of **electric vehicle chargers**. It delivers extremely high charging power with minimal losses, a seamless user experience, and advanced remote management options.

Sweden

The Embassy of Sweden in Serbia emphasizes that in Sweden, ecology is not just a policy but a way of life – from laws that protect nature to innovations in energy efficiency and the circular economy. Today, the country **recycles as much as 99 percent of municipal waste**, while the remainder is converted into usable energy.

acea
DRIVING MOBILITY FOR EUROPE

The European Automobile Manufacturers' Association

reports that battery electric vehicles accounted for **15 percent of the market share** in Europe in January 2025, marking a significant increase from 10.9 percent in January 2024.

Photographs (top) Pixabay/Lee Rosario; (middle top) *PRO – Lokalno upravljanje za ljude i prirodu;* (middle left) Unsplash/Ljubomir Žarković; (middle right) CEEFOR; (bottom) MT-KOMEX

The Serbian Association of Vehicle and Parts Importers

announced that 2024 was the **most successful year for new car sales** in the past five years, even surpassing the pre-pandemic period.

SRPSKA ASOCIJACIJA UVOZNIKA VOZILA I DELOVA

Life Is On Schneider Electric

Schneider Electric has launched the new **EVlink Pro DC fast charger**, designed for commercial and industrial facilities as well as vehicle fleets. This device enables fast, safe, and efficient charging, reaching up to 80 percent capacity in just 20 minutes.

MT-KOMEX D.O.O. ENERGY SOLUTIONS

The company MT-KOMEX began constructing the Solar Elektro solar power plant in Serbia at the end of February, on an area of 2.5 hectares, featuring **2,600 solar panels,** each with an individual capacity of 640 Wp. Once completed, the plant is expected to generate 2,335.4 MWh annually, reducing CO_2 emissions by 2,246 kilograms.

WV-International

announces that the **wind farms Alibunar 1 and Alibunar 2** will soon become a significant part of Serbia's energy sector, providing as much as 480 gigawatt-hours of green energy annually.

The Ministry of Transport of Montenegro

allocates funds each year to non-governmental organizations for the implementation of small--scale projects aimed at promoting green transportation. So far, more than **50 projects have been financed in this way, with more than 500,000 euros.**

Photographs: (top) Unsplash/Michael Fousert; (middle left) EV Link; (middle) MT-KOMEX; (middle right) Wikipedia/Vanilica; (bottom) Unsplash/Olga Brajnović

COMPLETE EV CHARGER OFFER WITH NEW SCHNEIDER ELECTRIC MODELS

The Future of Electrification is in Our Hands with the New Schneider Charge Range of Home EV Chargers

Today, transportation accounts for 23 percent of global energy consumption, and buildings for 26 percent. Accelerating the transition to electricity and using renewable energy sources is essential to achieving net-zero emissions.

By combining efficient EV charging solutions with software for managing power distribution, owners and managers can achieve sustainability goals, ensure reliability, optimize energy efficiency, and deliver a seamless user experience for EV drivers.

Fast Charger Designed for Commercial and Industrial Buildings

The new EVlink Pro DC fast charger is designed for commercial or industrial buildings and vehicle fleets.

Photographs: Schneider Electric

The EVlink Pro DC fast charger enables quick, safe, and efficient EV charging for buildings and fleets while supporting sustainability goals

It provides quick, safe, and efficient charging, allowing you to reach 80 percent charge in just 20 minutes.

The charging station combines energy efficiency with cost minimization while seamlessly integrating with energy management systems like EcoStruxure EV Charging Expert, offering intelligent distribution of available energy and real-time monitoring.

Key features of the new fast charging station:

- **Scalable power from 120 to 180 kW** and future-ready technology for easy upgrades and modernization.
- **Reliability** with independent certification, C4M corrosion protection, and operation in harsh conditions and extreme temperatures up to 50°C with no power degradation.
- **Enhanced built-in protection** and emergency stop button for safer operation.
- **Sensors for vibration and water ingress**, with real-time alerts in case of issues at the charging site.
- **Ease of use** with vehicle identification that automatically starts charging when a registered vehicle is connected, enabling dynamic charging of two vehicles simultaneously for maximum energy efficiency.

A Solution for Your Home

This new eMobility solution delivers a simple, safe, and intelligent charging experience in every home, featuring cutting-edge technology with maximum reliability.

Schneider Charge integrates seamlessly with the home's power management system and is designed to install easily in minutes. Additionally, this smart and robust station allows remote control via a mobile app to fully leverage electric vehicle charging capabilities.

Features of the home EV charger:

- **Quick installation** in just a few minutes
- **Reliable and functional:** Suitable for both indoor and outdoor use
- **Smart and cost-effective:** Full charging control via mobile app
- **Energy efficient:** Dynamic power management system to prevent overload

As more buildings and consumers generate, store, and use their own energy, the latest additions to Schneider Electric's portfolio — EVlink Pro DC and Schneider Charge — expand the company's comprehensive EV charging solution offering.

By completing its range of innovative solutions, Schneider Electric is preparing individuals and businesses for the future of electrification, creating a positive impact on the planet and future generations.

For more information, visit: www.se.com/rs

SET TREBINJE 2025

From March 19 to 21, 2025, the city of Trebinje hosted one of the most significant regional events in the field of energy – the Summit on Energy, Energy Efficiency, and Renewable Energy Sources, SET Trebinje.

This three-day event brought together leading experts, representatives of institutions, companies, and investors from the region and the world, offering a platform for exchanging knowledge, experiences, and visions for the future of energy in the Balkans.

Within seven thematic panels, participants discussed the most current challenges and opportunities in the sector, from energy transition and energy storage to supply security and the regulatory framework. Special attention was given to innovations and new financing models for renewable energy sources.

Lessons from the Power Grid Incident in the Region

In the panel dedicated to electricity transmission, a serious incident from June 2024 was analyzed, when the power system partially collapsed in

Photographs: SET Trebinje

Bosnia and Herzegovina, Montenegro, Albania, and Croatia. According to the European Network of Transmission System Operators (ENTSO-E) report, the first failure occurred in Montenegro due to contact between a transmission line and vegetation. The panelists emphasized that a series of low-probability events led to a chain reaction in the system and concluded that additional measures must be defined to reduce the risk of similar incidents in the future and improve regional cooperation and coordination.

PPA Agreements – A Key Tool for the Development of Renewable Sources

Special emphasis was placed on the importance of PPA agreements (Power Purchase Agreements) as one of the most important mechanisms for encouraging investment in renewable energy sources. At the panel titled "How Much Does My PPA Cost?", it was highlighted that these long-term contracts provide security for both producers and consumers by reducing market risks and ensuring price stability. According to estimates, by 2030, the EU is expected to have as much as 500 GW of new capacity operating under the PPA model. Positive trends have also been observed in Serbia and Croatia.

However, the introduction of the CBAM mechanism (Carbon Border Adjustment Mechanism) could pose a challenge for the regional market. Additional investments are necessary in system flexibility through battery storage, smart grids, and consumption optimization. The European Union is already directing subsidies in this direction, which will inevitably affect the countries of the Western Balkans as well.

Companies that recognize timely opportunities in green technologies can achieve multiple benefits – reducing costs, increasing competitiveness, and aligning more easily with the EU ETS (Emissions Trading System), thereby securing a more favorable position in the European market.

Administrative Obstacles and the Path to More Efficient Project Implementation

One of the panels during the final day of the Summit was dedicated to the administrative challenges that accompany the development of renewable energy projects. The panelists pointed out that the administration is overloaded with numerous immature and unserious projects, slowing down the permitting processes and realizing quality investments. A particular problem is the lack of trained staff in public institutions who could efficiently identify and support serious projects.

One of the conclusions of the panel was that it is essential to establish mechanisms for eliminating unserious projects at an early stage, as well as to strengthen administrative capacities. Interestingly, solar projects suffer more consequences due to this situation, while wind farms, which require a significantly longer time frame for realization (on average eight years), thereby automatically reject projects without a solid foundation.

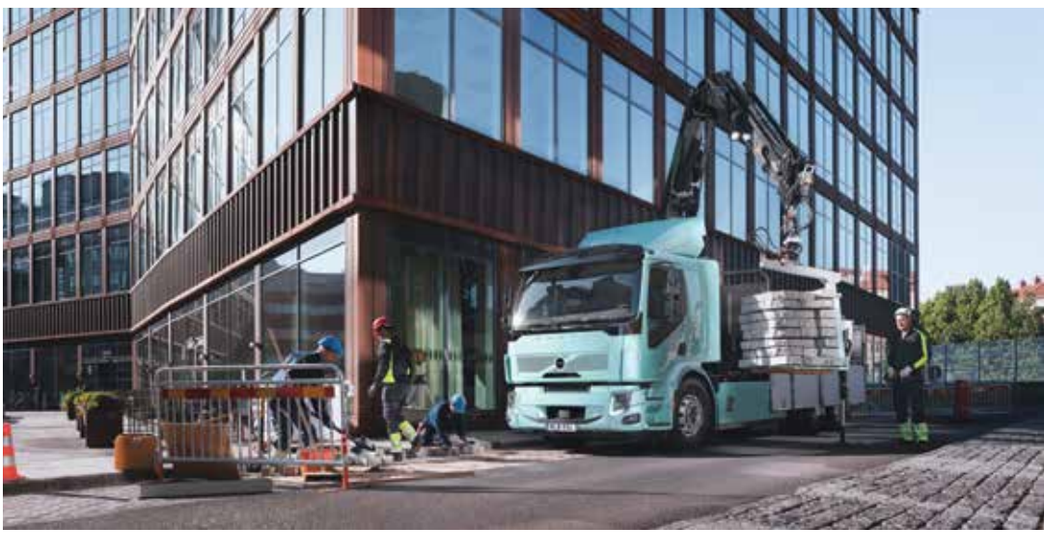
The need for investors to have access to key information, such as maps of suitable locations for RES power plants, expected permitting durations, and transparency in processes, was especially emphasized. One of the proposed solutions was the creation of a centralized digital platform that would consolidate all relevant information and enable faster and easier implementation of quality projects.

This three-day event brought together leading experts, representatives of institutions, companies, and investors from the region and the world

Prepared by Milica Vučković

VOLVO TRUCKS – THE MARKET LEADER IN ELECTRIC TRUCKS IN EUROPE AND NORTH AMERICA

Volvo Trucks is the leader in the heavy-duty electric truck segment (16 tons and above) in Europe for the fifth consecutive year. At the end of 2024, the company held a market share of 47 percent, and during the year, 1,970 electric Volvo trucks were registered in Europe. The five largest markets for Volvo electric trucks in 2024 were Germany, the Netherlands, Sweden, Norway, and Switzerland. Volvo Trucks also maintains a leading position in North America, with a market share of over 40 percent in the he-



Photographs: Volvo Trucks

avy-duty electric truck segment in 2024.

– We are proud to lead the transformation toward zero-emission transportation. We have an exceptionally broad range of electric trucks for regional, urban, and construction transport. Our next electric truck, which will soon hit the market, will be able to cover distances of up to 600 kilometers on a single charge, says Roger Alm, President of Volvo Trucks. – I want to thank all large and small transport companies who are pioneers and investing in electric trucks. I am proud that you have chosen Volvo as your partner on the path to zero-emission transportation. I also want to thank our dealers, suppliers, and colleagues within the Volvo Group.

Volvo Trucks, a company that began serial production of electric trucks in 2019, now has eight electric models in its lineup and has delivered more than 4,800 electric trucks to customers around the world so far.

– The presence of our electric trucks is growing rapidly. Our total fleet has surpassed more than 140 million kilometers in daily operations by customers worldwide. More and more electric trucks are being driven in new geographic areas, reducing emissions for our customers every day. It's great to see that, adds Roger Alm.

By 2030, we will need 40,000 fast chargers along European roads to support a total of 400,000 electric trucks

Electric Trucks Make Up Only 1.3 Percent of the Total Truck Market in Europe – Acceleration Needed

In 2024, electric trucks constituted only 1.3 percent of the total truck market in Europe. Wider adoption of electric trucks relies on several factors, including the expansion of the public charging network, increased electricity grid capacity, a more favorable total cost of ownership for transport operators, public procurement of zero-emission transport services, and a sustainable supply chain.

– To accelerate the transition to zero-emission transport, it's not enough to have electric trucks ready. According to our analyses, by 2030, we will need 40,000 fast chargers along European roads to support a total of 400,000 electric trucks. We also need more efficient economic policies to make the operation of electric trucks profitable for all transport companies, emphasizes Roger Alm. – We are in close dialogue with all stakeholders, because it is clear that much more needs to be done, and with a greater sense of urgency, to ensure an accelerated transformation.

Volvo Trucks

MORE EFFICIENT SUBSIDIES – THE PATH TO MASS TRANSPORT ELECTRIFICATION

To increase public interest in EVs, the key message is that electrification brings significant savings in energy consumption and maintenance

The use of electric vehicles (EVs) provides a double benefit—it protects the environment by emitting no harmful gases and allows savings for vehicle owners. A paradigm shift in mobility through education, innovative solutions, and integrating the latest technologies is transforming how organizations and individuals perceive mobility. This is precisely the mission of the 360°Mobility consulting agency, a member of the National eMobility Cluster within the Chamber of Commerce and Industry of Serbia.

Serbia's EV subsidy system has been recognized as a good practice on the path to decarbonizing transport, but there is room for improvement. The current subsidy model treats all electric vehicles equally, despite significant differences in their segments and price categories.

"Subsidized EV procurement should focus on mass mobility, that is, more affordable electric vehicles, instead of equally incentivizing the purchase of premium models. Introducing price brackets into the subsidy system—for example, for vehicles priced up to 50,000 euros and subsidies covering at least 10 percent of the gross value—could make the system more efficient," says Filip Mitrović, founder of 360°Mobility.

Photograph: Pixabay/Gerd Altmann

The current 5,000 euros subsidy applies exclusively to fully electric vehicles (excluding hybrid variants), which is a good policy. Still, insufficient marketing coverage and lack of transparency in fund allocation remain issues.

E-mobility is not just a story about vehicles but a part of a broader energy transition

Mitrović suggests that it would be beneficial to publicly disclose on a monthly basis how much subsidy funding remains available, to help potential buyers plan more effectively.

Subsidizing specific categories, such as light delivery vehicles, taxis, and shared mobility services, would also significantly reduce harmful emissions in urban areas.

While the application process has been simplified compared to previous years, Mitrović believes that, in the era of digitalization, further improvements could be made by enabling online applications.

Eliminating import duties on electric vehicles would significantly reduce prices and accelerate the transition to e-mobility. The current import duty in Serbia is 5 percent, directly increasing the cost of EVs and making them less competitive than internal combustion engine (ICE) vehicles. Good examples include Montenegro, which has reduced EV import duties to just one percent regardless of the vehicle's country of origin, and Bosnia and Herzegovina, which went a step further by entirely eliminating all customs duties on EVs through a regulation that is easier and faster to implement than a law—yet equally effective.

"In addition to subsidies and eliminating customs duties, Serbia could implement a progressive subsidy model—with higher incentives for vehicles with smaller batteries and lower prices, making EVs more accessible to a broader population. Additional tax incentives, such as lower registration fees, abolishing ecotaxes and other charges, would also be strong motivators.

Non-financial incentives, such as free parking and access to bus lanes (with clearly marked EV license plates), could further boost EV adoption," Mitrović explains.

To increase public interest in EVs, the key message is that electrification brings significant savings in energy consumption and maintenance costs. Supporting this is the fact that global research shows a minimal number of users switch back from EVs to ICE vehicles.

Additional incentives exist but need to be concretely defined and incorporated into legal frameworks.

Filip Mitrović

Founder of the 360°Mobility consulting agency

One key step is collaboration with local governments and educating public enterprises to support the development of charging infrastructure in combination with renewable energy sources. The idea is for chargers and solar panels to form part of the same system, ensuring sustainability.

"We should also subsidize the purchase of home (AC) chargers, as it has been shown that most charging occurs on slower chargers. The price of an AC charger with installation is under 1,000 euros, and charging an average EV that can cover 300 km costs less than three euros," Mitrović notes.

In addition to infrastructure development, the method of charging and billing is also an important aspect. Currently, EV charging in Serbia is billed by time spent at the charger, which is unfavorable for users. Mitrović believes it is essential to pass a regulation or law that would allow billing based on the consumed kilowatt-hours.

In conclusion, Mitrović emphasizes that e-mobility is not just a story about vehicles but a part of a broader energy transition. Serbia now has an opportunity to take a significant step forward in that direction.

Prepared by Jasna Dragojević

Photographs: (left) Pixabay; (Mitrović) coutresy of Filip Mitrović

A FANTASTIC 124,297 VISITORS AT THIS YEAR'S AUTO SHOW

This year's 56th International Motor Show and 17th International Motorcycle, Quad, Scooter and Equipment Fair "Motopassion" were visited by 124,297 people registered at the Belgrade Fair entry gates between March 20 and 26, 2025. This marks an increase of nearly 10 percent compared to last year's edition, which also set record numbers for this auto-moto fair event.

Thanks to this exceptional attendance, the Motor Show once again justified its status as the world's largest fair event in the automotive and related industries in March, one of the 11 largest international trade fairs globally this year, and one of only three international auto shows in Europe.

The event was held amidst continued global economic, energy, communication, technological, and market turbulences in the automotive industry, driven by geopolitical tensions, major technological shifts, and new business models. However, unlike previous years, there was a significant recovery in commercial performance, the return of standard fair discounts, and stockpiled vehicles ready for quick delivery. Visitors and prospective buyers were

Photograph: Belgrade Fair

additionally attracted by a richer selection of models than before, improved vehicle delivery times and availability, as well as favorable financial terms, better banking interest rates, and other benefits offered by a broader range of banking and insurance institutions.

Under the roofs of the Belgrade Fair, a historically high number of 257 exhibitors gathered, presenting 105 automotive and motorcycle brands with an impressive 180 innovations. As many as 51 car brands premiered 80 models, 12 light commercial vehicle brands introduced 27 premieres, and 42 motorcycle and ATV brands showcased 72 premieres. Brand representatives made every effort to present the latest offerings from the international market, especially new electric, hybrid, and plug-in hybrid models, as well as the latest generation of environmentally improved models with conventional powertrains.

As expected, exhibitors from Asia attracted considerable attention. This year, compared to the previous auto show, which hosted three Chinese exhibitors, there were 20. Particular interest was shown in the electric Fiat Grande Panda, a model of great importance not only for our domestic economy but also for the wider introduction of electric vehicles to the Serbian market and alignment with European standards. The same level of attention was given to the electric Citroen C3, whose production will soon begin at the Stellantis factory in Kragujevac.

Due to new spatial and organizational considerations, the exhibition space was partially redesigned: to accommodate increased interest from new brands participating for the first time, the format of the event was partially changed, and new exhibition halls were opened—Halls 2A and 2B (featuring Ineos, KGM, BYD Auto, BAIC, SWM, JAC, Cenntro, Avantier, Seres, N-moto, Jmev, and Chery EV, Foton Motors, Dongfeng, Victory, Baw, Dayun, and Yudo). Hall 1 was reserved for most standard brands. Premium brands were located in Hall 3 (BMW, Mini, Maserati, Audi, and Porsche), while the light commercial vehicle program was in Hall 3A. Hall 4 remained dedicated to "Motopassion", and Hall 1A and part of Hall 2B were allocated for the supporting industry and garage-service equipment.

This year's edition of "Motopassion" offered an exceptionally rich selection of motorcycles from all major global brands, including numerous premieres, new models, and equipment, with year-on-year market sales growth.

The breakthrough of innovations in the supporting industry and equipment segment also continued, especially among manufacturers of compatible and auxiliary equipment for environmentally advanced vehicles, charging stations for electric vehicles, and solar modules for automotive applications. The most prominent fair participants were financial institutions, insurance companies, professional associations, clubs, organizations, and specialized media. This especially applied to banks, leasing and insurance companies, which prepared favorable financial arrangements, loan conditions, benefits for additional vehicle equipment, extended warranties, and servicing terms in cooperation with vendors and distributors.

The Belgrade Fair did an excellent job on the organizational front and, together with its partners—the Serbian Association of Vehicle and Parts Importers, the Association of Road Vehicle Manufacturers of Serbia, and DDOR Insurance Novi Sad—proved to be a reliable and capable pillar of the fair industry on a broader international level.

The Belgrade Fair

FUTURISTIC BEEHIVE – URBAN BEEKEEPING FROM YOUR HOME

As silent guardians of life on Earth, bees maintain the balance of the ecosystem through their continuous work, pollinating plants that feed both humans and animals.

Their habitats are particularly endangered in urban environments, and it is entirely wrong to think that cities are not their place. Although these areas are filled with concrete, leaving space for these small but invaluable creatures is essential. In today's world, establishing harmony between people, bees, and nature presents a real challenge, but also an opportunity.

Belgrade is an example of a very urban area that might not seem like a place where bees could find a home. Nevertheless, it is precisely in this city that the startup Futuristic Beehive was founded, developing an innovative idea – remarkable hives adapted for homes, allowing bees to move freely outdoors, thus connecting urban life with nature. This startup, born out of a passion for beekeeping and technology, brought together a team of experts who believe in transforming beekeeping and introducing new solutions to a traditional field, enabling bees to survive in cities.

Mina Marjanović, a team member responsible for marketing, brand development, and customer relations, discussed the project's vision in more detail.

"Today, with a team that believes in this idea and with growing interest from users, we believe we are on the right path towards transforming beekeeping and opening the doors to a new generation of beekeepers, who will use technology as a tool to advance this craft," said our interviewee.

The Futuristic Beehive also enables observation of all processes within the bee colony and the safe collection of bee products (pollen, propolis, and honey) without the need for additional equipment. All elements are integrated into the

Photographs: Futuristic beehive

product body except for an external inhalator intended for apitherapy.

The core idea is to enable all users, not just beekeepers, to access fresh bee products and the complete process of API inhalation, making it available to people to boost their immune systems, reduce inflammation, and improve respiratory health.

In this system, people are not passive observers but active participants. Through crucial but straightforward activities such as feeding and prevention, people directly contribute to the conservation of bees.The hive is mounted on a wall like an air conditioner, allowing bees to move freely towards nature.

"It was created with the intention of offering a true experience, where users not only watch bees go out and return to the hive but also intuitively feel how their daily lives are aligned with natural rhythms, encouraging them to feel like active participants in nature conservation, while at the same time bringing health and well-being into their homes," Marjanović highlights.

The orange design with a golden frame was conceived to represent a blend of functionality and visual appeal.As Mina explained, the orange and golden shades evoke solar energy, warmth, and a sense of luxury.

Such an elegant and modern appearance brings innovation into everyday spaces, transforming them into a true oasis of peace and offering access to a personal mini-pharmacy.

Traditional methods of beekeeping rely on manual collection of bee products, physical inspection of hives, and manual analysis of the bee colonies' condition, which are more demanding. In contrast, the Futuristic Beehive offers numerous advantages, making beekeeping more efficient and safer.

This hive is specially designed for raising nuclei—small bee colonies, which are more protected and allow easier colony development.

Urban beekeeping creates a sustainable synergy between people and nature. We care for the bees by providing them with a safe habitat, and they, in return, care for us through pollination and the production of honey, wax, and other bee products that offer numerous benefits for humans.

Bee breeding suitable for everyone

These hives are suitable for beekeepers of all ages, including those who have little experience or face physical limitations.

Speaking about the cost-effectiveness of the technology, our interviewee emphasised that beekeepers can now manage the colony with less effort, with the opportunity for deeper education through monitoring all bee processes, saving both time and energy.

Additionally, the risk of losing a colony due to bad weather, disease, or other disasters is reduced, which has often been a problem in traditional beekeeping.

"Innovations like this not only make life easier for beekeepers but also encourage young people to enter the world of beekeeping," said Marjanović.

This approach makes beekeeping modern, educational, and exciting, opening the door to new generations who wish to engage in sustainable beekeeping.

Training is not demanding, as the technology is simple and intuitive. Using the hive and the inhalator does not require special technical skills.

Each hive is designed to be easy to maintain, and beekeepers can access all the necessary information through the manual.

"In 2024, we had our first test users, whose feedback was essential for further development. Many lost their fear of bees after their first contact with the product. We actively worked on improving the efficiency

of the technical solution, remaining ready to listen to every criticism and piece of feedback that could bring our product closer to the needs of end users. There are many interested parties, especially beekeepers, offering bees, education, and maintenance services," our interviewee explained.

Advancing the technology

Although their technology has made a significant innovative leap, the team's plans are focused on further improving the product and expanding into new markets. One of the main directions for development is enhancing existing functions and introducing a honey dispensing system.

Once implemented, this system will allow easier and more efficient access to honey, simplifying the beekeeping process for users.

In addition, they are working on further modifications and innovations that will contribute even more to the satisfaction of end users.

They have also set themselves a major goal – expansion into large markets such as New Zealand and Switzerland.

This is driven by a desire to create a global community of beekeepers who use their innovative hives and products to contribute to sustainable development and the preservation of natural resources.

Prepared by Katarina Vuinac

SLOVENIAN E-MOBILITY SOLUTIONS CONQUERING THE WORLD

The Slovenian Metron Institute is one of Europe's leaders in electric vehicle innovation, actively shaping the future of e-mobility. Their commitment to research and development has produced a range of advanced solutions for sustainable mobility and secured their place among key players in the global EV market.

Metron further strengthened its leading position in 2015 during the world's largest EV rally, the Wave Trophy, when its electrified Mazda 5 broke a record by covering 824 kilometers on a single charge.

"One of our greatest achievements was converting the Mazda 5 into a fully electric vehicle. This car set two world records – in 2014 it traveled 745 kilometers without charging, on the route from Bled to Dubrovnik, and a year later it reached a range of 824 kilometers in Germany at an average speed of 72 km/h," proudly states Andrej Pečjak, director of the Metron Institute.

One of our greatest achievements was converting the Mazda 5 into a fully electric vehicle

Photographs: Metron

Electric Vehicle Sales in Slovenia

While around 8,000 electric cars were registered in 2021, accounting for 0.7 percent of the total vehicle fleet, by 2022 this number had increased to almost 13,000, reaching a one percent share. The trend of accelerated adoption continued into 2023, when 3,989 new electric cars were sold in the first eleven months, almost double the number sold in the previous year. However, in 2024, sales of new electric vehicles dropped significantly by around 38 percent compared to the previous year, clearly indicating the need for additional incentives for the purchase of battery-powered vehicles.

In addition to developing innovative technologies for electric vehicles, Metron experts are also focused on energy-sustainable solutions. One of their most significant projects includes smart chargers and advanced Vehicle-to-Grid (V2G) systems, which allow not only vehicle charging but also the return of surplus energy to the grid when needed. This concept marks an essential step toward more efficient renewable energy management and greater power system stability.

One of the main challenges of renewable energy sources, such as solar panels and wind turbines, is their instability. While energy storage systems are expensive, Metron offers an innovative solution – microgrid cells that can operate independently or as part of a wider power network.

Electric vehicles play a crucial role in this process, as they can serve as mobile energy storage units, optimizing consumption and reducing battery costs. Recreational electric vehicles, such as the Renault Twizy, golf carts, and scooters, which are primarily used in summer and could contribute to storage capacity in winter without additional investment, have exceptional potential.

Currently, Metron is working on a revolutionary product – a smart portable charger that looks like a regular charging cable but enables intelligent energy management and optimized charging. This innovation opens the door to even more efficient and practical use of electric vehicles.

Challenges and the Future of E-Mobility in Slovenia

Although Slovenia was once among the leading European countries in EV adoption, it now faces serious challenges. Andrej Pečjak points out two main issues – currently, Slovenia has a regulated gasoline price (1.5 euros per liter), while electricity prices are unregulated and exceed 20 euro cents per kilowatt-hour. Pečjak warns that due to these trends, Slovenia could become a dumping ground for old diesel cars, as a large number of diesel vehicles are expected to still be in use even in 2040.

Andrej Pečjak
Director of the Metron Institute

However, Pečjak sees a clear path forward. Key factors for the advancement of e-mobility include the development of charging infrastructure, the right to charge for apartment building residents, favorable electricity tariffs for EV charging during specific periods, and the construction of DC fast-charging stations along highways.

"The two most important things are affordable electric cars and low-cost charging. Once we ensure those, everything else will follow naturally," concludes Pečjak.

With innovations such as smart charging, V2G technology, and mobile energy storage, Metron continues to lead the global transition toward a sustainable future. While Slovenia may currently be lagging in this process, thanks to pioneers like Metron, e-mobility in the region is bound to gain new momentum.

Prepared by Milena Maglovski

LOW DEVELOPMENT OF E-MOBILITY IN BOSNIA AND HERZEGOVINA

While European countries have long since embarked on the development of e-mobility, Bosnia and Herzegovina continues to lag behind the Western region in this process. Nevertheless, despite slower progress, certain advancements are visible. Are these steps sufficient, and in which direction is Bosnia and Herzegovina heading in terms of e-mobility? Anela Karahasan, Secretary of the Association of Authorized Representatives and Car Dealers at the Chamber of Commerce of the Federation of Bosnia and Herzegovina, shared her insights.

She emphasizes that Bosnia and Herzegovina is significantly behind Europe regarding the number of registered electric vehicles, infrastructure development, available incentives, and legal regulations.

"In BiH, subsidies still exist only at the Federation level, with no concrete strategy or incentive measures for development across most administrative levels. Despite this complex system, some progress has been made in a short time, but not enough. This situation allows us to observe examples of good practices and ways to overcome challenges from EU countries and the region, and to respond quickly by introducing tax relief, incentives, infrastructure development, and improvement of urban transport," Karahasan stated.

The Association for E-Mobility and the Association of Authorized Representatives and Car Dealers at the FBiH Chamber of Commerce introduced subsidies to motivate individuals and legal entities to purchase environmentally friendly vehicles. They followed good EU practices, so incentives were available for electric cars, plug-in hybrids, and hybrid vehicles in the first two years. However, hybrid vehicles were excluded

Photographs: (top) Pixabay/政德 吉田; (middle) Association of Authorized Representatives and Car Dealers at the Chamber of Commerce of the Federation of Bosnia and Herzegovina

from the incentive program last year, leaving only electric vehicles (an incentive amount of 10,000 BAM) and plug-in hybrids with CO_2 emissions below 50 g/km (7,000 BAM).

"There is a clear increase in interest, especially among legal entities, due to the savings they achieve, particularly in electricity consumption compared to fuel costs for internal combustion engine vehicles. Subsidies are necessary and very important, especially in the initial stages of e-mobility development, but they are not sufficient. In addition to subsidies, a range of other incentives is needed, particularly in terms of infrastructure, because the growth in the number of vehicles increases the need for more chargers, high-speed DC chargers, their availability, and the supporting infrastructure," Karahasan stressed.

Among other incentives, she highlights the suspension of customs duties on importing electric vehicles and the reduction to five percent for hybrid vehicles. These incentives have been active for several years at the BiH level, while subsidies, unfortunately, have only existed in the Federation.

When it comes to the infrastructure needed to support the number of electric vehicles, the main obstacles are the complex administration in most cantons in FBiH and the connection cost, which often serve as a discouraging factor.

"We can say that there is a significant number of private, semi-public, and public AC charging stations in BiH. What is lacking is a network of DC chargers along highways and busy main roads. For example, so far on the partially completed international Corridor Vc highway, there is only one DC charger," she explained.

While almost half of all new urban buses in the EU in 2024 were zero-emission, BiH is only taking its first steps in this direction.

The Association for Electromobility, along with its member organizations and the Ministry of Foreign Trade and Economic Relations of BiH, initiated the suspension of customs duties on importing electric buses. They emphasize the need for parallel infrastructure development, which requires financial incentives.

The Association includes over 50 entities from both public and private sectors, spanning the automotive industry, energy, electrical engineering, transportation, environmental protection, oil and fuel distribution, as well as other industries. According to Karahasan, this sectoral diversity and expertise make the Association strong and unique compared to similar organizations.

The Association's key topics include customs suspension, subsidies, infrastructure, and promotion, each with numerous subtopics.

"In addition to bringing together a large number of members from different branches of the economy, the greatest success of the E-Mobility Association is undoubtedly the initiation of legal and incentive frameworks for e-mobility in BiH. Notably, we highlight the adoption of customs suspension on electric vehicle imports at the national level, the introduction of subsidies for the purchase of EVs in the Federation, achievements in individual cantons in easing charger installation procedures—based on the Association's proposals," Karahasan concluded.

Prepared by Jasna Dragojević

The Association for Electromobility, along with its member organizations and the Ministry of Foreign Trade and Economic Relations of BiH, initiated the suspension of customs duties on importing electric buses

Photograph: Association of Authorized Representatives and Car Dealers at the Chamber of Commerce of the Federation of Bosnia and Herzegovina

A SOLAR RECIPE FOR LOWER BILLS

In a time overwhelmed by challenges—both globally and locally—entrepreneurs and industrialists are finding it increasingly difficult to identify efficient ways to increase the well-known top line of their business, i.e., revenue.

However, rather than focusing on complaints about difficult business conditions, uncertainty, and an increasingly unfavorable environment compared to previous years, some have decided that now is the right time to focus on the consumption their business generates.

Through a simple analysis of input costs—an unavoidable part of any production process—they come to a key conclusion: it is almost impossible to maintain profit margins and profitability without seriously reducing fundamental expenses, among which electricity consumption stands out.

In an era when the offer of renewable energy sources—especially solar solutions—is richer than ever, choosing the optimal system may not be simple. However, one thing is certain: business sustainability in turbulent times no longer lies in increasing revenue but in smart cost reduction.

Such an approach—focusing on savings through energy efficiency—was put into practice by the company Podrinje Komerc. After nearly a year of detailed analysis, calculations, and budgeting for an investment in their solar power plant, director and owner Ljubiša Žikić decided last fall that it was time to save—smartly.

Podrinje Komerc is a family-owned business with nearly two decades of experience in the production and processing of reinforcement steel. In its production process, the company consumed around 60 MWh of electricity per month, amounting to a cost of approximately 1.1 million dinars.

The company Pirke Solar, based in Belgrade, proposed a solution involving the installation of one megawatt of solar panels on the roof of the production hall, which will be implemented in three phases. The first phase alone, in line with the project plan, already yielded significant results: electricity consumption at the

Photographs: Pirke Solar

first facility was reduced by around 60 percent.

Even better results are expected during the summer months, when the days are longest and solar radiation is strongest—a saving of almost 80 percent is forecast, making this investment sustainable and highly profitable.

"Can it really be possible that a solar power plant can save me up to 80 percent on my electricity bill?" wondered Ljubiša Žikić, while studying the SolarEdge application and the experiences of other entrepreneurs across Serbia who had already entered the world of solar energy. It turned out that equipment quality makes a serious difference, regardless of roof type or orientation.

SolarEdge, one of the world's leading brands in the production of inverters and related equipment for solar power plants, collaborated with Pirke Solar to develop a custom solution for the entire Podrinje Komerc project. The goal was clear: establishing a new benchmark for the efficiency and profitability of solar power plants in Serbia's industrial sector.

In the first phase, 412 kW of capacity was installed along with 356 optimizers, which are a trademark of SolarEdge technology. The result came quickly: in March of this year, the power plant reached a record production of 33.2 MWh, accounting for almost a third of the factory's total monthly consumption.

"I can't wait for summer," Žikić said with a smile, while already planning the implementation of the second and third phases of the solar power plant on the roof of his facility. The goal is to achieve additional savings and position the company as one of the energy leaders in the industrial sector of Western Serbia.

Pirke Solar, with 100 percent domestic capital, has positioned itself over the past three years as one of the fastest-growing companies in Serbia's solar energy sector. It focuses on industrial buildings and large households. With over 120 successfully completed turnkey projects, the company is slowly but surely cementing its status as a leader in savings through renewable energy sources.

As the general importer and distributor of the SolarEdge brand for Serbia, Pirke Solar d.o.o. supplies top-quality equipment and actively develops new financing models for solar power plants, as well as solutions for quick and efficient installation and maintenance.

"Honestly, when clients ask us why our offer is slightly more expensive than the competition's, we always explain that quality comes at a price. But in the long run, investing in a system that lasts longer and delivers higher energy output pays off," explains Filip Simčeski, Director of Pirke Solar d.o.o.

Filip simplifies the equation with an old saying: "You get what you pay for." A cheaper solar power plant may seem more attractive initially, but it generates less electricity and has a shorter lifespan. After 25 years of operation, the higher-quality—albeit initially more expensive—system will prove far more profitable.

"We firmly believe that the cheapest solar power plant is actually the most expensive one! When a business owner finally decides to cover their roof with solar panels and start producing their own electricity, they want a system that generates as much energy as possible. And that's not achievable with just any equipment," adds Simčeski.

Ultimately, freedom of choice is what Pirke Solar emphasizes as a core value.

"Our job isn't just to sell equipment, but to clearly explain the differences between systems, offer honest and professional service, and ensure that every client—whether a factory owner or a household—knows they made the right decision. When we work that way, customer satisfaction is guaranteed," the Director of Pirke Solar d.o.o concludes.

Prepared by Milena Maglovski

HOW TO GET MORE ELECTRIC VEHICLES ON SERBIAN ROADS

The most important step for Serbia is the accelerated development of infrastructure

In 2024, Serbia achieved its best result in new car sales over the past five years, surpassing even the pre-pandemic period. Nevertheless, according to data from the Serbian Association of Vehicle and Parts Importers, the market is still dominated by used cars, which account for as much as 83 percent of total sales.

Regarding fuel type, petrol engines had the largest share among new cars sold in 2024, accounting for 46 percent, while hybrids, in all their variants, made up 32 percent of the market. Diesel vehicles comprised 19 percent, with the remaining three percent divided among alternative fuels – two percent for LPG and similar drives, and just one percent for electric vehicles.

"The share of fully electric vehicles stands at around one percent, meaning precisely 283 new passenger cars and 142 new light commercial vehicles were sold. Regarding hybrids, electrified vehicles also include plug-in hybrids, with over 2,000 units sold. Observing trends from 2019 to the present, sales have been consistently growing, but we are still significantly behind compared to the EU market, where fully electric vehicles account for 13.6 percent of total sales," said Boris Ćorović, Secretary General of the Serbian Association of Vehicle and Parts Importers.

In contrast, around 135,000 used passenger vehicles were imported into Serbia in 2024, with as many as 58,000 having Euro 3 and Euro 4 engines (produced between 2001 and 2010). This means that new vehicles comprised only 17 percent of total sales, while used vehicles accounted for the remaining 83 percent.

As for used fully electric vehicles, 964 were imported into Serbia in 2024, significantly exceeding the number of new electric cars sold. These figures clearly show that Serbian citizens still predominantly rely on used vehicles, often with older emissions standards. From an environmental perspective, it is concerning that imports are still led by older vehicles, which are among the biggest polluters, while the number of new cars remains considerably lower.

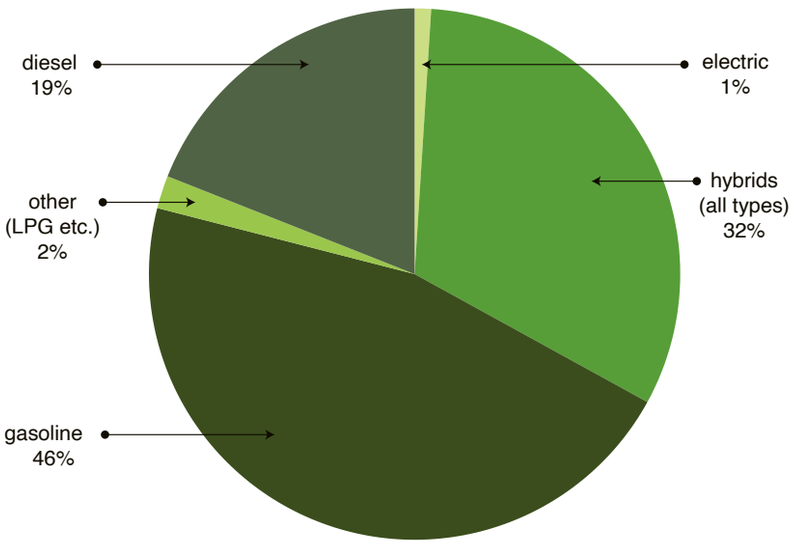
Electric Vehicles and Infrastructure Challenges

One of the main reasons for the low share of electric vehicles, according to Ćorović, is the insufficient number of charging stations. Serbia currently has around 200 public chargers, which amounts to just three chargers per 100,000 inhabitants, while Bulgaria has 24 and Croatia 32 chargers per the same number of residents.

Photograph: Unsplash/Michael Fousert

The most important step for Serbia is the accelerated development of infrastructure, as the European Commission has confirmed that 2035 remains the turning point when the sale of vehicles with internal combustion engines (diesel and petrol) will end within the EU

Boris Ćorović
Secretary General of the Serbian Association of Vehicle and Parts Importers



"The so-called ecosystem for electric vehicles is underdeveloped. A key segment of this ecosystem is the network of public chargers. Still, it also includes legal regulations, non-financial incentives, the resolution of battery recycling issues, and technical details such as introducing special registration plates and recording data in vehicle documents," Ćorović explains.

He adds that the arrival of new brands from Asia onto the Serbian market, the start of production of Fiat's electric model in Kragujevac, and the gradual decline in electric vehicle prices will all contribute to greater accessibility in the coming years.

In January this year, 1,482 new passenger cars and 284 new light commercial vehicles were sold. However, of the total number of imported vehicles, only 16 were electric. Ćorović points out that it is unrealistic to expect a significant increase in electric car sales during 2025, considering that the budget for subsidies for eco-friendly vehicles has remained at a similar level to 2024 (170 million RSD), which is considerably lower compared to 2023 and previous years.

"The most important step for Serbia is the accelerated development of infrastructure, as the European Commission has confirmed that 2035 remains the turning point when the sale of vehicles with internal combustion engines (diesel and petrol) will end within the EU. This means that after 2035, most new vehicles on our market will be exclusively electric, and we must adapt to this fact in time," warns Ćorović.

Proposed Measures to Increase the Number of Electric Vehicles

The Serbian Association of Vehicle and Parts Importers has proposed a range of measures to the relevant ministries to encourage the sale of electric vehicles in Serbia. Among the key proposals are the accelerated development and expansion of the charging network, toll payment relief, free parking, permission to drive in the yellow lane, and free access to sports and recreational zones.

Additionally, it has been proposed that delivery vehicles entering pedestrian zones should be exclusively electric, while the import of used cars with Euro 3 and Euro 4 engines should be suspended.

The introduction of special green number plates for electric vehicles and other measures that would contribute to the popularization of this environmentally friendly technology are also under consideration.

The Ministry of Environmental Protection has stated that, should interest in electric vehicles exceed the currently allocated funds, a way will be found to provide additional financial incentives.

Prepared by Jasna Dragojević

Illustration: Energy Portal; Photograph: courtesy of Boris Ćorović

TECHNOLOGICAL BREAKTHROUGH IN THE FIGHT AGAINST WILDFIRES

Until recently, wildfires were considered seasonal, mostly local phenomena, but over time, they have become a global crisis rapidly spreading under the influence of various changes. In recent decades, especially over the past 15 years, a record number of wildfires with devastating consequences have been recorded, severely impacting forest ecosystems, human lives, and biodiversity.

Human activity is often the cause of wildfires—from unattended campfires or discarded cigarette butts to the intentional burning of vegetation for urban development and agricultural expansion. Natural causes, such as lightning strikes, make up a much smaller share, but can be extremely dangerous when combined with drought, high temperatures, and strong winds, which accelerate the spread of fire. Additionally, due to urbanization and construction, people are increasingly settling and building on the edges of forests, increasing the risk of fires.

The most affected region in terms of wildfires is undoubtedly the western United States, which faces this problem between June and October, with the peak usually in August and September. However, even the beginning of 2025 brought terrifying scenes from Los Angeles. Canada is also among the countries most affected by the scale of wildfires, having lost several million hectares of forest to flames in 2023. The year 2024 fared no better, with hundreds of active fires at the same time. The situation is similar in the Southern Hemisphere, where Australia is most frequently impacted between December and March.

Artificial Intelligence as a Solution

In the search for new solutions, innovative projects are emerging, such as the SensoRy AI platform. This technology was developed by a young man from California, starting as a science fair project. Over time, it evolved into a system based on a combination of sensors for flame, smoke, and heat, along with infrared cameras and machine learning algorithms, which are now entering the testing phase in the field. Its goal is the early detection

Photograph: Pixabay/Ronald Plett

Serbia's situation is less drastic than in other parts of the world

of natural hazards and fire alerts in high-risk areas. As soon as the sensor detects a potential fire source, it alerts local firefighting services, helping to prevent major wildfires.

In addition, this could be a true ecological technology, as it doesn't stop at fire detection but could also be used for identifying other types of pollution, including methane leaks or water contamination. Thanks to real-time data processing algorithms, the system could detect a problem even before visible signs appear.

Wildfires are no longer just a local issue; any delay in addressing the problem leads to even more severe consequences. Projects like this one, which are attuned to science and technological advancement, can prevent catastrophic outcomes and help preserve forests, which are vital for life on Earth.

Record Forest Loss by 2023

Statistics published by Global Forest Watch provide a deeper understanding of the scale of the problem. In 2020, the world had 3.68 billion hectares of natural forests, accounting for about 28 percent of total land area. By 2023, a loss of 23.9 million hectares of natural forest was recorded for various reasons.

When analyzing wildfires specifically, the statistics reveal that between 2001 and 2023, 138 million hectares of forest were lost—an area roughly 15 times the size of Serbia. In 2023, the largest recorded forest loss occurred when fire consumed 11.9 million hectares, representing 42 percent of all tree loss that year.

Problems are also reported in Mediterranean countries such as Greece, Italy, Spain, and Turkey, where fires are increasingly difficult to control due to heat waves and strong winds. According to the European Forest Fire Information System (EFFIS), between 300,000 and 600,000 hectares burn annually in the European Union, and in 2023, half a million hectares were lost to fires.

Serbia's Situation Is Less Drastic Than in Other Parts of the World

From 2001 to 2023, Serbia lost an average of 154 hectares of forest annually due to fires, placing it at 94th on the Global Forest Watch ranking. While fires were responsible for just under 5 percent of tree loss in Serbia, experiences from other countries teach us that caution and preventive action are necessary to minimize the risk of fire outbreaks.

Every hectare of forest lost reduces nature's ability to absorb carbon dioxide, regulate temperature, and provide habitats for numerous species. That is why it is essential to recognize the seriousness of this issue and contribute to its resolution—through responsible forest management, fire prevention, and raising awareness of the importance of protecting natural resources. We can only reduce risks and preserve forests for future generations through joint efforts.

Prepared by Milica Vučković

ECO FORUM 2025

From April 9 to 11, 2025, Herceg Novi became the regional hub for discussions on ecology, sustainable development, and transport innovation. The second edition of the Eco Forum—following the great success of last year's event on Zlatibor—took on a broader regional character, bringing together experts, companies, and institutions from diverse sectors with a shared goal: creating a more environmentally responsible society.

Under the patronage of the Municipality of Herceg Novi, Parking Service Herceg Novi, and the Tourist Organization of Herceg Novi, the event took place in the scenic setting of the Palmon Bay Hotel & Spa, providing an ideal space for the exchange of knowledge and experience.

The forum encompassed ten thematic segments, with special attention given to two workshops that sparked in-depth discussions on pressing issues in ESG standards. These sessions bridged legal frameworks and corporate experiences in sustainable business. Once again, European-licensed lecturers contributed valuable insights aimed at helping the region overcome its current challenges.

On the first day of the forum, Miladin Vidaković, Director of Parking Service Herceg Novi, presented the region's first pedestrian zone designated exclusively for electric vehicles. This initiative in Herceg Novi sets new standards in urban mobility, proving that sustainable solutions can be effectively implemented at the local level.

One of the most engaging segments of the forum was the medical panel, where Katarina Ilić, Chief Scientist at the Torlak Institute, spoke about the impact of pollution, particulate matter (PM), bacteria, viruses, and allergens on human health. Particular emphasis was placed on the opening of a level-three laboratory at Torlak, which marks a significant step forward in the research and prevention of infectious diseases.

As part of the mini electric vehicle fair, attendees had the opportunity to see the latest models and technologies shaping the future of transport.

Battery Safety and Controlled Ignition – Debunking the Myths

A dedicated segment of the forum focused on the safety of electric vehicle usage, particularly in tunnel emergencies and specialized tactical interventions. The Serbian Fire and Rescue Brigade shared their experiences in extinguishing EV fires, while electrical engineers and technical experts discussed proper handling of high-voltage systems.

In one of the forum's most captivating moments, a controlled battery ignition experiment was conducted in cooperation with the Fire and Rescue Brigade of Herceg Novi. This demonstration debunked common myths about the flammability of EV batteries and showcased effective methods for safely extinguishing such fires.

Eco Forum in Herceg Novi proved that sustainable development is no longer a concept of the future, but a tangible reality already taking shape in the region. The event laid the groundwork for further development of environmental initiatives and sustainable solutions in transport, healthcare, and urban planning through innovative projects, scientific discussions, and hands-on demonstrations.

After three days filled with insightful lectures, interactive workshops, and actionable solutions, one thing is certain—Eco Forum is not merely a conference, but a movement reshaping how we think about the future.

Prepared by Jasna Radojević

Photograph: Eco Forum

MT-KOMEX BH
ENERGY SOLUTIONS D.O.O.

We help you produce clean energy for your own needs or for commercial use.

We build rooftop and ground-mounted solar power plants for industrial facilities and households, offering a complete service—from design and construction to to support with all necessary permits.

WE BUILD SOLAR POWER PLANTS

TOGETHER WE BUILD THE FUTURE

MT-KOMEX BH d.o.o.
www.mt-komex.ba
info@mt-komex.ba
+(387) 64 **40 26 295**

POTENTIAL AND CHALLENGES OF NUCLEAR PROPULSION FOR COMMERCIAL SHIPS

For centuries, ships have played a key role in connecting different parts of the world through trade, the economy, energy, and tourism. Although they remain indispensable in many aspects of global life, there is one crucial challenge that must be addressed to ensure a sustainable future: as major polluters of seas, oceans, and the atmosphere, ships must transition to cleaner technologies.

The urgency of this transition is underscored by the fact that some organizations are already recognizing these challenges and working to solve them. The European Maritime Safety Agency (EMSA) is conducting studies on alternative fuels and energy solutions for shipping to support the sector in transitioning toward sustainable solutions. Previous reports have covered biofuels, ammonia, hydrogen, synthetic fuels, and other options. The latest report, titled "Potential Use of Nuclear Power for Shipping", published at the end of 2024, focuses on nuclear energy as a potential solution for decarbonizing the maritime sector.

Until now, nuclear energy has primarily been used for military purposes and powering icebreakers in the Arctic. However, as noted in the report, it is now recognized as a sustainable energy source that can contribute to achieving the European Union's zero-emission goals.

To enable the broader use of nuclear reactors on commercial ships, efforts must be directed toward developing appropriate technology. Key challenges requiring attention include the availability and cost of fissile material used as fuel in nuclear reactors. Fissile materials, such as uranium and plutonium, can undergo fission reactions and release large amounts of energy, making them essential for powering nuclear reactors. The report explains that reactors should be designed to accommodate different types of these materials to ensure a flexible fuel

Photograph: Unsplash/Anastasios Antoniadis

Key challenges requiring attention include the availability and cost of fissile materials used as fuel in nuclear reactors

supply and reduce potential supply chain disruptions.

From a sustainability perspective, nuclear propulsion produces virtually no harmful gas emissions, as the process of generating energy through nuclear fission does not require burning fossil fuels. Although emissions are generated during the extraction, processing, and transportation of uranium fuel, they are relatively low. They could be even lower in the future if renewable energy sources are integrated into these processes.

While the initial investment in nuclear-powered ships may be higher, long-term costs could be reduced due to longer intervals between refueling and the expected rise in oil prices.

With technological advancements, initial capital costs are likely to decrease. Nevertheless, for nuclear propulsion to be widely adopted in commercial shipping, a comprehensive regulatory reform is needed to ensure the safe and responsible use of nuclear energy in maritime transport.

The report also highlights critical challenges such as radiation leaks, sinking, capsizing, collisions, and fires, as well as the licensing of technology and shipyards. Additionally, external risks have been identified, including hijacking and terrorist attacks. For these reasons, careful risk assessments and continuous improvement of safety measures are of vital importance.

South Korea Leads the Way

To move from theory to practice, we turn to South Korea. In February of this year, the South Korean company HD KSOE unveiled a nuclear-powered ship model in the United States. This impressive cargo vessel can carry 15,000 twenty-foot containers. The ship has already received preliminary approval from the American Bureau of Shipping (ABS) and utilizes advanced Small Modular Reactor (SMR) technology.

Thanks to this technology, space previously occupied by heavy engine equipment has been freed up. Additionally, the ship's design includes an advanced radiation protection system.

Although there are still many challenges ahead for the development of nuclear propulsion in commercial shipping, this technology already demonstrates significant potential, as confirmed by the example from South Korea.

Prepared by Katarina Vuinac

Photograph: Unsplash/Rinson Chory

A VISION THAT TRANSFORMS THE RECYCLING INDUSTRY

Every individual has the potential to contribute to the efficient functioning and progress of society, yet societies are often not designed to enable individuals to realize their full potential. To create a better society, we need people with vision who recognize the value of others and can break the chains that have held us back.

This is precisely the mission of the ecological cooperative Connect Clean Roma Group (CCRG) – to empower informal waste collectors, the invisible heroes of our daily lives who still remain on the margins of society, and to integrate them into the formal recycling industry.

Kilino Stojkov, General Manager of CCRG, explained that the cooperative helps informal collectors become recognized members of the industry by enabling them to sell their raw materials through the cooperative, obtain legal status, and secure a sustainable source of income.

"First and foremost, we strive to encourage analytical thinking about the importance of their role in the recycling industry, the green agenda, and sustainable development. We try to explain to them that they are a key factor without which the entire industry could not function," says our interviewee.

The concept of the circular economy is still not sufficiently rooted in Serbia

However, the legislative framework in Serbia still hinders their full integration, leaving part of the

Photographs: Connect Clean Roma Group

work in the grey economy. The law clearly states that the trade in secondary raw materials must occur exclusively between authorized entities; however, certain financial regulations allow the purchase of secondary raw materials from individuals with a 10.6 percent tax payment. This is why CCRG acts as an intermediary – between collectors, the state, and the private sector – building a bridge that connects different interests towards a common goal.

Stojkov adds that the concept of the circular economy is still not sufficiently rooted in Serbia. It seems that people and institutions have yet to understand that we live in a time of limited resources, and that recycling, along with the rational use of materials, is key to survival. CCRG views recycling not just as an economic activity, but as a fusion of economy, sociology, and ecology – a model that benefits everyone.

The main obstacles are a lack of cooperation between the private and public sectors, slow innovation development, and insufficient education on the topic. However, this is not a reason to give up, but rather a call for an even stronger fight to raise awareness and improve the system.

Ecological Cable Recycling

The illegal burning of cables is one of the most significant environmental issues in Serbia. CCRG has set a clear mission: to eliminate this practice and increase the recycling rate by stopping the purchase of burnt copper.

"To solve this complex problem, we must appeal to the biggest buyers in Europe, China, and the United States. Although it is clear that collectors are damaging the environment, the root of the problem lies in the high demand for this raw material," explains Stojkov.

The cooperative's factory uses state-of-the-art European machines for cable recycling – from shredding and magnetic separation to granulation, where copper is separated from plastic. Aware of the challenges, they have managed to optimize processes and extract an additional two percent of copper from the insulating plastic, thus maximizing resource utilization. Innovation does not stop here – they are in the final phase of developing a system that will enable the complete use of cables, promising to revolutionize the recycling industry.

Partnerships for a Better Future

No major change comes alone. That is why CCRG has, over the years, developed partnerships with UNDP, GIZ, the Ministry of Environmental Protection, and local governments. The Connect Clean Roma Group project has been recognized as one of the best in the field of sustainable development and environmental protection, confirming its value on a global level.

"The Ministry of Environmental Protection, through the 'EU for the Green Agenda' program, in cooperation with UNDP, supported this initiative with 100,000 dollars through two smaller projects. The Connect Clean Roma Group project was selected as one of the 50 best projects in the field of sustainable development and environmental protection among 2,000 competing projects," says our interviewee.

Their model has been presented on five continents and is setting standards for integrating informal waste collectors into the legal system. However, the responsibility does not lie solely with them – the state, the financial sector, and society as a whole must recognize this initiative and provide the necessary support.

Stojkov also points out that effective change requires education. CCRG offers its members a training program that teaches them about the harmful effects of cable burning and alternative recycling methods. They are introduced to market trends, logistics processes, and the market fluctuations of secondary raw materials. All of this not only enables them to improve their working conditions but also to acquire knowledge that opens doors to a safer and more profitable future.

Change is not something that happens overnight. It is a process that requires effort, dedication, and the courage to go against established norms. Connect Clean Roma Group proves that transformation can happen and that the circular economy is not just an idea but a real possibility. Their story is not only about recycling – it is a story about people, a better future, and a world where everyone has their place and value.

Prepared by Milena Maglovski

THIRD BALKAN SOLAR SUMMIT: A KEY GATHERING FOR THE REGION'S GREEN FUTURE

The Third Balkan Solar Summit was held in Banja Luka, bringing together a wide range of experts, investors, representatives of institutions, and companies from across the region and beyond. The event aimed to facilitate knowledge exchange, experience sharing, and strategic networking to accelerate the green transition. Through a series of panels and discussions, the summit addressed key issues such as the development of the electricity market, integration of renewable energy sources, energy storage, and regulatory challenges facing the Western Balkans.

The panel titled "Bulls and Bears in the Electricity Market – What Trends Await Us by 2025?" highlighted the complexity of long-term electricity price forecasts. Experts agreed that electricity prices in Southeast Europe are expected to decline on average due to the increasing integration of renewables, particularly solar power plants. However, they noted a significant intraday price variation, with high prices in the evening hours due to a lack of baseload energy and the intermittency of renewables.

The impact of market cannibalization and a growing number of hours with negative prices throughout the year, although partially mitigated by integrating battery systems and more active consumer roles through demand-side management, will remain an issue. Panelists also emphasized the importance of coupling Western Balkan wholesale electricity markets with the unified European market, providing national markets with much-needed liquidity and more stable reference prices. Regarding Power Purchase Agreements (PPAs) between renewable energy producers and buyers, it was concluded that this market remains underdeveloped in the region, with no significant changes expected in the near future.

Photographs: Balkan Solar Summit

While long-term forecasting of electricity market trends remains vital, participants noted that such analyses always represent "the truth—but only as of today."

The panel "Renewable Energy Integration and Energy Storage" provided more profound insight into the importance of electricity storage, particularly battery systems, within the power grid. Investors, developers, and grid operators shared their experiences, concluding that storage will serve multiple roles—from system balancing and operational support to stabilizing electricity prices. Battery systems will contribute significantly to the flexibility of transmission and distribution networks, enable greater integration of renewables, and reduce the need for new grid infrastructure.

The panel "Green Transformation of Companies and Corporations in the Region – Challenges and Next Steps" featured perspectives from Serbia, Croatia, and Bosnia and Herzegovina companies. Discussions focused on regulatory frameworks, the role of financial institutions, and strategic positioning aligned with ESG standards. Representatives from the Japanese investment fund SDG Impact Japan recognized the region's potential. They expressed willingness to support companies through impact investments and the Japanese government's Joint Crediting Mechanism (JCM) program. This could create new opportunities for selling CO_2 certificates to Japanese companies and financing sustainable projects.

The UNDP BiH panel "Key Challenges of the Green Transition" opened the conference with strong messages highlighting the need to improve access to green financing, align with the European Green Deal, and implement the CBAM (Carbon Border Adjustment Mechanism). Particular emphasis was placed on the necessity of regional cooperation and public-private partnerships as foundations for accelerating the green transition.

However, it was pointed out that the current CBAM regulation, if left unchanged, poses a serious threat to the decarbonization of Bosnia and Herzegovina, the functionality of the electricity market, and the development of new renewable energy projects. The only realistic and fair path forward would be to exempt BiH and the WB6 region from CBAM's application to electricity until 2030, allowing countries time to prepare both regulatorily and practically for integration into the EU's Emissions Trading System (ETS). This interim period should be used to define the technical and economic conditions that would enable proper and equitable implementation of the mechanism in the future.

The key takeaway from the Third Balkan Solar Summit is that the Western Balkans region holds tremendous potential for accelerating the energy transition. However, success depends on strong political will, strategic planning, technical preparedness, and above all—regional solidarity. Flexibility, resilience, cooperation, and sustainability are the cornerstones on which the region's energy future must be built.

The Balkan Solar Summit was held under the patronage of the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, along with numerous other partners and sponsors.

Prepared by Jasna Dragojević

SMART ENERGY INNOVATION FROM THE TURBINE TECH TEAM

Technological innovation can significantly enhance the efficiency and accessibility of renewable energy sources, making them more competitive with traditional energy systems. Developing new solutions enables greater integration of renewables into existing energy grids, contributing to global efforts to reduce CO_2 emissions and combat climate change.

Demonstrating that youth can be drivers of change in renewable energy and the fight against climate change is the Turbine Tech team from Sarajevo, led by eighteen-year-old Muhamed Hamamdžić. This team won the Best Technical and Engineering Project award at the "Made in BiH 2024" ceremony held in January.

Savonius turbines are ideal for urban and rural environments with low wind speeds, where traditional turbines are ineffective

"Turbine Tech is a project I started a year ago to develop advanced technologies in the field of renewable energy, particularly vertical wind turbines and IoT devices for monitoring and managing energy systems. I was inspired by Emerik Blum, who laid the foundations for the idea that Sarajevo—and the whole of Bosnia and Herzegovina—must invest more in energy and renewables. His vision showed that we have immense potential in this sector, which motivated me to contribute to developing

Photographs: coutresy of Muhamed Hamamdžić

new technologies that can shape the future of our energy infrastructure," explains Hamamdžić.

He further elaborates that the Savonius turbine is a type of vertical-axis wind turbine that uses aerodynamic drag, not lift, to generate energy. Its advantages over conventional horizontal turbines are numerous—from efficient operation at low wind speeds, quieter performance, all-directional functionality, to lower maintenance costs.

"Savonius turbines are ideal for both urban and rural environments with weaker winds, where traditional turbines are ineffective. These turbines operate much more quietly, making them suitable for installation near residential areas. They do not require additional mechanisms to orient towards the wind. Due to their simple mechanical design, they demand less maintenance," says Hamamdžić.

Savonius turbines are especially useful for decentralized energy systems and can power homes, farms, campsites, and even industrial facilities.

The Potential of BiH

Bosnia and Herzegovina has significant potential for developing vertical-axis wind turbines, particularly in regions with lower wind speeds where conventional turbines prove inefficient.

"Our country also has many rural areas without stable energy infrastructure, where Savonius turbines could play a key role," the young innovator explains.

The Turbine Tech project has been presented at several technical fairs and competitions, receiving overwhelmingly positive feedback.

"Engineers in renewable energy and potential investors have shown great interest, which is a huge motivation for me to keep going. The production cost of a single 5-kilowatt Savonius turbine is around €1,500, which is significantly cheaper than conventional horizontal turbines of the same capacity," says Hamamdžić.

Although the team currently has no official investors, Hamamdžić notes that the cost of building a small wind farm using Savonius turbines ranges between €10,000 and €80,000, depending on the number of installed units. The advantage, he adds, is that such a system is far more accessible than large wind farms.

International Experience

In countries such as Denmark and the Netherlands, vertical wind turbines are increasingly used in urban environments, often in combination with solar panels.

Hamamdžić believes Bosnia and Herzegovina could adopt a similar model by developing decentralized energy systems that reduce reliance on centralized energy sources.

Looking ahead, he plans to further refine the invention by increasing efficiency, developing in-house generators, and testing the system under various climatic conditions.

Additionally, he will focus on expanding the IoT system—integrating sensors and advanced control systems into the Turbine Tech application—developing small hybrid systems (combinations of solar panels and wind turbines for autonomous energy systems) and attracting investors.

As Hamamdžić emphasizes, Turbine Tech is not merely a wind turbine development project, but a complete ecosystem for smart energy and optimization of renewable energy sources. Through this project, he aims to contribute to a sustainable future for the energy industry in Bosnia and Herzegovina—and beyond.

Prepared by Jasna Dragojević

Soon

- Borča
- Užice
- Kikinda
- Zrenjanin
- Kraljevo 1
- Velika Plana

Planned

- Zlatibor
- Nova Varoš
- Nova Pazova

254105

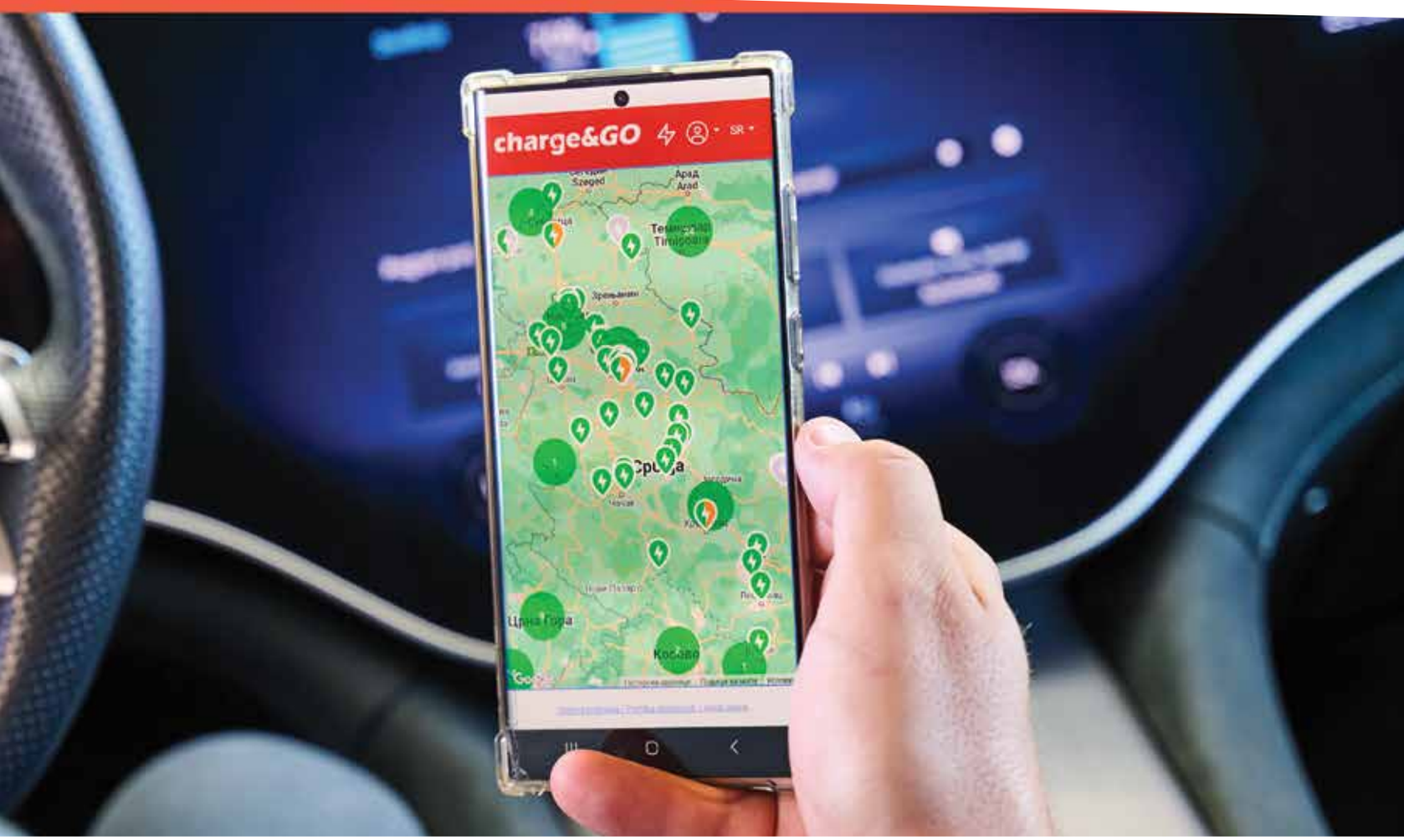
The energy of the future at your fingertips

- Easy charging, effortless payment and precise energy consumption review
- The biggest DC chargers network in Serbia
- Access to more than 400.000 chargers throughout Europe
- Help and support any time 24/7

Download our application

GET IT ON Google Play

Download on the App Store



charge&GO

Veljka Dugoševića 54
11000 Beograd

podrska@chargego.rs
+381 11 715 85 99

EV chargers Sales
prodaja@chargego.rs
+381 11 715 85 98

WHEN FOOD WASTE BECOMES A RESOURCE

Food waste presents a serious global challenge that goes beyond economic and environmental dimensions, pointing to a deep imbalance in the world. While millions of people go hungry, enormous quantities of food end up as waste. The United Nations has recognized this crisis and set the goal of Zero Hunger by 2030 as the Second Sustainable Development Goal (SDG).

According to UN data, today, two billion people worldwide do not have regular access to safe, nutritious, and sufficient food. If current trends continue, projections show that more than 600 million people will be chronically hungry by 2030. Although food waste is not the primary cause of these statistics, changing how food is managed, from production to consumption, could significantly contribute to reducing global hunger.

The World Wildlife Fund (WWF) points to the fact that in Europe, 50 million tons of fruits and vegetables

Photographs: (top) Unsplash (nrd); (bottom) Pixabay/Ben Kerckx

are wasted every year solely because they are not the proper shape, representing an economic loss of 140 billion euros. On a global level, about 1.3 billion tons of food are wasted annually from farm to table. In our region, Serbia leads in the amount of food waste, with as much as 700,000 tons annually, while Croatia wastes 400,000 tons, and Slovenia 140,000 tons.

It is often mistakenly believed that organic waste has no significant environmental impact. However, if food is not appropriately managed, it does not become valuable organic fertilizer but ends up in landfills, emitting methane during decomposition – a greenhouse gas far more harmful than carbon dioxide.

Although a significant portion of organic waste comes from households, food waste occurs throughout the entire supply chain, including production and retail. Retail chains frequently order excessive amounts of food, and high prices lead to many products remaining unsold by their expiration date. This issue garnered particular attention in Serbia a few years ago when campaigns were launched to raise awareness about food waste. A central focus was the Value Added Tax (VAT) law, under which a 20 percent VAT must be paid on donated food. This discourages retail chains from redirecting unsold but usable food to those who need it most. Consequently, it is often more cost-effective for companies to discard food rather than donate it.

Although the priority is to direct edible food to those who need it most, what can no longer be used for human or animal consumption can gain new value through the production of biofuels, thereby reducing both waste and greenhouse gas emissions simultaneously.

While many retail chains do not pay enough attention to the issue of hunger, the British retailer Sainsbury's, in cooperation with its supplier RenECO, has found a way to reduce food waste and contribute to environmental goals simultaneously. This marks a complete change in their logistics fuel supply, specifically for heavy goods vehicles. Starting in March this year, 30 trucks in this retail chain will switch from diesel to biofuel derived from food waste. The biogas produced through this process will be used to create liquid biofuel suitable for heavy trucks. It is important to note that this process utilizes food that can no longer be donated or used for animal feed.

Estimates show that this will reduce annual carbon dioxide emissions by more than 3,000 tons, which the company highlights as equivalent to the yearly electricity consumption of over 1,900 households. Currently, these 30 trucks represent half of their fleet, but the company has set an ambitious goal: achieving net-zero emissions in its operations by 2035.

Prepared by Katarina Vuinac

The World Wildlife Fund (WWF) points out that in Europe, 50 million tons of fruits and vegetables are wasted every year solely because they are not the proper shape

Inset – Biofuel as a More Sustainable Alternative

Biofuel represents a more sustainable alternative to conventional fossil fuels in the transport sector. It is produced by processing biomass, such as vegetable oils, animal fats, starchy crops, sugar crops, etc. According to data from the International Energy Agency (IEA), demand for biofuel is expected to grow by 38 billion liters from 2023 to 2028, which is about a 30 percent increase compared to the previous few years.

Photograph: (right) Unsplash/Thomas Le

CORN HUSKS AS A SOURCE OF INSPIRATION AND PRACTICALITY

The Women's Association of Nedelišće weaves baskets of all sizes and shapes—from square to round

Natural materials have long inspired people, and with growing environmental awareness, we increasingly strive to utilize them in diverse and purposeful ways. Corn husks are one such material, most commonly used as livestock feed or compost for eco-friendly fertilizer. Yet, their usefulness does not end there. This story reveals how corn husks can be used innovatively and unexpectedly.

Winter is the season most often dedicated to weaving baskets, providing the ideal time for this process. During the colder months, women have more time to focus on weaving, preparing the husks, and dyeing them, creating beautiful and durable handcrafted bags. These corn-husk bags, originally from Međimurje, Croatia, have even made their way to Dubai.

Several women from the Women's Association of Nedelišće are on a mission to bring tradition into the modern age. Dušanka Medved, president of the Association, shared with Energetski Portal Magazine the details of how these bags are made, how long they last, and much more.

Preparation begins in the autumn during the corn harvest, when supplies of husks are replenished. In Međimurje, the husks are also referred to as luščije, and they are usually prepared two years in advance, since the next harvest is never guaranteed and the basket-weaving season must always be ready.

"After collection, the corn husks are dried for two to three days before

Photographs: coutresy of Dušanka Medved

being prepared. We need a wooden mold, small nails, and pliers for weaving. First, we weave the base structure made of strips, followed by the basket body. Then the edges are trimmed, and finally, the handles are woven. The completed bag is left to dry in a warm place for two days before it's removed from the mold. The finished baskets are then placed in sulfur," says our interviewee.

She notes that it's essential to soak and drain the husks properly before weaving, as otherwise they could break during the process. Sulfur is used to eliminate harmful organisms and prolong the basket's durability while acting as a natural bleaching agent. Fabric dyes are used for dyeing: the water is brought to a boil, the dye is added along with the damp husks, and the process continues for about two hours to allow the color to penetrate deeply into the fibers. Afterward, the husks are thoroughly rinsed to avoid staining hands or clothing.

A Fusion of Tradition and Ecology

These fashion items are made entirely from natural materials—no glue is involved. Each basket requires about five kilograms of corn husks. Flowers, made either from the husks themselves or from fabric, can be added during the weaving process.

Our interviewee also shares that finding quality corn husks is increasingly complex because traditional corn varieties are rarely grown. Hybrid corn has shorter ears and leaves, which break easily and are not as soft or as suitable as the older varieties. Additionally, it must be harvested by hand, which is now less common.

Using baskets reduces plastic bag consumption, and women especially love carrying them

The women of the Nedelišće Association craft baskets in various sizes and shapes—from the smallest to the largest, square to round. A basket can last up to 15 years if kept dry and protected from moisture. If it gets wet, it should be air-dried.

She adds that baskets have been woven in the small Croatian town of Nedelišće for 60 years. In the past, every household made them to help support the family budget. Today, they are primarily sold through custom orders and at various fairs. In the association, the tradition is now upheld by only a few women.

"As children, we were made to do this, but now our children don't have to. There used to be more women weaving, but they've grown old and can't do it anymore. Currently, there are only six of us actively weaving in the association. We can weave for up to eight hours straight, but the skin on our fingers tends to crack," says Dušanka, adding that the skill of weaving is never forgotten.

There is interest in this craft, though some try and give up. They've trained children in primary and secondary schools and even held a workshop at a museum. They were surprised to find that boys showed more interest than girls.

Their goal is not just to sell baskets, but also to demonstrate the making process, so they always bring their tools along.

"People often assume these are Chinese products, but when they see how we weave them, they're amazed that such beautiful, functional items can be made from natural waste. Using these baskets reduces reliance on plastic bags, and women especially love carrying them," says our interviewee.

Last year, they held a basket festival and sold every last piece. The skill of crafting utilitarian items from corn husks in the Međimurje region has become the eighteenth element of intangible cultural heritage in this area, officially listed in the Register of Cultural Goods of the Republic of Croatia with permanent protection status.

Prepared by Jasna Dragojević

AN EXPEDITION FOR A NEW LIFE OF PLASTIC WASTE

Plastic Odyssey is a global initiative dedicated to addressing the issue of plastic pollution in the world's most affected regions, with a particular focus on combating marine and ocean plastic contamination. The organization's mission is carried out using a ship that functions as a mobile recycling unit, traveling to countries facing challenges in plastic waste management and utilizing recycling technology to convert plastic waste into useful materials.

Over eight years, this nonprofit organization has built a global network of recycling solutions, helping prevent plastic waste from reaching the oceans.

Now, the organization has set a new goal: restoring biodiversity in protected areas impacted by plastic pollution, beginning with 50 priority sites identified by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). To support this, they have launched a unique fund aimed at raising substantial financial resources over the next few years.

"These areas act as natural traps for plastic, accumulating waste at concentrations up to 400 times greater than the Great Pacific Garbage Patch. Their extreme remoteness has long made cleanup nearly impossible—until now," the organization announced.

In February of this year, Plastic Odyssey announced the creation of the Plastic Odyssey Fund, a nonprofit public corporation headquartered in San Francisco. One of their key messages reads: "Every minute, 19 tons of plastic waste enter the ocean... We, the citizens of the world, have the means to stop this disaster."

They also plan to foster international expansion by mobilizing resources and accelerating their impact through engagement with philanthropic organizations, foundations, corporate donors, and governmental actors.

Throughout 2025, Plastic Odyssey will host a series of events across the Americas to deepen engagement within the ocean-focused community and raise awareness about its mission.

This global initiative combines mechanical plastic removal, mobile recycling units, and scientific research to make large-scale cleanup feasible. According to the organization, plastic removal costs have been reduced to just $10 per kilogram.

Photograph: Pixabay/Sergei Tokmakov

In their missions, they use sail-powered cleanup vessels designed to operate in sensitive ecosystems, preventing further breakdown of microplastics

The organization uses sail-powered cleanup vessels in its missions, designed to operate in fragile ecosystems and prevent further breakdown of microplastics. To support efforts aimed at restoring marine biodiversity, they are launching a six-year campaign to raise $30 million.

Their website, plasticodyssey.org, has published an interactive map, accessible through the "Follow the Expedition" feature. The map displays travel routes, land-based plastic waste, and the regions most affected by plastic pollution.

Microfactories and Education

After two years of partnership in supporting the expedition, the team from another similar organization, Delfingen, is joining the on-the-ground projects developed by Plastic Odyssey Factories. In the Philippine cities of Cebu and Manila, they launched two microfactories to transform island waste into new value. Each site includes two containers equipped with machines necessary for converting plastic waste into new materials or objects.

During their visit at the end of last year, training sessions for local entrepreneurs were held in the onboard Laboratory. The first training lasted three days and involved ten entrepreneurs from various sectors, while the second session gathered four participants. These shipboard Laboratories proved highly successful, especially among participants who already had a solid background in recycling and were able to expand their knowledge further.

The World's Most Polluted Beach

Last year, Plastic Odyssey teams cleaned the world's most polluted beach, located on one of the largest islands—Pitcairn. A 2015 analysis, published two years later, revealed that eight tons of plastic had washed up on its shores—the highest plastic density ever recorded globally. The 38 km² island hosts more than 38 million pieces of plastic along its coastlines, with an estimated daily influx of 3,500 to 13,500 new plastic items.

To address waste removal without damaging the coral reef, they used a raft to transport large bags from the shore to the ship, and parachutes lifted the plastic above the water when waves were too strong. Over seven days, with 25 people, the team removed 6,000 kilograms of plastic waste dating back to 2019, along with another 3,000 kilograms accumulated afterward. All nine tons were subsequently recycled onboard the floating Plastic Odyssey laboratory.

Prepared by Jasna Dragojević

Photographs: (top) Pixabay/Hamsterfreund; (bottom) Pixabay/Karuvadgraphy; (middle) Pixabay/Mecha Owl

RECORD ATTENDANCE AT KEY 2025 IN RIMINI: ENERGY TRANSITION TAKES CENTER STAGE

The energy transition continues to gain momentum, and this year's KEY – The Energy Transition Expo, the leading event organized by Italian Exhibition Group (IEG), is clear proof of that. Recently concluded at the Rimini Expo Centre, the fair registered record-breaking attendance and impressive figures.

Compared to 2024, the number of visitors increased by 20 percent, with 40 percent of attendees coming from abroad. More than 1,000 exhibitors—over 30 percent from outside Italy—showcased their innovations across 90,000 m² of exhibition space spread over 20 halls. This year's edition particularly focused on ports and hydrogen, through a collaboration with Hannover Fairs International GmbH (HFI), the Italian subsidiary of Deutsche Messe AG. Additionally, the event attracted over 400 accredited journalists from Italy and worldwide, solidifying its reputation as the most important and international edition to date. The prestigious event was supported by the Ministry of Foreign Affairs and International Cooperation (MAECI) and the Italian Trade Agency (ITA), in collaboration with leading industry associations.

Over the course of three intensive days, the Rimini Expo Centre became the epicenter of energy transition and efficiency, where leading experts, companies, and innovators presented the latest technological solutions shaping the future of the energy sector.

More than 160 conferences, workshops, and panel discussions brought together experts, academics, researchers, and industry representatives, providing a platform for exchanging ideas and analyzing key challenges and innovations in the energy market.

Minister Gilberto Pichetto Fratin attended the official opening ceremony on Wednesday, March 5. KEY 2025 provided companies and professionals with a unique opportunity to explore cutting-edge solutions that ensure energy security, cost optimization, and increased competitiveness in the industrial sector. The event also facilitated direct dialogue between businesses and institutions, emphasizing that energy-efficient strategies are a crucial step toward global decarbonization.

KEY CHOICE – An Innovative Approach to PPA Agreements

The second edition of the B2B event KEY CHOICE – Unlock the Future of PPAs focused on energy costs and power purchase agreements (PPAs) as effective financial models for managing expenses. Special attention was also given to the development of new data centers, which are essential for technological advancement. This event, organized in collaboration with the company Elemens and supported by the SolarPlaza Summit, took place on Tuesday, March 4, at the Rimini Congress Centre, facilitating meetings between energy suppliers and energy-intensive companies to streamline the signing of PPA agreements.

The next edition of the KEY Expo will take place at the Rimini Expo Centre from March 4 to 6, 2026.

Prepared by Milena Maglovski

Photograph: KEY2025

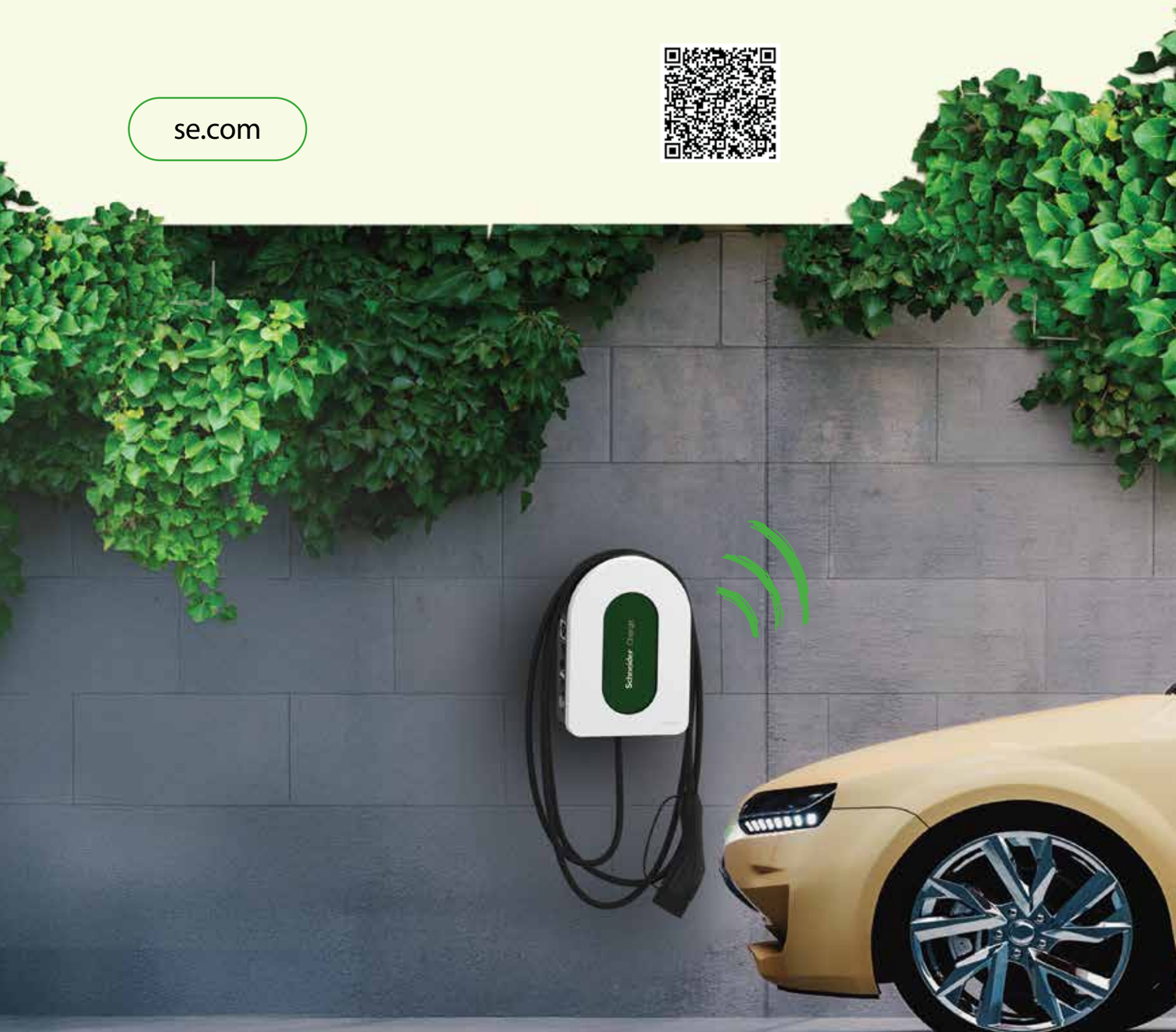
Life Is On | Schneider Electric

254101

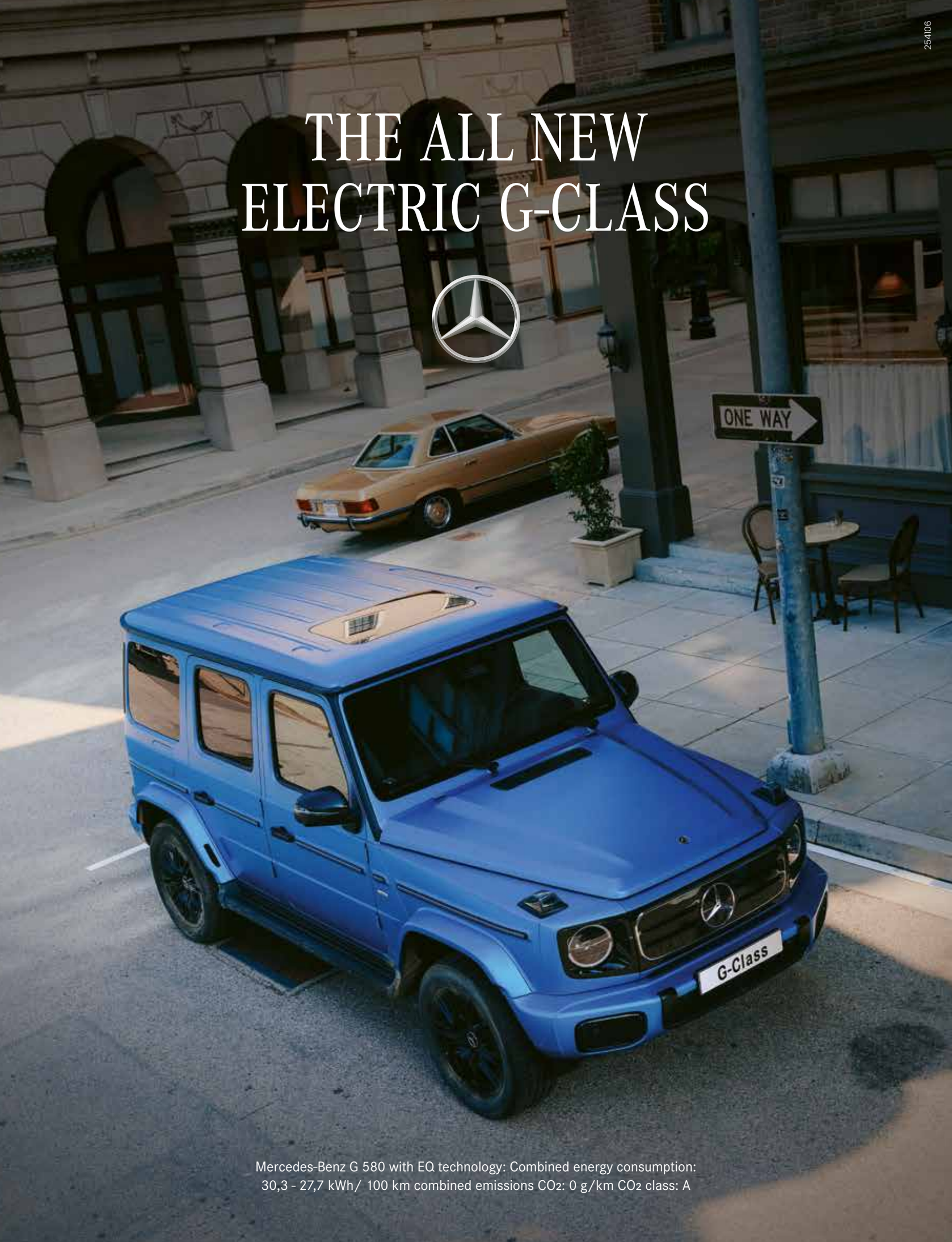
Plug in. Charge up. Roll on.

Built for fleets at home and multi-family housing, **Schneider Charge Pro** provides intelligent load management and full interoperability for optimal charging performance, smooth billing, and easy use.

se.com



THE ALL NEW ELECTRIC G-CLASS



Mercedes-Benz G 580 with EQ technology: Combined energy consumption:
30,3 - 27,7 kWh/ 100 km combined emissions CO_2: 0 g/km CO_2 class: A