



engage

ISSUE 9

IN THE SPOTLIGHT

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Editorial

Navigating complexity with resilience and purpose

As we reach the midpoint of this dynamic year, I'm filled with both a sense of accomplishment and a forward-looking excitement for Iskraemeco's future. While the global landscape presents challenges, they are also a starting point for innovation and positive change.

We remain deeply committed to developing technological advancements that address the world's most pressing energy and water issues. Whether it's clean energy solutions, promoting resource efficiency, or leveraging data to optimize operations, we are at the forefront of building a sustainable future. Collaboration is central to our approach, and by working hand-in-hand with partners, we can amplify our impact. Together, we can tackle the toughest challenges and create solutions that benefit everyone, ensuring a brighter future for our planet and future generations.

Our vision is clear and bold. We aim to become a leading platform company that tackles the pressing issues of energy, water, and urban living, all while promoting sustainable practices for a healthier planet. Our constant pursuit of innovation fuels this vision. We are covering four key business streams: energy, water, e-mobility, and digital platforms that allow us to deliver comprehensive solutions that seamlessly integrate across these vital domains.



But our ambition goes beyond simply expanding offerings. We are spearheading the digital transformation of these industries. Our goal is to become a unique platform business, one that harnesses the power of data and technology to tackle complex challenges and deliver smarter, more sustainable solutions.

Imagine a world where infrastructure systems are interconnected and optimized, energy and water usage is efficiently managed, and cities operate with intelligent infrastructure. This is the future we are actively building. Our data platforms, like Symbiot, are already empowering our customers to make data-driven decisions for a sustainable future.

We are committed to maintaining the highest standards in both product quality and customer service, regardless of location. That's why we consistently invest in developing and modernizing our production facilities across the globe. This success hinges on our teams' seamless coordination across different regions and time zones. This commitment to decentralized excellence ensures every customer enjoys the same level of support and access to cutting-edge technology.

Baha Abdullah
Executive Board Member and Group CFO

Building a better future

The future may be uncertain, and Iskraemeco is built to thrive. We possess a strong foundation built on innovation, collaboration, and a deep commitment to our core values. With unwavering dedication to sustainability, responsible business practices, and the well-being of our stakeholders, we are poised to emerge stronger and contribute significantly to building a better future for all.

Together with our people who are our most valuable asset, we are more than just a company; we are a platform for progress. We are committed to creating a future where energy is clean, water is abundant, and cities are vibrant hubs of sustainable living. This is our vision, and with your passion and dedication, we will make it a reality.

Thank you for being an essential part of this transformative journey. Your contributions are invaluable, and together, we will continue to achieve great things.



Beyond the charging station: A comprehensive e-mobility approach

Alenka Bizilj Kavrečič

The electric vehicle (EV) market is experiencing exponential growth. Recognizing this transformative shift, Iskraemeco has strategically expanded its portfolio of charging infrastructure to offer a comprehensive range of charging stations. We provide a spectrum of options, from home charging stations to robust, high-performance public DC chargers. Enhancing the existing lineup of AC charging stations, PublicBox and GlowBox, we are proud to introduce our new DC fast charging solutions: UrbanBox and NeoBox. Additionally, we have recently launched the HPC System, which caters to high-power applications and is ideal for commercial fleets and long-distance travel.

Let's dive into Iskraemeco's expanded offer of DC charging stations.

This article delves into the future of fast charging taking a closer look at our innovative DC charging stations – the UrbanBox and NeoBox. These robust chargers are specifically designed to meet the growing demand for efficient and convenient on-the-go charging in public spaces.

DC fast charging offers significant advantages over traditional AC charging. By delivering a significantly higher power output, DC chargers can replenish a battery in a fraction of the time needed to recharge using an AC charger. Apart from enhancing user experience, fast charging is synonymous with increased flexibility as it allows EV drivers to conveniently integrate charging into their daily routines without having to sacrifice valuable time.

We will explore the technical specifications and unique features of the UrbanBox and NeoBox, along with the benefits they bring to public charging infrastructure.

UrbanBox

UrbanBox is a fast-charging station that offers fast and reliable charging for EVs. It is equipped with one charging point with a maximum power of 30kW. With its powerful charging capabilities and advanced features, the UrbanBox is designed to meet the needs of commercial use. An ideal solution for workplaces, retail centers, and other locations where noise reduction is a priority, the UrbanBox operates at a low noise level of 50 dB(A) at 1 meter distance in a 25°C environment.

Energy efficiency is also not a question – at 96% power efficiency, the Urban Box is a perfect choice for anyone looking to optimize their total cost of ownership (TCO).

The charging station is compatible with all EV models that use CCS 2 charging cables and can provide charging speeds of up to 40 kW. Thanks to the charger's built-in energy meter, users can track their charging sessions and monitor energy consumption, as well as manage and optimize their charging costs.

The charging station is built to last, featuring a rugged and durable construction that is resistant to harsh weather conditions and UV rays. Its sleek and modern design makes it an attractive addition to any location, and its intuitive user interface guarantees effortless use and operation.

In addition to its powerful charging capabilities, the UrbanBox is also equipped with advanced features such as network connectivity, remote management, and smart charging. These features enable users to monitor and manage their charging stations from anywhere.

Commercial and workplace charging

Faster charging cycles: Compared to the slower AC chargers, electric vehicles in your fleet can now be charged and ready to go much quicker, which translates to less downtime between deliveries or services.

Optimized operations: Faster charging allows for better scheduling and route planning for your electric fleet, ensuring timely deliveries and efficient operations.

Public charging

Fast DC chargers can be used to create public charging stations in convenient locations, such as shopping centers, gas stations, and rest areas. The adoption of fast chargers helps to expand the availability of fast charging infrastructure.

Home charging for high-mileage drivers

If you drive a long distance on a regular basis, a 30 or 40 kW DC fast charger at home can significantly reduce your charging time compared to a Level 2 AC charger.

High traffic public charging stations

Located along major highways, in busy urban areas, or at key transportation hubs, quick chargers can significantly reduce wait times for drivers needing a quick top-up before continuing their journey.

Charging stations for long-range EVs

Newer electric vehicles with larger battery packs can benefit greatly from the faster charging speeds up to 180kW offered by quick chargers.

Commercial EV fleet charging

Companies with fleets of electric vehicles, such as taxis, delivery vans, or public buses, can utilize quick chargers to minimize downtime during charging cycles.



NeoBox

Benefitting from its modular design, NeoBox allows users to start with a 90kW charger and upgrade to 180kW as their needs grow. Another advantage is easy maintenance achieved through functional drawer design. If a subsystem needs servicing, only the relevant drawer is replaced to minimize downtime. Furthermore, the NeoBox charging station can guarantee 96% of power efficiency for an optimized total cost of ownership (TCO).

NeoBox is the preferred solution for today's EV owners. Designed for rapid charging in various locations, such as retail and commercial parking lots, gas stations, and highway rest areas, NeoBox provides a convenient and efficient charging experience.

NeoBox boasts advanced network connectivity, which allows for real-time information sharing with remote systems and keeps drivers informed about available charging stations, their vehicle's charging progress, and billing details. User-friendliness is another key feature driven by the charger's clear and intuitive interface. Additionally, a robust safety system for power supply and superior weatherproofing technology ensures safe operation in outdoor environments.

All in all, NeoBox goes beyond just convenience and safety. It also embraces sustainability. By integrating with renewable energy sources like solar and wind power, NeoBox helps create energy-saving infrastructure, paving the way for a more sustainable future for electric vehicle ecosystems.

Iskraemeco eMobility Premium charging stations for electric vehicles

Empower your electric future



Optimizing EV infrastructure with next-gen software

Nuno Queiros and Alenka Bizilj Kavrečič

Iskraemeco offers a comprehensive solution for your electric vehicle (EV) charging needs. We offer a complete hardware product portfolio ranging from AC chargers to high power chargers in a variety of charging stations to meet our customers' needs, along with a brand new, professional asset management software platform. For us as a manufacturer, this software enables us to thoroughly monitor and manage electric vehicle charging stations and support activities, be it in terms of full filing agreed SLAs, spare parts management, or on-site technician activities.

Join us for an in-depth interview with **Nuno Queiros** as we take a closer look at this innovative management system and its benefits for the EV infrastructure of the future.



Nuno, thank you for taking the time to talk to me today! Could you start by telling me about your role and experience at Iskraemeco Portugal, particularly within the e-mobility software team?

Although my official title is Global Head of After Sales for Electromobility at Iskraemeco Portugal, I work closely with the e-mobility Software team for a reason. In today's market, customers are looking for more than just hardware – they expect a complete solution package that guarantees a smooth commissioning of the charging network. This means that we do not only provide the charging stations, but also the software that allows us to manage them, provides the right analytics and reports, and ensures that everything, from commissioning to end of life, runs smoothly. This is where the e-mobility software team comes in, and this is why the collaboration between After Sales and the software team is so important.

Can you tell me more about the e-mobility software we are developing? And how do we want to differentiate ourselves from our competitors?

Definitely. The software we are developing goes beyond simple monitoring and billing. We want to provide a comprehensive tool that allows charging stations to be fully managed remotely, using all the telemetry data we receive from the chargers.

While existing solutions may offer functions such as billing and basic troubleshooting, our software takes a holistic approach. It supports the entire lifecycle of the charging infrastructure, from initial setup to ongoing maintenance and end of life. All this telemetry data is collected via a dedicated connection to our back office, taking into account all data security and data protection regulations.

We integrate features that provide deeper insights. Our software is designed to be scalable and flexible. It supports conditional maintenance of the charging infrastructure, reduces TCO of contract services, and increases uptime. Whether the customer's infrastructure is shrinking or already deployed at scale, the software can adapt to meet these requirements.

The initial cost is important, but reliable operation over a longer period of time is crucial. Can you elaborate on how your e-mobility software specifically addresses the often overlooked aspect of maintenance?

Absolutely, Alenka. You're right, maintenance is an important aspect that is often overshadowed by acquisition costs. Our e-mobility software goes beyond the basic functions and addresses this issue directly. We design our charging stations to optimize both installation and commissioning, as well as maintenance costs. Easy access to replaceable parts such as cables and filters reduces downtime and simplifies service calls.

Charging station performance metrics are constantly monitored, including the health of the hardware and firmware versions of the charging stations. This enables proactive maintenance by identifying potential issues before they become apparent or escalate into pandemic problems.

Our software generates automated reports with relevant information for various stakeholders that support the utilities' technical teams, and also facilitates business analysis and decision making in the C-suites.

Our mobile-friendly interface allows technicians to complete maintenance reports electronically on site. This eliminates the need for paper-based processes and seamlessly integrates data into existing CRM systems.

How does Iskraemeco Portugal approach the development of new e-mobility software solutions to ensure that user feedback is integrated into the entire process?

As a product needs to be developed based on a customer-centric approach in order to make decisions on new developments in hardware, software and even small new features, Iskraemeco monitors the market and conducts interviews with customers and relevant market players that are shaping the EV charging industry through product management. Overall, the team in Portugal has an average of more than 10 years of experience in this industry, which means we have a critical eye and assume full responsibility for every product we bring to market.

Data security is an important concern in today's digital world. Can you explain what specific steps Iskraemeco Portugal is taking to ensure that the data collected by your e-mobility software is secure, analyzed responsibly and that user privacy is protected throughout the process? Are there any particular challenges you face in this area?

We understand the importance of responsible data collection and analysis in our e-mobility software. We continuously work with our security team and adjust our practices as needed to ensure the highest level of security and privacy. The data we collect is essentially telemetry data from the charging stations, without any user information. This telemetry data is collected via a separate link so that customer privacy is fully protected.

As we wrap up, Nuno, what excites you most about the future of e-mobility?

The future of e-mobility is incredibly exciting, Alenka. It's a dynamic area that benefits from cross-industry collaboration.

The most exciting trend for me is the shift towards comprehensive solutions. Customers are looking for a single provider to take care of everything, from the delivery of equipment to installation, maintenance and recycling. This cradle-to-grave approach simplifies the process and allows the customers to focus on their core business. Through innovation and collaboration, e-mobility has the potential to create a truly sustainable and user-friendly transportation future.



Key features of the software

Work orders

Preventive & predictive maintenance

Contract personalized SLAs

Data analysis and reporting

Mobile front-end on-site reporting



The global challenge of water resource management: How the Iskrasonic IW.1 smart meter offers a data-driven solution

Biju Prabhakaran

Water scarcity is a growing threat impacting communities worldwide. While climate change and population growth exacerbate the issue, inefficient water management practices also play a significant role. Traditional mechanical water meters, while instrumental for decades, are no longer sufficient to meet the demands of the 21st century.

Water management challenges:

- **Inaccurate billing:** Mechanical meter wear, environmental factors and air pockets can lead to inaccurate readings. This results in estimated bills, lost revenue for utilities, and frustration for consumers.
- **Non-revenue water (NRW):** Leaking pipes and infrastructure are a major source of non-revenue water, leading to significant financial losses for utilities and wasted resources. Early detection of leaks is crucial for minimizing this issue.
- **Limited data collection:** Traditional meters often require manual data collection, a time-consuming and resource-intensive process that hinders timely decision-making.
- **Infrastructure integration challenges:** Implementing new technologies can be complex, especially when integrating with existing infrastructure.

At Iskraemeco, we address these challenges with the Iskrasonic IW.1 smart water meter that utilizes advanced dynamic ultrasonic technology and delivers accuracy even in challenging environments affected by air pockets or sediment build-up. The meter ensures consistently fair and transparent billing and offers unparalleled flexibility thanks to its cutting-edge communication module. This allows data transmission through various methods, including mobile reading and fixed networks, adapting to

your specific needs and infrastructure. Beyond accurate billing, IW.1 empowers you to take control of your water resources. Non-revenue water is a significant challenge for water utilities. IW.1's precise measurement capabilities and advanced leak detection features contribute significantly to NRW reduction. This translates to revenue protection for your utility and a more sustainable water management approach.

The Iskrasonic IW.1 smart water meter marks a shift in water management, offering a robust solution to overcome the above listed challenges:

- **Unmatched accuracy with ultrasonic technology:** Unlike mechanical meters, the IW.1 utilizes cutting-edge ultrasonic technology. This ensures precise water usage data, even in challenging environments with air pockets or sediment buildup. Utilities can rely on accurate billing information, fostering trust with consumers and eliminating revenue losses from inaccurate readings.
- **Empowering leak detection and NRW reduction:** The IW.1 features advanced leak detection capabilities. By pinpointing even the smallest leaks with pinpoint accuracy, utilities can take swift action to minimize water loss, which translates to significant financial savings and a reduction in non-revenue water.
- **Flexible communication options for seamless integration:** The IW.1 caters to diverse infrastructure by offering a variety of communication protocols, including mobile reading and fixed networks. This ensures seamless integration with existing infrastructure, regardless of location, minimizing implementation complexities.
- **Long-term sustainability with a 15-year battery life:** The IW.1 boasts up to 15-year battery life, eliminating the need for frequent replacements and minimizing maintenance costs for utilities. Thanks to its efficient battery, the meter delivers in terms of long-term cost savings and a reduced environmental footprint.
- **Data security with authentication keys:** The IW.1 prioritizes data security with robust authentication keys. This advanced encryption technology safeguards against unauthorized access and data manipulation, ensuring the integrity and privacy of water usage information.
- **Timestamped data logging for advanced analytics:** The IW.1 offers extensive data logging capabilities. Every data point is meticulously timestamped, enabling detailed analysis of water usage patterns, leak detection, and proactive maintenance strategies. With data always readily available, utilities are empowered to make data-driven decisions for optimized water management.
- **Industry-leading data storage:** The IW.1 boasts 19 years of hourly data storage, surpassing any competitor in the market. The comprehensive data history provides invaluable insights into long-term trends, water conservation efforts, and infrastructure planning.

The Iskrasonic IW.1 is more than just a meter; it's a gateway to a data-driven future of water management. By implementing the IW.1, utilities can achieve:

- **Enhanced decision-making:** Accurate and timely water usage data empowers utilities to optimize distribution networks, prioritize maintenance needs, and manage resources effectively.
- **Improved customer satisfaction:** Elimination of estimated bills and transparent water usage data fosters trust and satisfaction among consumers.
- **Sustainability promotion:** Reduced water loss and leak detection contribute significantly to water conservation efforts, promoting environmental responsibility.
- **Global applicability:** The IW.1's adaptability and diverse communication options make it suitable for implementation in various regions and environments, fostering a standardized approach to water management.

The Iskrasonic IW.1 water meter represents a significant leap forward in water management. By addressing the challenges of inaccurate billing, non-revenue water, limited data collection, and infrastructure integration, the IW.1 empowers utilities to operate more efficiently, conserve resources, and promote sustainability.



Contact us and see how Iskrasonic IW.1 works:

Features

- **Increased metrology accuracy:** Precise water usage data for accurate and fair billing.
- **Highly secured data:** Tamper proof and fraud resistant due to manipulation detection features and encrypted data.
- **IP68:** Reliable operation in any location.
- **High quality and durability:** Built to last, ensuring long-term reliability.
- **Advanced technology:** Harnessing the power of advanced water management solutions.
- **High availability:** Reliable data access with high availability.
- **High-tech solution:** Future-proof investment with adaptable hardware and software.
- **High measurement performance index:** Guaranteed accuracy and reliability of flow measurement.
- **Flexible connectivity:** Supporting NB-IoT, LoRaWAN, and wM-Bus communication protocols for seamless data transmission.

Benefits

- **Ultrasonic technology:** Superior measurement performance with a built-in upgradeable and programmable hardware and firmware solutions.
- **Cost-effective communication:** Built-in low-cost radio for seamless data transmission between various communication systems.
- **Long-lasting battery life:** Up to 15 years of operation without battery changes.
- **Detailed records:** Event logs and alarm monitoring provide valuable insights into water usage patterns.
- **Accurate billing:** No more estimated bills, customers only paying for the water used.
- **Enhanced water management:** Precise measurement and leak detection help reduce non-revenue water.



Iskraemeco's multi-band mobile communication technology for smart metering

Sandi Gruden and Mariia Iglova Andreuzzi

Iskraemeco's smart meters undergo continuous development tailored to meet both the evolving requirements of the smart metering industry and the specific needs of our customers.

Our latest advancement is a multi-band communication solution supporting the 450 MHz frequency range. This new feature leverages insights from ongoing market research and partner collaboration, delivering significant technological improvements. It directly addresses industry needs by enabling secure private network communication for mission-critical infrastructure, reducing network infrastructure costs, and enhancing meter reading reliability, especially in hard-to-reach locations.

The 450 MHz band is experiencing significant growth, driven by increasing network deployments and compatible device availability. Key developments in the past year include network deployments in Germany, Poland, and Ireland, along with trials in Malaysia. Additionally, spectrum allocation is progressing in Saudi Arabia, and consultations are ongoing in South Africa.

The networks are serving as both primary carriers and backup solutions. The growing need for secure and dedicated connectivity in critical infrastructure sectors, such as utilities, is driving the adoption of these private networks. It offers predictability, stability, and control due to dedicated deployment based on user-specific requirements.

Iskraemeco's multi-band communication solution for smart meters helps utilities to leverage the benefits of 450 MHz networks. This translates to cost savings, enhanced security, and reliable meter reading, contributing to a more efficient and robust smart metering infrastructure.

This multi-band solution provides utilities with tangible advantages:

- **Cost control and security:** Private networks in the 450 MHz band (such as B31 and B72) empower utilities to manage their own network infrastructure, reducing reliance on commercial providers and enhancing security for mission-critical data.
- **Reduced network infrastructure costs:** The lower frequency of 450 MHz enables larger cell sizes. This translates to fewer towers required to achieve the same coverage area, which leads to significant cost savings in network operation and communication.
- **Improved meter reading reliability:** Lower frequencies penetrate buildings more effectively compared to higher frequencies. This ensures consistent and reliable communication even for meters located in hard-to-reach locations with obstacles like walls and ceilings.

The multi-band communication solution offers flexible deployment across diverse regions. Iskraemeco's proven track record of successful deployments in the Netherlands and Poland (utilizing LTE-M and LTE technology respectively) and a pilot project in Austria (leveraging LTE-M technology) demonstrates this adaptability.

The Polish project featuring IE.5 meters showcases the key technical improvements relevant to 450 MHz networks:

- **Enhanced measurement in the neutral conductor:** This feature was developed to improve the accuracy in detecting upstream tampering and identifying earth faults.
- **Specialized communication module for the 450 MHz frequency band:** Tailored to align with utility private networks, this module is specifically designed for the 450 MHz frequency band.
- **LWM2M protocol support:** Incorporating this protocol into our smart meters aims to optimize the efficiency of meter network management.

The incorporation of these features is particularly relevant to clients seeking to develop the 450MHz network. The network enables utilities to maintain operational autonomy from commercial network providers and effectively manage an extensive network of devices.

Iskraemeco prioritizes close collaboration with partners, focusing on understanding and integrating their unique requirements into its product development. This approach ensures that Iskraemeco's smart meters, e.g. IE.X offering 450 MHz capabilities, deliver solutions tailored to specific client needs.



Iskraemeco GME meter cabinets

Abdelhameed Qotb and Mariia Iglova Andreuzzi

Key features

The GME meter cabinet is a customized product with a proven track record of successful deployments over the years. Designed to meet the diverse needs of modern distribution system operators, the GME meter cabinet offers a wide range of features to improve connectivity and reliability.



The products are a trusted choice of many utilities who have leveraged the advanced features of the cabinets to elevate their operational efficiency.

Do you want to know more?

Connect with us to get all details you need – scan the QR code.:



Seamless connectivity

The GME meter cabinet offers extensive connection options for both internal and external modems, ensuring seamless communication across various systems. Its flexible configuration allows for a wide variety of inputs and outputs, which can be easily extended outside the cabinet for secure access for end customers.



Efficient installation

The GME meter cabinets are delivered pre-assembled and tested by automated testing equipment to ensure the best performance. They are fitted with a removable installation plate to simplify the setup process and minimize installation time. Customers are impressed by the convenience and ease of integrating meters within the cabinet, which makes the entire installation process smoother and more efficient.



Pre-wired connections

Iskraemeco's meter cabinets eliminate the hassle of additional wiring to the GMEs pre-wired connections for current and voltage transformers, whether 3P3W or 3P4W, and provide a seamless and swift installation without additional wiring. Cabinets include a dedicated power input, providing installation teams with easy access to power up the cabinet for testing and for final control purposes.



Integrated protection

The GME meter cabinets feature integrated protection fuses within the terminals to shield the I/Os and external power supply. The consumers can rest easy knowing that their cabinet auxiliaries are protected from potential electrical hazards.



External power supply ready

The GME meter cabinets come equipped with a dedicated external power supply ready for easy installation on a DIN rail, providing consistent power to external communication devices without any additional hassle.



Data-driven efficiency with the Symbiot software suite

Aleš Glavina and Marija Iglova Andreuzzi

Faced with rising pressure for operational efficiency, grid complexity, and service excellence, utilities struggle to extract value from AMI components and all collected data.

Using Symbiot, utilities will be able to make informed, data-driven decisions, hence optimizing their efficiency, performance, and sustainability across diverse applications.

Symbiot surpasses the limitations of conventional meter management software, offering a comprehensive suite for grid digitization. It simplifies data management, enhances data visibility, and improves network control with advanced security standards. Designed with client needs and requirements in mind, Symbiot addresses key challenges in meter management and grid operations.

Performance: Clients benefit from Symbiot's ability to ensure fast and seamless data processing. The software suite offers a wide range of configurations, allowing customization to meet specific operational needs.

Interoperability: Recognizing the need for integration with various systems, Symbiot provides easy connectivity with third-party devices, applications, and systems, facilitating a cohesive and efficient workflow.

Flexibility: The dynamic nature of energy management demands adaptable solutions. Symbiot is designed to easily incorporate new functionalities and supports quick and straightforward upgrades, ensuring that the platform evolves with changing requirements.

Sustainability: With a focus on long-term viability, Symbiot is built to meet future needs, providing clients with a sustainable solution that ensures a long-term return on investment.



Symbiot HES

Head-end system focusing on collecting data from multiple sources.



Symbiot MDM

Meter data management system and analytics software.



Symbiot FieldAssist

Platform for organized and efficient field work.



Symbiot Twinner

Digital twin of the electricity grid.



Symbiot Energy 360

Customer application.



Symbiot Elumia

Smart lightning management system.



Symbiot Water

Digital water management.



Symbiot Neboola

Cloud-based NB-IoT/LTE-M device management platform.

To fully tailor our solution to your needs, we offer a modular package of Symbiot apps.





Symbiot features

Reliability

The platform's successful track record underscores its reliability, providing utilities with a trusted solution for critical operations.

Easy integration and interoperability

Using open standards and technologies ensures effortless integration with existing legacy systems and minimizes your custom development costs. Third-party devices can be integrated with ease.

Scalability

Symbiot grows with your needs, with a scalable architecture allowing for easy expansion to accommodate evolving requirements and changes in legislation.

Modularity

Symbiot offers seamless customization by utilizing only the modules our partners truly need, thereby minimizing system costs through a flexible licensing model.

High security

End-to-end security is provided through the use of advanced, standard-based security methods.

Multi-utility

A generic platform for electricity, water, heat and gas.

Managed services

Supports on-premise HW, virtualized HW, cloud deployment, or SaaS and DaaS modes of operation.

Flexibility and customisation

Adopts new functionalities very quickly to suit your project needs. A future-ready solution.

Open platform

The Symbiot software suite is an open platform, where third-party applications can be integrated.

Using various applications Symbiot delivers measurable benefits proven by use cases:

- Digitizing data: from raw data into valuable insights, moving beyond basic correlations.
- Automating data transfer.
- Providing grid supervision.
- Detecting grid imbalances on multiple levels.
- Theft, fraud and abnormality detection.
- Integrating renewable energy resources.
- Reducing losses and increasing flexibility.
- Optimizing energy management processes.
- Streamlining processes and reducing manual interventions.
- Better resource utilization while lowering operational overhead.
- Increasing customer engagement.

Elevating quality, security, and data protection with prestigious certifications: ISO 33061, Swiss Cyber Security Examination, and CENELEC Compliance.

Symbiot has recently achieved three certifications, including ISO 33061, the data security examination certificate from Swiss METAS and compliance with CENELEC's (2016) "Minimum Security Requirements for AMI Components."

ISO 33061 certification: Symbiot has been awarded the ISO 33061 certification, reflecting our adherence to quality and security best practices within the software development lifecycle (SDLC). Compliance with ISO 33061 ensures consistency and control throughout the SDLC, leading to reliable software performance. This certification is a testament to our dedication to quality, efficiency, and continuous improvement in delivering our products and services.

Data security examination certificate (Swiss Cyber Security): We are proud to have passed the rigorous Data Security Examination conducted by METAS (Swiss certification body). This certification highlights our robust data protection measures and our commitment to safeguarding our clients' sensitive information. It assures our stakeholders of the integrity and security of our data management practices.

Compliance with CENELEC (2016) "Minimum Security Requirements for AMI Components": Symbiot has also achieved compliance with Cenelec's 2016 standards for "Minimum Security Requirements for AMI Components." This compliance demonstrates our dedication to maintaining the highest security standards in our Advanced Metering Infrastructure (AMI) components, ensuring reliability and trust in our technology solutions.

These certifications demonstrate our commitment to quality and continuous improvement.





Customer satisfaction related to water services

Peter Cheung

The customer experience landscape in the water utility industry is undergoing a dramatic transformation. Since the emergence of smart meters, artificial intelligence and digital twins, water utilities have had a significant opportunity to approach their customers in new ways. The new technology allows them to offer better service, transparency of billing and pricing, support services for inquiries, complaints and requests, promote water conservation, inform customers about planned maintenance disruptions, and engage communities.

Water utilities can benefit greatly from developing a stronger relationship with their customers. They can improve the process of setting prices that reflect the true cost of service and achieve positive results in demand management. Strong relationships are also beneficial after service failures. Customers with a positive image of the utility are more likely to be understanding of unavoidable emergencies.

Traditionally, water utilities operated under a model that prioritized water supply and infrastructure, with less focus on the customer experience. However, a recent Harvard Business Review Analytic Services Survey¹ (2020), revealed a significant shift in priorities. A survey that included 73 utility executives identified improving customer experience (CX) as the top business priority for the coming year.

This newfound focus aligns perfectly with the priorities listed by water utility customers interviewed by ERSAR, the Water Regulation Agency of Portugal. The respondents emphasized the importance of their satisfaction in several key aspects:

- water quality,
- water pressure,
- the number of interruptions,
- problem resolution time,
- service and product quality for the price paid,
- value for money in comparison with other essential services (electricity, electronic communication, post),
- transparent billing of drinking water services.

Further underscoring the growing importance of customer experience, the WAREG² (Association of European Regulators in the Drinking Water and Wastewater Sector) has identified the key performance indicators (KPIs) to measure customer perception of service quality and reliability.

These KPIs encompass a wide range of factors, including water quality, water continuity and bursts, water pressure, sewage system performance, and most importantly, customer complaint handling and communication.

In addition, indicators that monitor how operators communicate with their customers and the process of treating, analyzing and answering customer complaints complete the list of indicators in this category. Around 23% of all indicators have been associated with service quality. By leveraging the power of data, utilities can unlock a customer-centric future, ensure long-term success, and meet the evolving needs of a more empowered and environmentally conscious customer base.

Customer experience therefore depends heavily on data. The proliferation of smart metering systems gives utilities extremely granular information about usage patterns, which the companies connect to customer-preference data, third-party customer-behavioral data, internet of things (IoT) data, and other emerging information sources³.

¹ <https://hbr.org/resources/pdfs/comm/salesforce/ImprovingtheCustomerExperienceintheUtilitiesIndustry.pdf>

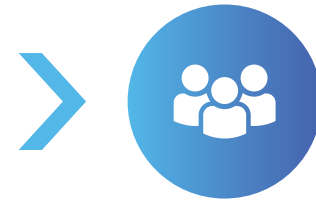
² <https://www.wareg.org/documents/kpis-report-2023-wareg-pdf/>

³ James, K. (2021). Improving the Customer Experience in the Utilities Industry, Harvard Business Review Analytic Services (accessed: <https://hbr.org/resources/pdfs/comm/salesforce/ImprovingtheCustomerExperienceintheUtilitiesIndustry.pdf>)

Customer engagement theory

Hierarchy of outcomes - Customer service

Consumers feel	Satisfaction
Consumers experience	Reduced effort
Utility deliver	Easier payment
Customer interaction	Account management by app



In general, a customer portal should deliver such outcomes

Customer Measures

- Satisfaction
- Trust and confidence
- Loyalty
- Value for money
- Fairness

List of countries that are in the process of creating KPIs for customer satisfaction

Brussels

CS-Compl09: Satisfaction level of customers about drinking-water work-sites

Brussels

CS-Info01: Waiting time to reach the operator by phone call

Kosovo

Customer complaints/site inspections

Albania, Hungary, Kosovo

Customer complaints

Azores

Reply to written complaints and suggestions

Bulgaria

PK13: Customer complaints answers

Flanders

Number of first-line complaints per year per 1,000 customers

Flanders

Average number of days between the date of receipt of the complaint and the date of notification of the attitude and measures

Ireland

Ease of telephone contact: Speed of telephone response

Italy

Managing contractual relations and service access (MC2)

Montenegro

Number of Complaints per 1,000 Consumers

Portugal

AA05 - Response to complaints, suggestions and information requests

By combining our industry-leading smart water meter solutions and the powerful data management platform Symbiot, Iskraemeco empowers water utilities to achieve success: exceptional customer experiences, operational efficiency, and sustainability. We are committed to helping water utilities navigate the changing landscape and secure a brighter future for themselves and their customers.

Iskraemeco technology: Smart solutions for a data-driven water future

It is evident that the landscape of water utilities is undergoing a rapid transformation. Customers are no longer satisfied with the status quo. They require transparency, control, and a commitment to environmental responsibility from their water providers. At Iskraemeco we recognize this shift and stand at the forefront of the industry, providing innovative solutions that empower water utilities to thrive in this new era.

Our approach is centered around the power of data. We believe that by harnessing the extensive amount of information generated by smart meters and digital twins linked with artificial intelligence engines, water utilities can gain an unprecedented understanding of their customers and operations. This data-driven approach unlocks a wealth of benefits, allowing utilities to not only meet the rising expectations of their customers but also ensure the long-term sustainability of their business.

Water scarcity is a pressing global concern, and Iskraemeco is not blind to this challenge. Our smart water meter solutions go beyond simple measurement, providing a comprehensive suite of features designed to tackle water scarcity head-on. These features include operational visibility platform to understand how the water distribution systems can integrate leak detection engines, allowing for swift identification and repair of leaks and minimizing water loss. Additionally, operational efficiency monitoring grants valuable insights into the performance of water distribution networks, empowering utilities to optimize operations and ensure smooth water delivery. Revenue protection measures are another key feature, helping water utilities to mitigate revenue loss through advanced detection and prevention. Our digitalized water solutions leverage the power of the Internet of Things (IoT) to equip water utilities with the tools they need for efficient water management, conservation, and long-term sustainability.

At the core of our offering lies Symbiot, a secure and automated platform that seamlessly integrates with utilities' existing infrastructure, transforming raw water data into actionable insights. Symbiot boasts not only flexibility and versatility but also industry-leading security protocols to safeguard valuable data. Most importantly, Symbiot is designed to facilitate data-driven decision making. Complex data sets are transformed into clear, actionable information, giving utilities the power of knowledge.



NB-IoT communication modules for water and gas meters

Peter Kobal and Mateja Kuralt

Introducing our advanced NB-IoT communication modules for smart management of water and gas networks. Our innovative NB-IoT solution enables remote data acquisition from water and gas meters, which brings many advantages to network managers, energy and water suppliers, and end users alike.

HOLOSYS
POWERED BY ISKRAEMECO

NB-IoT for battery-powered devices




The narrowband Internet of Things (NB-IoT) is a wireless telecommunications technology that is specifically tailored for IoT applications that require low power consumption, long battery life, and long radio signal range. The technology was standardised in the framework of 3GPP, with the release of version 13 in the second half of 2016; soon after, companies also began to implement the first applications. The technology was initially defined as part of the fourth (4G) generation, and then became an integral part of the fifth generation (5G) of wireless telecommunications technology.

Due to its characteristics, the technology is particularly suitable for communication devices that cannot use the energy from the network for their operation, but only operate with the help of energy from the battery. Such devices are required when measuring water and gas, as meters and their communication modules are usually not connected to the electricity grid in these applications.

Experience with the use of NB-IoT

Holosys, our associated company from Zagreb, is a pioneer in the use of NB-IoT technology for water and gas metering applications. In cooperation with the telecommunications operator Hrvatski Telekom, we began implementing the first such projects as early as 2018. In the years that followed, we gained extensive experience in the field of development and manufacture of communication devices for water and gas meters based on NB-IoT technology. This valuable knowledge is today reflected in a large number of successfully implemented projects for drinking water and natural gas supply companies.

The main advantages of using NB-IoT for these types of applications are the following:

-  **Extended Battery Life:** NB-IoT devices are designed to operate with very low power, allowing them to function for 10 years and more on a single battery.
-  **Enhanced Coverage:** Provides better coverage in challenging environments to traditional cellular networks, reaching locations that are typically challenging for regular cellular signals, such as deep inside buildings or underground. It is suitable for urban and rural deployments.
-  **High Connection Density:** Supports a large number of devices per cell, making it suitable for applications that involve massive deployments of IoT devices, like water and gas metering in urban areas.

Existing portfolio of NB-IoT products

The existing portfolio consists of 3 devices (Holosys NB-IoT Bridge, Holosys NB-IoT PulseReader P1N and Holosys NB-IoT GasPulsar), as well as the Symbiot Neboola NB-IoT battery management software.

The **Holosys NB-IoT Bridge** is a multifunctional communication module designed to automatically read data from various meters. The module is compatible with water meters, gas meters, as well as electricity and heat meters. The module enables the reception of telegrams that meet the wM-Bus standard (868 and 433 MHz) and their transmission to the NB-IoT telecommunications network. This functionality ensures wide compatibility with existing systems, and the robust connectivity of the NB-IoT network enables a smooth operation of the device, both inside and outside the facilities.



The **Holosys NB-IoT PulseReader P1N** is a communication module used for remote reading of energy consumption (gas, electricity, heat) and water. The module collects readings from the pulse outputs of meters of various manufacturers and transmits them to the NB-IoT telecommunications network.



The **Holosys NB-IoT GasPulsar** is another compact solution in our portfolio. This is a modular communication module designed to read consumption data from mechanical gas meters G4-G40 manufactured by Honeywell/Elster, Itron and Apator Metrix. The module sends the readings over the NB-IoT network, providing accurate and timely information.

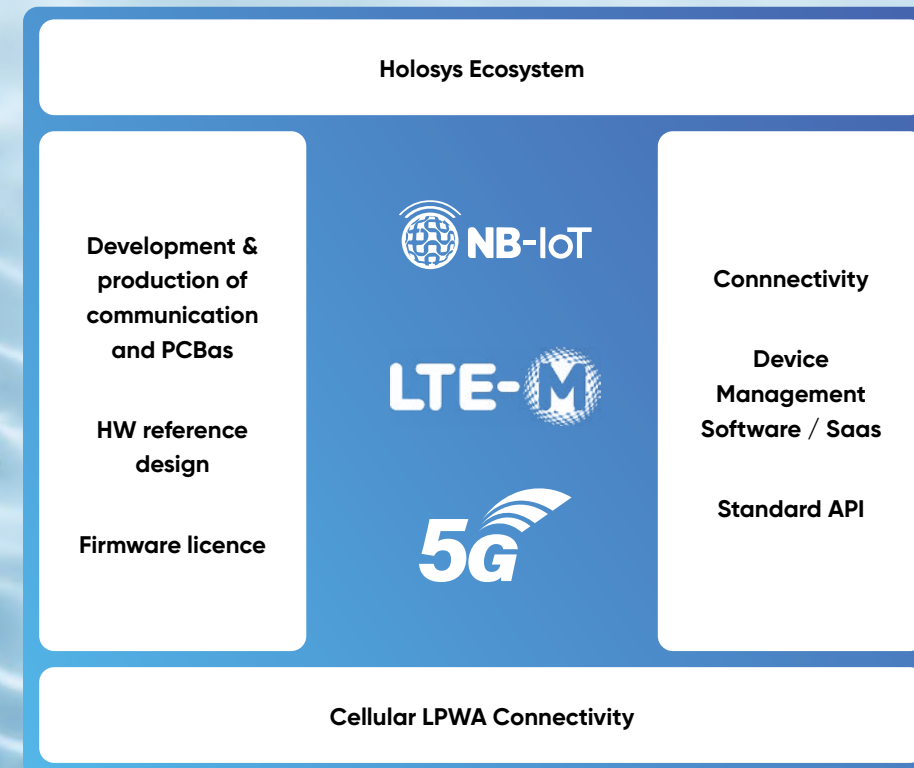


SYMBIOT Neboola

All three of the aforementioned communication modules are compatible with the **Symbiot Neboola** software, which makes it easy to manage them and set their parameters. Versions for frequency bands B20 and B28 are available. The Symbiot Neboola is a cloud-based NB-IoT/LTE-M device management platform based on the Internet of Things (IoT). It enables companies to harness the full potential of their connected devices. The platform offers a comprehensive set of features for remote device management, real-time data monitoring, and seamless data integration, enabling organisations to optimise performance, gain valuable insights, and make data-driven decisions.

Cooperation with water meter manufacturers within the Holosys portfolio

We offer a wealth of knowledge and experience in the field of NB-IoT technology for measuring water and gas consumption. We share this knowledge with water meter manufacturers who wish to incorporate this advanced technology into their products. For this purpose, we have prepared the "Holosys Ecosystem" program, which offers various business models of cooperation: from a complete service of planning and production of communication modules to reference plans, embedded software, connectivity, device management software and standard interfaces (APIs) for the integration of NB-IoT devices into the smart water and gas metering system.



Examples of collaboration

In cooperation between Iskraemeco and Holosys, we have developed a modern ultrasonic water meter IW.1 that uses NB-IoT technology to reliably and safely transmit water consumption data. For the manufacturer Maddalena, we have created an NB-IoT communication module, which is installed in their volumetric water meter MVM. This module enables easy integration of the water meter into smart metering systems. In April this year, we signed a contract for the supply of a number of NB-IoT communication modules for two Brazilian water meter manufacturers, Blue Metering and Lao Industria. This cooperation will contribute to the expansion of the use of NB-IoT technology for water metering in Brazil.



Interview with the Engineer of the Year 2023 nominee Nina Seifert

Anja Babič



One way of encouraging women to pursue careers in STEM is by showcasing successful female engineers as role models. The Slovenian Engineer of the Year award effectively accomplishes this goal as it acknowledges and praises accomplished women – and one of them is **Nina Seifert**, independent Innovation Development Engineer at Iskraemeco's Technological Design Center.

Nina, congratulations on your nomination for Engineer of the Year 2023. Women excelling in engineering set a positive example and inspire others to pursue similar career paths. What advice would you offer to women aspiring to follow in your footsteps?

Thank you! My advice for any woman who has a passion for engineering or feels a 'calling' for the profession is to pursue her dreams and interests wholeheartedly. Success often requires perseverance through challenges, and these challenges may not always be technical in nature. You have to keep up the spirit, ask for help, keep learning all the time, and grow as a person. It is also important to be aware of the power of diversity and fresh perspectives.

Have you faced any challenges in your professional journey as a woman in a predominantly male-dominated field? Can you share your experiences?

Personally, I haven't really experienced any gender-specific hurdles, but I've noticed reluctance among young women to pursue engineering due to factors like bias and a lack of female role models. Building confidence, establishing a strong professional base, and championing equality are essential elements for a successful career path and a more inclusive workplace. This foundation fosters innovation and diversity.



The Engineer of the Year nominees come from diverse backgrounds, and you've chosen to specialize in the energy sector. What drew you to this field, and what aspects of it do you find particularly interesting?

I was drawn to the complexity and innovative potential of the energy sector. I view it as a crucial component of sustainable future, where engineering solutions are instrumental in addressing issues relating to energy efficiency and the shift from fossil fuels to renewables. Also, the sector offers a lot of innovation opportunities, both in relation to existing and emerging products. Innovation creates value added. I felt motivated to develop advanced technological solutions that contribute to sustainable development and the effective utilization of energy resources.

Could you provide some insight into your responsibilities and tasks as Iskraemeco's independent development engineer focusing on innovation?

My responsibilities as an independent Innovation Development Engineer at Iskraemeco are split between innovation and technology. In the innovation domain, my focus is the development of sensors, specifically those designed for measuring electrical current and ensuring precise measurements. As the primary expert in this development area, my tasks span from conceptual design to conducting final measurements in the laboratory. These measurements are the basis for product certification.

Within the technology sector, my role is to ensure that the meters are calibrated before they leave our production facility. I am also responsible for overseeing the seamless operation of all systems. Actually, I act as a link between two sectors that deal with measurement accuracy.

On top of that, I am also involved in Six Sigma for data analysis. I utilize this knowledge to consistently improve processes, making sure that all aspects of production and development are aligned with the highest quality standards. Through these efforts, I contribute to the ongoing advancement of innovation and technology at Iskraemeco.

How do you perceive the efforts of both the educational institutions and private companies, such as Iskraemeco, in fostering enrolment in STEM courses?

At the primary school level, I see that schools are unable to effectively encourage students to enrol in STEM fields and schools. Often, students are introduced to technology through personal hobbies or family influences, but some who might be interested lack encouragement and opportunities. In contrast, secondary schools, particularly vocational ones, organize events that facilitate students' exposure to STEM professions, while general secondary schools do not provide such chances.

On the flip side, private companies such as Iskraemeco are proactively partnering with educational institutions. They attend school and college-organized events like career fairs and make presentations on these occasions. Furthermore, these companies promote STEM course enrolment by actively reacting to student initiatives, offering internships, and providing scholarships. This is their way to ensure that students stay connected to the technology sector throughout their education, gaining valuable insights into various career options.

Drawing on your engineering expertise, envisioning the challenges within your profession, consider this hypothetical scenario: If you were to conceptualize an innovative gadget to simplify engineers' tasks, what would it be, and how might it operate?

I understand this is purely imaginative! If I were to devise a futuristic tool for engineers, I'd design a mind-reading system. I often find that I am not provided with the precise information I would acquire if I handled the task myself. This groundbreaking technology would enable the direct transmission of accurate information about work and projects among team members, enhancing communication and ensuring a better grasp of the tasks at hand. However, there would need to be a mechanism to filter out non-work-related thoughts.

Additionally, I would develop a teleportation device allowing engineers to instantly travel between different locations. This would expedite problem-solving, foster on-site collaboration, and optimize time utilization. Together, these two innovations would significantly enhance efficiency and streamline work processes within the engineering field.

What are the prevailing trends in engineering, and how do you adapt to them or integrate them into your work?

Within my role, I actively keep up with the current engineering trends, particularly in the domains of digitalization, automation, and artificial intelligence. In my own work, I apply these trends in various ways. For instance, I employ advanced simulations for sensor development, automate meter calibration to ensure precise measurements during production, and engage in data analysis to continuously enhance our processes. Additionally, I frequently leverage ChatGPT for programming assistance, enhancing efficiency and expediting the development of technological solutions. This approach ensures that my work reflects the latest engineering practices and contributes to the ongoing innovation and technological advancement of our solutions.

What do you anticipate will be the next major breakthrough in engineering that will significantly impact our daily lives?

Considering the ongoing advancements in technology and science, the 'next big thing' in engineering is likely to be tied to the further evolution of artificial intelligence, quantum computing, space travel, or even the emergence of a novel method for generating electricity that could potentially replace fossil fuels. The possibilities are indeed vast.

How do you envision the future development of your career path?

In the future, I plan to advance my career within the company. In the short term, I would like to maintain my dual role, as it provides me with a diverse range of experiences and skills. However, as time passes, I hope to have more opportunity to actually participate in decisions and help determine the trajectory of the company. To achieve this, I plan to continue my education, particularly in Six Sigma. This will allow me to take a more systematic approach to problem-solving and contribute to the overall success of the company.

If you weren't an engineer, what profession would you pursue, and what would be your backup plan?

That's an interesting question. In primary school, my dream was to become a history teacher. However, considering the knowledge I have gathered, I might still have pursued engineering for its career prospects, but not necessarily electrical engineering. Perhaps I would have ventured into civil engineering, or, to explore a more unconventional path, into interior design or architecture.

My top engineering 'Aha' moment: The revelation that the sensor's shielding wasn't doing its job simply because the assumed ground pin was, in fact, not connected to the ground at all. Note to self: in the world of engineering, never trust assumptions—always opt for measurements first!



Nina's engineering top 3

Top invention: The smartphone stands out as a groundbreaking invention, seamlessly integrating the features of a phone, computer, camera, and more. It opens up limitless possibilities for communication, work, entertainment, and creativity—all conveniently housed within a single device!

Top engineer and a role model: Elon Musk, a visionary and the founder of Tesla and SpaceX, consistently surpasses the limits of engineering accomplishments. Role model: Future me.

Top engineering 'Aha' moment: The development of the electricity grid, notably the introduction of alternating current (AC) by Nikola Tesla, marked a transformative 'Aha!' moment. This grid revolutionized the effortless transmission of electricity across vast distances, and has significantly influenced our daily lives, the economy, and technological advancement.

Success story: Digitalization of the power grid and smart metering in Wiener Netze

Leading the change in Austria's power grid digitalization

Wiener Netze, Austria's largest combined grid operator, is at the forefront of digitalizing the power grid and implementing smart metering. This transformative journey, essential for meeting the EU directives and enhancing grid efficiency, showcases innovation, collaboration, and customer-centric solutions.

Austria's electricity meter reading system has evolved significantly. Traditionally, Distribution System Operators (DSOs) conducted hourly readings for large commercial and industrial customers, while smaller consumers received yearly readings. To align with EU directives and boost grid efficiency, the Austrian government mandated a large-scale smart meter rollout. Initial targets set in 2011 aimed for 80% customer coverage by 2020. However the legislation was revised in January 2022, establishing new milestones: 40% penetration by the end of 2022 and 95% by December 2024.

Challenges and strategic responses

Wiener Netze's approach to smart metering was influenced by several key challenges:

- Management of network losses:** Wiener Netze recognizes the importance of minimizing both commercial and non-commercial network losses. These losses encompass technical issues like energy dissipation in transmission lines and non-technical issues like theft or meter tampering. While current losses might be manageable, Wiener Netze understands their potential impact on long-term grid health and financial sustainability.
- Active consumers and evolving customer demands:** Wiener Netze observes a significant shift towards "active consumers", who control their energy consumption, engage in load balancing, and adopt e-mobility solutions. This trend underscores the evolving role of customers in energy management and necessitates enhanced utility-customer interaction and support.

- Data accessibility and regulations:** Wiener Netze prioritizes customer access to meter data. Customers can conveniently view data, adjust parameters, and set alarms through a user-friendly web portal and mobile interface. However, regulatory restrictions limit how Wiener Netze could leverage collected smart meter data for analytics and grid planning.

"Unfortunately, in Austria it is quite heavily regulated what data we are allowed to use for analytics or grid planning, and I think that is why we are not currently using the full potential of this data. But we need to understand the data, the measurements, what is being measured and what we can do with the data. We need to understand the state of the grid, and there are many differences between different types of grids. A better understanding of the state of the power grid is, I think, the next big step."

*Johannes Geist,
former Program Manager Smart Metering*

Key partnerships and innovative solution

Wiener Netze began exploring smart metering technology in 2009 with a period of pilot projects and technology evaluations lasting until 2015, after which preparations for a large-scale rollout began. During the piloting phase, the DSO utilised technology from different vendors. In August 2017, Wiener Netze announced its selection of a consortium for the mass-deployment phase of the rollout, with Iskraemeco as one of the chosen partners. Installations began at a smaller scale in November 2018. The large-scale phase of the rollout began in 2021 and by the end of the year, the number of deployed meters had reached 436,000. By the end of 2022, Wiener Netze had installed 800,000 smart meters, translating into a penetration rate of 50 percent.

Wiener Netze's decision to partner with Iskraemeco within a consortium of reputable suppliers provided a solid foundation for the project. Iskraemeco's expertise and commitment to quality aligned with Wiener Netze's objective of prioritizing quality over price. Rigorous testing procedures ensured that only meters meeting stringent quality standards were accepted, reflecting the Iskraemeco's dedication to delivering reliable and high-quality solutions.

Solution architecture

Wiener Netze measures quarterly hour and daily energy consumption utilising Iskraemeco smart single and three phase meters using G3-PLC and P2P communication technologies. Iskraemeco meters adhere to industry standards, robust communication protocols, and advanced security features. Utilizing the COSEM/DLMS standards and TCP/IP communication profiles, these meters ensure seamless integration, enhanced data management, and reliable metering operations across diverse environments.

Daily energy consumption data is transmitted to Wiener Netze. The quarterly hour data stays on the meter for 60 days. Wiener Netze's customers can opt-in for 15-minute intervals or opt-out of using the smart meter features, which also opt-out of data collection at the meter itself. That is a very specific part of the requirements imposed to fit the regional market.

More information about solution architecture is available here:



Pioneering smart lighting in Croatia with Elumia monitoring solution

Damijan Pristov and Mariia Iglova Andreuzzi

Discover how Elumia's smart lighting monitoring solution has enhanced the urban infrastructure in two Croatian cities, Ludbreg and Križevci, by digitizing and modernizing their public lighting infrastructure, improving operational efficiency, and optimizing costs.

Get to know the project results

Curious about the technical details behind this project? Read the whole success story to discover the sequential technology and innovative products we used to build a robust and efficient solution architecture with impressive features.

Even more interestingly, see the results we achieved, including improved operational efficiency and optimized monitoring and maintenance costs.



Customer challenges

Inefficiency of traditional lighting management systems

Management of conventional lighting infrastructure is a labour-intensive process that relies heavily on manual inspections, struggling to pinpoint malfunctioning luminaires. This approach is costly both in terms of time and resources and, even more importantly, does not provide a comprehensive overview of the lighting infrastructure.

Need for digitizing the existing public lighting system

Modern urban environments need a system that monitors and measures parameters in the public lighting system, facilitates automatic reporting, and provides detailed maintenance instructions.

High energy costs

Concerns over high energy costs associated with traditional lighting technologies.

Iskraemeco solution

The pilot project spans two cities in Croatia, each with its unique project requirements, with the Elumia smart lighting monitoring system at the core of the solution.

This solution is designed to establish efficient lighting infrastructure and comprises three essential components.

SYMBIOT Twiner

Optimizing data-driven grid management with digital twin technology

Aleš Glavina and Mariia Iglova Andreuzzi

Distribution System Operators (DSOs) ensure a stable power supply to millions of consumers. They manage complex low-voltage electrical grids, facing increasing challenges due to a growing demand for efficiency and reliability.

Are you interested to learn more about how Symbiot Twiner can help DSOs overcome these challenges and seize new opportunities?



Download the case study here:

Customer profile

Symbiot Twiner supports Distribution System Operators (DSOs) who manage intricate low-voltage electrical grids that are a vital part of local energy infrastructure. These operators manage everything from strategic grid design to daily operations focused on efficiency and reliability.

The ongoing energy transition driven by renewable energy sources places additional pressure on electrical grids, thereby increasing the intricacy of energy management. The imperative for smarter, efficient, and reliable grid solutions is clear. By integrating modern information and operational technology, data takes a central role, enhancing the intelligence of the smart grid.

Challenges

In a heavily regulated environment, DSOs manage significant data volumes and complex grid planning tasks. The increasing integration of distributed energy resources (DERs)—such as solar panels and small-scale wind turbines—alongside the growing prevalence of electric vehicles and heat pumps introduces new dynamics and challenges. These developments lead to increased loads and potential instabilities, exacerbating the strain on infrastructure, notably on cables and transformers, and leading to overvoltage issues in low-voltage (LV) grids. Moreover, these challenges occur within a broader context of aging infrastructure, heightened cybersecurity threats, evolving customer service demands, and rapid technological changes.

Iskraemeco solution and implementation benefits

To tackle grid management complexities, Iskraemeco has introduced the Symbiot Twinner, powered by DataThings' GreyCat technology. This digital twin solution harnesses smart meter data alongside advanced temporal-graph data architectures to create real-time grid replicas. This innovation supports continuous machine learning and enhances scalability and decision-making across grid management departments.

Symbiot Twinner stands out with its robust data architecture that excellently manages data aggregation, visualization, analysis, and machine learning. By integrating graph and time-series database engines, it adeptly handles millions of grid elements and billions of data points. It transforms raw data into actionable insights considering contextual information like weather, calendar events, and various forecasts.

Utilities equipped with Symbiot Twinner benefit from its comprehensive predictive simulation and analytics capabilities. It identifies true grid congestions, facilitating targeted investments and strategic optimizations. The solution profiles each grid asset to ensure data consistency and enhances investment justification, reduces non-technical losses, and optimizes network capacity.

For each grid asset and consumer, the Symbiot Twinner provides:

- Live monitoring (including High, Medium, and Low Voltage assets).
- Accurate predictions (e.g., consumption of a final client, cable load).
- Agile simulations (taking into account current and forecasted grid status).
- Power flow calculations.
- Heatmaps (active power, current, voltage, meter reading, cable load etc...).
- Geo-temporal navigation on all asset data in a map view format with a time-machine slider to navigate anywhere across the grid and visualize its past, present, and forecasted state instantaneously.
- Instantaneous visualization of results on portable devices at minimal computational cost (ideally hosted on-prem).
- Data-inconsistency detection and identification (algorithm detects data inconsistencies in core source systems from day one).

Implementation of Symbiot Twinner and its effects after one year of use

Streamlining operations and cost savings through accurate grid data management

Results achieved:

- Instantaneous data analysis and reconciliation across integrated systems to correct and remove inaccuracies within targeted IT systems.
- Capability to pinpoint and resolve specific grid issues remotely while updating documentation instantaneously.
- Reduction in manual on-site verifications.

Value delivered:

- Update and cleaning cycle for grid documentation down from several years to a few months.
- Manpower requirement reduced from 20 part-time workers to one full-time individual working on updating the documentation two months per year.

01

Elevating maintenance strategies with predictive simulation technology

Results achieved:

- Reduction in simulation time for maintenance activities from several days to just seconds.
- Introduction of tools for regional centers to make informed decisions quickly.
- Successful examples of maintenance operations that were non-disruptive to customers.

Value delivered:

- Enhanced reliability and efficiency in maintenance operations.
- Significant reduction in societal and commercial impacts by avoiding service outages.
- Improved operator confidence and decision-making capabilities.

02

03

Strategic savings through optimized technical loss management

Results achieved:

- Comprehensive suite for predictive simulation and analytics.

Value delivered:

- Improved operational efficiency by reducing waste associated with over-purchasing of losses: Saving 5% on loss buybacks.
- Enhanced market responsiveness, allowing for purchasing at times of low prices.

05

Enhancing non-technical loss detection

Results achieved:

- Enhanced detection of non-technical losses leading to more accurate billing and revenue protection.
- Reduced instances of electricity theft through targeted interventions.
- Improved ROI from smart meter deployments due to theft reduction.

Value delivered:

- Financial savings from the recovery of lost revenue due to non-technical losses.
- Increased customer trust and satisfaction due to more accurate billing.
- Positive societal impact by addressing and reducing electricity theft.

04

Predictive analytics: a game changer for grid investment strategy

Results achieved:

- Reduction in the overestimation of network capacity needs by over 50% in some cases.
- Identification of true bottlenecks in the network, allowing for targeted investments based on real network conditions.
- Significant time savings in grid planning processes, reducing certain tasks from several weeks to just seconds.

Value delivered:

- Reduction in unnecessary infrastructure investments, saving on trenching and cabling costs.
- Enhanced ability to support economic growth by efficiently managing network connections for new developments.
- Decreased operational costs by reducing the workforce needed for grid planning.
- Automated simulation process for minor grid capacity increases.

06

Pioneering optimal path configuration for enhanced energy distribution

Results achieved:

- Identification of network optimizations leading to reduced ohmic losses.
- Financial savings from decreased energy loss and improved network efficiency.
- Reduction in the environmental impact of energy distribution.

Value delivered:

- Enhanced network performance with lower technical losses.
- Financial benefits from cost savings in energy generation and distribution.
- Positive environmental outcomes due to increased efficiency.

Pioneering Innovation in water management: Iskraemeco's Landmark LWSC water meter project

Alyaa Sakr

Water management is a critical challenge for communities worldwide. Accurate and efficient metering systems are crucial for ensuring fair water allocation and promoting responsible water use. Check out how we supported the Lusaka Water & Sanitization Corporation (LWSC) in Zambia to help them address these challenges.

Transforming water management

For the first time in its history, Iskraemeco has delivered plastic water meters, which marks a significant milestone in our technological evolution. This innovative approach aligns with our mission to provide sustainable and efficient metering solutions that cater to the unique demands of diverse markets.

"The first major project for supplying water meters to Africa marks a significant step towards improving water management and water accessibility across the continent. This initiative aims to enhance the efficiency of water usage, and empowers communities with better control over their water consumption, promoting both economic and environmental benefits," says Ragheb Ragheb, Contracts & Project Manager Director, Iskraemeco Egypt.



Leading the future of metering

Iskraemeco's involvement in the LWSC water meter project underscores our dedication to adapting and innovating to meet our clients' needs. This project not only expands our portfolio but also reinforces our position as a leader in the metering industry. We remain committed to delivering top-tier metering solutions that drive progress and sustainability across the globe.

Key achievements

- **Enhanced durability and safety:** The transition to plastic water meters not only reduces the risk of theft associated with brass meters but also ensures longevity and resistance to harsh environmental conditions.
- **Sustainable solution:** By opting for plastic, we are contributing to the reduction of metal use, promoting environmental sustainability without compromising on quality or performance.
- **Cost-effective:** Plastic meters offer a cost-effective alternative to traditional brass meters, providing LWSC with a budget-friendly solution that does not compromise on accuracy or reliability.

Project impact

- **Improved water management:** The deployment of 11,000 water meters has significantly enhanced LWSC's ability to manage and monitor water distribution efficiently, leading to better resource allocation and reduced wastage.
- **Customer satisfaction:** By ensuring accurate and reliable water metering, LWSC can offer improved services to its customers, fostering trust and satisfaction within the community.

Challenges and opportunities of the Iraq's energy sector

Alyaa Sakr

Iraq's vast oil and gas reserves position the country as a major player in the global energy market. However, Iraq's energy sector is facing a number of challenges as a result of deteriorating infrastructure, political instability, and complex regulations that create unfavourable environment for new businesses.

Despite these obstacles, the energy market presents a unique opportunity in a time of a historic shift towards a sustainable and smarter energy future, not just for Iraq, but for the entire Middle East.

Understanding the complexities of the Iraqi market

Iraq's energy sector relies heavily on oil and gas. While this reliance comes with a significant potential, years of neglect and underinvestment have left the infrastructure in urgent need of modernization. Additionally, navigating the regulatory landscape can be difficult, with rules and regulations varying between different regions.

This is where Iskraemeco can help. With over 15 years of experience as a leader in metering solutions and a recognized expert in the Middle East, Iskraemeco brings a deep understanding of the region. This knowledge is crucial when navigating the complexities of the Iraqi market.



Leveraging smart solutions for a sustainable future

While challenges persist, Iraq's energy sector is also a playing field for innovative solutions. Iskraemeco's smart metering solutions for electricity, water and gas can play a vital role in addressing these issues. Our recent collaboration with the Iraqi Ministry of Electricity, encompassing Baghdad, northern, and central Iraq, will revolutionize grid management and reshape energy consumption. Our cutting-edge smart metering solutions and Symbiot software suite will not only enhance the customer experience but also enable utilities to improve energy management, supporting the government's plan digitization by installing 10 million smart meters within 5 to 10 years. This ensures the digital transformation outlined in its five-year strategy for a smarter and more sustainable future.

E-Mobility: Driving towards a greener future

Iraq's Development Plan emphasizes reducing reliance on fossil fuels, aiming to significantly lower the country's carbon footprint.

Iskraemeco's Iraq Country Manager, Hisham Saeed, sees the market as having immense potential for our eMobility portfolio: "Our solution goes beyond just supporting a stable, intelligent, and well-maintained grid. It also protects charging infrastructure for electric vehicles and offers a unified payment gateway. This combination streamlines the electric vehicle charging experience, making it more convenient and facilitating wider adoption of electric cars. Smart metering and e-mobility solutions are not just about better power management. They also pave the way for educating consumers and utilities about the benefits of smart energy use. By demonstrating the practical advantages – cost savings, reduced energy waste, and lower emissions – these technologies can encourage everyone to adopt greener habits."

New antitampering single-phase meter ME154

Luciano Gonzalez



Accurate metering is crucial for a reliable electricity supply. The new ME154 single-phase meter, launched in Iskraemeco Argentina, goes beyond expectations, delivering advanced features and cutting-edge technology for precise energy metering.

The ME154 is engineered around a chip that is specifically tailored for measuring active energy, reactive energy, RMS voltage, and RMS current. This technological prowess ensures accuracy that surpasses the stringent requirements set forth by standards such as IEC62053-21 for Class 1 in active energy and IEC62053-23 for Class 2 in reactive energy. Such high precision forms the bedrock of efficient energy management and accurate billing practices.

One of the standout features of the ME154 is its bidirectional communication capability facilitated through the IEC62056-21 port. This feature streamlines meter reading and basic configuration tasks. Moreover, the inclusion of a unidirectional IrDA port enables rapid access to billing data, demand, and counters for fraud control purposes in just two seconds, thereby eradicating the possibility of errors and expediting the reading process.

Further bolstering its capabilities is the integration of a maintenance-free supercapacitor. This feature ensures that in the event of a power outage the display remains illuminated with the active energy register for a period of 24 hours, thereby safeguarding consumption data even during emergencies and enabling precise billing.

The advanced single-phase meter ME154 represents a significant leap forward in electricity metering technology. Its precision, efficiency, and advanced functionalities are indispensable for efficient resource management and the optimization of electrical networks. With its ability to maintain operability even in adverse conditions, the ME154 sets a new standard for reliability and accuracy in energy metering.

In terms of specifications, the ME154 boasts the following technical features:

- Single-phase connection, 1 phase, 2 wires
- Sequential type of connection
- Nominal voltage: 220 V
- Voltage range: 154 V to 264 V

Current:

- Basic Ib: 5 A
- Maximum Imax: 100 A
- Minimum Ib: 5 A

Precision class:

- Active energy: Class 1, IEC62053-21:2003
- Reactive energy: Class 2, IEC62053-23:2003

Operating temperature range:

- Operation: -25°C to +65°C
- Storage: -40°C to +85°C
- Nominal frequency: 50 Hz
- Protection rating: IP54

Iskraemeco launches new repair services to ensure the proper functioning of meters in Argentina

Luciano Gonzalez

In response to market demands and specific inquiries from our clients, Iskraemeco in Argentina has launched a new line of services specialized in meter repair. Committed to providing comprehensive and high-quality solutions, we have prepared to address this growing need with the support of knowledge and experience from prominent professionals in the field.



"In Argentina, our experience with electricity providers highlights a crucial need for meter repair and maintenance services. When a resident moves, utility companies typically remove meters for testing, potential repairs, and recalibration to zero. This ensures accurate readings for the new occupant. As the meter's manufacturer, we possess the expertise and spare parts to perform these services efficiently. This not only offers a profitable opportunity but also strengthens customer relationships by providing a seamless solution for meter management," says Jorge Salles, Engineer Manager in Iskraemeco Argentina.

Two categories in a streamlined process

Iskraemeco's repair expertise covers both single-phase and three-phase meters. Here's a closer look at the repair process as divided into single and three-phase meters.

Single-phase meter repair:

- 1. Selection and evaluation:** We begin the process by energizing the meters and verifying their operation. We ensure that the display is in perfect condition, discarding those showing signs of possible fraud such as cut segments, bridges between input and output currents, cut cables, or added resistors.
- 2. Cleaning and repair:** Suitable meters undergo thorough cleaning, and all screws and parts are fully tightened. Any broken or missing components are replaced to ensure proper functioning.
- 3. Quality control:** Dielectric strength and curve points are tested, and detailed protocols are generated and delivered to the client in digital format along with the repaired batch.
- 4. Inspection and approval:** Meters are inspected in our laboratory, following relevant regulations and in collaboration with the client. An approval certificate is generated for those that pass all checks.
- 5. Shipping and delivery:** Once approved, batches are dispatched to the destinations previously indicated by the client.

Three-phase meter repair:

- 1. Selection and evaluation process:** Similar to the process for single-phase meters, we energize the meters and verify their operation, discarding those with anomalies such as cut segments, bridges between input and output currents, cut cables, or added resistors.
- 2. Cleaning and repair:** Suitable meters undergo thorough cleaning, and all screws and parts are fully tightened. In this case, some parts such as the terminal box cover may not be replaced due to its importation, although we are evaluating options to manufacture them locally.
- 3. Quality control:** As with single-phase meters, dielectric strength and curve points are tested, with detailed protocols generated for the client.
- 4. Inspection and approval:** Meters are inspected in our laboratory, following established regulations and in collaboration with the client, generating an approval certificate for those meeting required standards.
- 5. Shipping and delivery:** Once approved, batches are dispatched to the destinations previously indicated by the client.

Trusted by leaders and committed to growth

Iskraemeco has earned the trust of prominent Argentinean first level utility, with whom we hold annual meter repair contracts. We are actively expanding our services to reach more clients and contribute to the development of Argentina's energy sector.

Interview with MDH energy company: strengthening partnerships for smart solutions.

Dragan Stjepanović and Mariia Iglava Andreuzzi



On February 14th, we had the pleasure of hosting MDH energy company, our partner from Romania. During their visit, we engaged in insightful discussions with the masterminds behind our partner company, **Mr. Horia Petru Suciu** and **Mr. Daniel Potfalean**.

Could you please tell us more about your experience working with Iskraemeco. What are some of the biggest challenges and successes you've encountered along the way?

Our partnership with Iskraemeco began eight years ago, coinciding with Romania's shift towards smart metering and the country's changing energy regulations. In view of ensuring compliance with the new regulations, we sought out providers of smart metering solutions.

We've been familiar with Slovenia as a leading force in this field for years, and our discovery of Iskraemeco and its products was a perfect fit for our customer requirements.

Despite the initial challenge of securing regional approvals—a process spanning three years—our collaboration has proven to be highly productive and valuable.

Why did you decide to partner with Iskraemeco in the first place?

Our decision to partner with Iskraemeco stemmed from their notable smart metering products and solutions, precisely tailored to address our customers' needs and challenges. Notably, Iskraemeco's flexibility extends to the customization of meters, devices, and software platforms aligned with the regional regulatory framework to suit the regional requirements.

Iskraemeco has showcased an ability to address the key pain points of our customers.

1. Accuracy of billing data

Objective: Ensure precise billing data to mitigate revenue loss from inefficiencies, inaccurate billing, and electricity theft.

Iskraemeco's value: Offering reliable metering and seamless data transfer to utility data systems, eliminating the risk of missing billing data.

2. Data quality, quantity, and utilization

Utility pain point: Challenges in obtaining quality data, managing large data volumes from meters, and utilizing the data effectively.

Objective: Implement mechanisms for precise measurements and leverage data analytics for actionable insights and decision-making.

Iskraemeco's value: Providing up-to-date information on energy consumption, network status and power quality, helping consumers to optimize network usage through effective monitoring.

3. Centralized data access and unification

Utility pain point: Dispersed data across isolated systems hindering centralized access and unification.

Objective: Deploy a unified head-end system (HES) to centralize data management and streamline operations.

Iskraemeco's value: Offering a comprehensive solution with centralized data collection and access supporting all meter readouts. The HES seamlessly integrates with third-party systems. This integration ensures unified data utilization across utility IT systems.

4. Cybersecurity and grid security

Utility pain point: Concerns regarding cybersecurity threats and grid data security.

Objective: Enhance cybersecurity measures to safeguard the grid infrastructure and sensitive data from cyber threats and breaches.

Iskraemeco's value: Implementing and maintaining the highest standards of data security to secure grid infrastructure and protect against cyber threats, ensuring data integrity and system resilience.

What are the trends on the Romanian market? What are the hot topics and technologies?

Reflecting broader European trends, Romania faces challenges in integrating renewables, including eMobility, PVs, and grid flexibility.

Collaborating closely with our customers, we explore solutions to address these complex challenges. We know that Iskraemeco has innovative smart grid management solutions, designed to support modern applications.

Can you share an example of a project you worked on with Iskraemeco that you're particularly proud of? What made it successful?

Our collaboration with Iskraemeco has yielded several successful projects, including the provision of 22,000 smart meters utilizing the MT880 and MT174 meters, alongside the Symbiot software suite.

Our partnership began with proof-of-concept trials and then progressed to inclusion in trusted supplier lists, driven by customer satisfaction with the meters' reliability, flexibility, and functionality.

What benefits do you see in your collaboration with Iskraemeco?

Our cooperation with Iskraemeco is underpinned by several key values.

Firstly, Iskraemeco's products are developed entirely within the EU, ensuring the transfer of in-house expertise across research, development, design, production, and delivery. This integrated approach enables rapid customization and problem-solving that is precisely aligned with customer requirements.

Moreover, Iskraemeco has an impressive track record of delivering reliable, high-quality metering solutions, adaptable to diverse regional customer needs.

Since implementing Iskraemeco's solutions, what improvements have you seen in the customer performance?

Following the implementation of Iskraemeco's solutions, we were able to identify several improvements in customer performance.

- Data analytics enable informed decision-making, empowering customers with up-to-date information on energy consumption and network status.
- Centralized data access facilitates streamlined operations, while enhanced cybersecurity measures safeguard sensitive data from threats and breaches.

What are your future plans and goals for this cooperation?

Looking ahead, we remain committed to our long-term partnership with Iskraemeco and confident that our journey together has only just begun.

A new technologically-advanced water meter testing line in Kranj

Mateja Kuralt, Gregor Velepec and Henrique Gustavo da Costa

Iskraemeco Kranj is setting up a new production line that will showcase the pinnacle of technological innovation in the field of water meter testing in the Western Balkans. The new line will significantly increase Iskraemeco's competitiveness in domestic and international markets and will enable the company to offer high quality products at competitive prices.

As water is a vital resource for both the present and the future, utilities and governments will strategically invest in all technologies involved in water management. The new line will make it possible to produce water meters of superior quality that are essential for accurate metering of water consumption, enabling fair billing and promoting the rational use of this precious resource.



The new line in Kranj is proof of our commitment to innovation and continuous progress. With this investment, we are not only strengthening our market position, but also the overall technological knowledge and innovation in Slovenia. We are convinced that this investment will make a significant contribution to the sustainable development of water management in Slovenia and beyond.

In our opinion, the most important feature of the new line is the test bench of exceptional accuracy. The test bench is instrumental in delivering top-quality, reliable water meters, which are synonymous with flawless operation and a long service life. In addition, the new line with the test bench will:

- significantly increase our production capacity and shorten delivery times;
- enable the introduction of the latest technologies and innovative solutions;
- strengthen our competitiveness in domestic and international markets.

The new test bench is dedicated to the comprehensive testing of a wide range of water meters, from classic to modern smart devices, in accordance with the strictest international standards to ensure the uncompromising quality and reliability of our products. Iskraemeco will produce water meters with the CE marking required by customers in Europe and elsewhere due to funding or local regulations. Pilot production in Egypt will start in the next months and in Slovenia the line is expected to be ready for pilot production at the end of the summer. We will also gradually increase production capacity to meet the growing market demand.



Iskraemeco achieves a manufacturing excellence milestone with the new SMT line in Egypt

Alyaa Sakr

In a landmark development that marks a significant leap forward in manufacturing capabilities, we successfully installed a new, state-of-the-art surface mount technology (SMT) production line in Egypt. This latest expansion, the third of its kind, is ushering a new era of improved standards and efficiency across all production lines.



Iskraemeco's global approach to excellence

Iskraemeco's strategic expansion and technological upgrades are part of the company's worldwide vision to achieving industrial competence. By adopting advanced high-tech, Iskraemeco ensures greater efficiency and quality in its PCBA manufacturing processes, setting new standards in the industry. Our pledge to quality is also evident in our strategic partnerships with industry leaders such as ASMPT, ASYS, KOH Young Technology, ITW EAE Vitronics Soltec, YJ LINK, Adelec International, and Sigma Group Egypt. The agreements concluded with the above entities clearly demonstrate Iskraemeco's determination to leverage the best technology and skills available worldwide. Lastly, the successful installation of the new SMT production line and subsequent improvements in manufacturing processes are the result of the remarkable efforts of Eng. Gamal Milad and the operations team at Egypt's production hub. Their devotion and hard work have been instrumental in achieving this milestone, furthering Iskraemeco's vision for growth and dedication to retain its leadership position in the energy management solutions sector.

Doubling capacity with cutting-edge technology

We have always been at the forefront of adopting technological advancements to enhance manufacturing processes. The installation of the new SMT line is a testament to this enduring commitment. By doubling the production capacity, we are poised to meet the growing demand for our products more efficiently, while maintaining the high-quality standards we are known for.

Elevating quality with latest 3D inspection technology

In our pursuit of excellence, we have not only focused on expanding our capacity but also on enhancing the quality of production processes. In a significant move towards achieving this goal, we have integrated Koh Young's advanced 3D SPI (solder paste inspection) technology into manufacturing operations. This cutting-edge technology allows for precise inspection of solder paste application, which is a crucial factor in ensuring the quality of printed circuit board assemblies (PCBAs). Moreover, all SMT production lines at Iskraemeco have been upgraded with 3D AOI (automatic optical inspection) technologies, also provided by Koh Young. This also enables us to identify and rectify any defects early in the manufacturing process, helping us to significantly improve the overall quality and reliability of our products.



Strengthening employee knowledge with a new Training Center

Miha Kern, Sabina Kalan and Mateja Kuralt

The recent opening of a new training facility for the employees in Kranj demonstrates the company's commitment to investing in employee knowledge and development. This modern center represents a significant step forward in the company's efforts to provide top-notch training and enhance employee competencies, which are crucial for the company's long-term success.

At Iskraemeco, we believe that our employees are the key to our success. That's why we strive to provide them with everything they need for their professional and personal development and advancement. The training center, which is already up and running, plays a pivotal role in achieving this goal by providing employees with a wide range of training options and opportunities to acquire new skills.



The Training Center is equipped with modern equipment and technology that allows employees to receive hands-on training in a safe environment that mimics real production work processes. This enables them to gain practical experience and knowledge that is directly relevant to their work

A range of training programs are already available at the Training Center for both new employees and those who want to upgrade their skills or retrain for other positions. Close cooperation with mentors from production, who are actively involved in the delivery of training, further strengthens the link between the Centre and the workplace. In addition, Iskraemeco will also provide employees with access to an array of educational materials and resources in order to enable them to continue training and strengthening their knowledge even outside of working hours.

"We are excited about the opening of the Training Center and proud to be able to offer our employees the opportunity to develop their knowledge and advance their careers," stated Miha Kern, Head of Production and Manufacturing Engineering at Iskraemeco Kranj. "We are confident that the Center will make a significant contribution to raising the competencies of our employees and thus to the long-term success of the company."

Many Iskraemeco employees have already taken part in training courses at the Training Center and are enthusiastic about them. They are acquiring new knowledge and skills that help them advance and improve their work performance. "I particularly appreciate the practical training and support from mentors, where I can immediately put my new knowledge into practice," said one of the participants. The knowledge and skills that employees acquire are invaluable for their work and for the success of the company as a whole.

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With the opening of the Training Center, Iskraemeco has set a new milestone in its efforts to provide a great working environment and ensure long-term success. This is just another confirmation that Iskraemeco is not just a company, but a community that recognizes the importance of its employees and invests in their future.

Successful completion of the "Digital Twin for Digital Lean" (DT4DL) project

Aleš Tancer and Miha Kern

The "Digital Twin for Digital Lean" (DT4DL) project has been successfully completed in accordance with the plans outlined in the consortium's digital strategy. Consortium partners, including Iskraemeco d.d., 3 Projekt d.o.o., ADD d.o.o., GL Charge d.o.o., Iskra AMS d.o.o., and Qmins d.o.o., joined forces to achieve a comprehensive digital transformation based on the establishment of a digital twin for optimizing lean manufacturing processes. The project was structured and executed in several phases and steps as defined in the digital strategy, aiming to enhance the competitiveness and operational efficiency of the consortium companies.

Phase 1: Preparation of the digital strategy

During the first phase of the project consortium partners focused on preparing the strategy, designing the project, and establishing the working method. The primary task was to conduct a thorough analysis of the current state of technology and processes within the consortium companies. The DIHS methodology was used for self-assessment of digital maturity. Based on this analysis, specific transformation goals and relevant key performance indicators (KPIs) were defined to serve as benchmarks for evaluating project progress.

Phase 2: Technological enhancement for digital transformation

The second phase focused on key steps that enabled the effective execution of the digital transformation. This included the acquisition of necessary equipment, development and customization of solutions, and thorough testing of solutions. The next step involved integrating these solutions in a test environment, allowing their functionality and efficiency to be verified without impacting regular business processes. During this period, new processes were designed and new solutions developed, tailored to the specific needs of the consortium partners.

Phase 3: Implementation of digital transformation solutions in business processes

In the third phase, the focus was on implementing the solutions into the business processes of the companies and monitoring the success of the implemented systems and other solutions. Extensive employee training was conducted for the use of new digital solutions and technologies. These activities ensured that new technologies were successfully integrated into everyday business processes. User manuals and appropriate documentation were prepared to support employees in using the new digital tools and processes.

The asset was acquired under the Digital Twin for Digital LEAN - DT4DL project. The purchase was co-funded by:



Digitalization of key processes

Within the DT4DL project, various business functions were digitized, including production, quality, procurement, maintenance, and planning. In the context of production digitization, solutions for automation and robotics were implemented, significantly improving the efficiency and reliability of production processes. Automation of the wiring insertion process for electronic components and visual inspections using machine vision contributed to improved product quality and reduced production times.

Digital Twin for innovative services and business models

A key element of the DT4DL project was the establishment of a digital twin platform, representing a digital copy of the production line. This platform enables operational monitoring and visualization of production line operations almost in real time and fosters an analysis of lean manufacturing parameters. This improved production flow and utilization rate and reduced costs. Establishing the platform was a crucial building block of our digital transformation, in particular as it enabled monitoring of all key aspects of production and ensured greater transparency and optimization of processes.

Key technologies in DT4DL

The DT4DL project includes several advanced technologies intertwined for optimal results. These include:

- 1. Robotics and process automation:** Introduction of robots and automated systems to optimize production and reduce human errors.
- 2. Internet of Things (IoT):** Use of sensors and IoT devices for real-time data collection and improved control over production processes.
- 3. Artificial intelligence (AI):** Development of algorithms and expert systems for advanced data analysis and decision support.
- 4. Big data:** Capturing and analyzing large volumes of data to improve processes and product quality.
- 5. Augmented and virtual reality (AR/VR):** Use of AR and VR technologies for data visualization and production process simulation.
- 6. 3D printing:** Implementation of 3D printing for faster introduction of changes in production.

Training and development of personnel

The DT4DL project also significantly contributed to developing the digital competencies of employees. The project included 66 training sessions covering various areas of digital transformation, including basic programming, digital systems architecture planning, cybersecurity, and the implementation of automated production systems. A total of 483 employees at Iskraemeco participated in these trainings, building their competence levels and raising the company's digital maturity.



Sustainable initiatives

The DT4DL project had a strong emphasis on sustainability, which, along with other Iskraemeco initiatives in this area, resulted in considerable positive effects:

- **Reduction of energy consumption:** Optimization of production processes led to a reduction in electricity and material consumption and, indirectly, CO₂ emissions (scope 1 and 2) by around 40% between 2021 and 2023.
- **Circular economy:** Introduction of methods to enhance the transition to a circular economy, reducing waste and optimizing material utilization.
- **Logistics optimization:** Indirect reduction of fuel consumption for business trips and a decrease in CO₂ emissions from air travel by around 30% and from company vehicles by around 40% between 2019 and 2023.

Impact and outcome

The successful implementation of digital solutions led to several notable outcomes, including improved operational efficiency, increased reliability of the production process, improved product quality, and enhanced competitiveness of the consortium companies. Process automation and digitization enabled faster error detection, better inventory management, and reduced production times.

Additionally, the implemented digital solutions were beneficial in terms of sustainability, as consortium companies reported reduced energy and raw material consumption and lower greenhouse gas emissions. Digital transformation also increased the companies' ability to adapt to market changes and improved their resilience to external factors.



Activities A, B, C, and D

The DT4DL project included four main activity clusters: A, B, C, and D, each with a series of specific sub-activities and modules crucial for achieving the digital transformation goals.

Activity A: Digitalization of Printed Circuit Board Assembly (PCBA) as the key manufacturing process

- A1: Robotization and automation of the THT components
 - Module 1: Automated inserter for wired electronic components and soldering oven.
 - Module 2: Automation of visual inspection for THT components.

Within activity A1, we successfully automated the THT component mounting process. This included introducing automated Pick-and-place machines and soldering ovens, significantly improving production accuracy and efficiency. Automation of visual inspection further reduced errors and improved the quality of the final products.

Activity B: Digitalization of the final assembly of smart residential meters

- B1: Automation and optimization of the final assembly of smart meters
 - Module: Robotization and automation of the final assembly of smart meters.
- B2: Digitalization and machine vision of production lines
 - Module 1: Automation of quality control for laser engraving.
 - Module 2: Monitoring and processing of energy consumption data.

Activity B1 focused on utilizing robotization and automation in order to automate and optimize the final assembly of smart meters. This improved the accuracy and speed of the assembly process and reduced production costs. Module B2 introduced machine vision for automated quality control and energy consumption monitoring, contributing to energy efficiency and CO₂ emission reduction.

Activity C: Digitalization of support processes

- C1: Digitalization of processes
 - Module 1: Constant monitoring of production realization.
 - Module 2: Real-time status of sales orders.
 - Module 3: Advanced planning and scheduling.
 - Module 4: Predicting material price changes.
 - Module 5: Advanced PKI (Public key infrastructure) for smart meter infrastructure.
 - Module 6: Digital boards.
 - Module 7: Change management in automation.
 - Module 8: Electronic data interchange.
 - Module 9: Cybersecurity.
- C2: Introduction of digital tools from people to people
 - Module 1: Use of tools in the virtual and 3D world
 - Module 2: Human simulation tool
 - Module 3: 3D printing

Activity C1 included the use of artificial intelligence for digitizing key processes, such as production monitoring, planning, and advanced scheduling. The implementation of these modules allowed



for better production management, sales order tracking, and predicting material price changes, which in turn enhanced the company's responsiveness and adaptability. Through the introduction of virtual and 3D human simulation tools, Module C improved working conditions and encouraged staff development.

Activity D: Digital Twin for innovative services and the business model

- Module D.1: Establishment of a digital twin platform (body & mouth).
- Module D.2: Development of AI smart algorithms (brain).
- Module D.3: Data collection on LEAN parameters and their transfer to the digital twin (blood & oxygen) for prototype testing.

Activity D focused on establishing a digital twin, enabling near-real-time monitoring and optimization of production processes. The development of AI smart algorithms and data collection on LEAN parameters were crucial for a precise analysis and improvement of production metrics. These modules allowed accurate monitoring and management of production processes, significantly enhancing operational efficiency and the competitiveness of the consortium companies.

Conclusion

The "Digital Twin for Digital Lean" (DT4DL) project has been extremely successful, achieving all set goals and exceeding expectations. With the implementation of advanced digital technologies, the consortium companies have reached a higher level of digital maturity, improved their operational efficiency, and increased their competitiveness in the market. The success of the DT4DL project is proof that in the rapidly changing business environment digital transformation is crucial for the future growth and success of companies. Additionally, the project generated savings of €1.4 million for Iskraemeco, which further confirms the value and importance of such initiatives for improving business performance and advancing sustainable development.

The evolving landscape of e-mobility

Alenka Bizilj Kavrečič

Consumer preferences are undeniably shifting towards electric vehicles (EVs). EVs have been soaring in popularity for years and remain in high demand, despite some recent sales declines in certain regions. Potential buyers of EVs are looking for more simplicity, convenience and price transparency, while at the same time requiring accessible charging stations, not only at home but also in public.

2023 Electric Vehicle insights

18%

of all newly registered cars worldwide are EV

70%

of EV car owners charge their car at home

630,000

new public chargers were installed in Europe

In 2023, the global market for EVs saw a major expansion, recording a total of 14.2 million new deliveries of Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs), a 35% increase from the previous year but still lagging behind the 55% rise recorded in 2022. As a consequence, the number of public charging points in 2023 increased by more than 40%.

EV sales boom and the charging infrastructure challenge

Electric car sales neared 14 million in 2023, 95% of which were in China, Europe and the United States. Almost 14 million new electric cars were registered globally in 2023, bringing their total number on the roads to 40 million, closely tracking the sales forecast from the 2023 edition of the Global EV Outlook (GEVO-2023). Electric cars accounted for around 18% of all cars sold in 2023, up from 14% in 2022.

China, Europe and the United States also represent around two-thirds of total car sales and stocks, meaning that the EV transition in these markets has major repercussions in terms of global trends.

In 2023 BEV models in Europe became the third most popular type of car for buyers, overtaking diesel cars for the first time. BEV sales increased by 37%, taking up a 14.6% market share (up from 12.1% in 2022) with over 1.5 million units sold during the year. By 2025, BEV sales are expected to surpass those of ICE vehicles in Europe.

Charging infrastructure challenge

Home charging is currently the most common means of charging electric cars. EV owners with access to a private parking space that can be equipped with a charger can charge their vehicles overnight, which is not only convenient but also typically takes advantage of lower electricity prices while demand is relatively low.

While home charging infrastructure is well established in many countries, the landscape for 2Ws is markedly different. The public charging stock increased by more than 40% in 2023, and the growth of fast chargers – which reached 55% – outpaced that of slow chargers. At the end of 2023, fast chargers represented over 35% of public charging stock.

As the number of public chargers grows, attention is also turning to the interoperability of charging infrastructure.

The aim is to ensure that any supplier or manufacturer is able to use and deploy the connector, providing EV drivers with more options for reliable, convenient charging.

Deployment of EV chargers should be co-ordinated with power grid developments to ensure that new connections are consistent with the wider grid-planning horizon. When not managed appropriately, charging can lead to a surge in peak demand, meaning that it is increasingly important to ensure that transmission and distribution grids are appropriately sized and equipped. Charge management strategies, such as utilization of time-of-use tariffs and smart-charging, will become more necessary as EV deployment grows.

High ratios of publicly available charging capacity to EVs in use are crucial in regions where home charging is less accessible, and can help improve the consumer experience more widely. Sufficient coverage reduces concerns about range, and can allow for vehicles with lower battery capacity, thereby reducing costs and critical material demand.

In Europe, the majority of EV charging happens at homes or workplaces, representing a total of 70% of charging activities.

The Netherlands, Germany, and France are the top three countries with the highest penetration of public chargers (both slow and fast chargers combined). In fact, the three countries account for more than 60% of all public charging points available in the EU.

The rate of installations in the EU experienced a slight deceleration in 2023 compared to the previous year, but despite this general slowdown, several countries made significant investments in expanding their electric vehicle (EV) charging infrastructure. The trend is expected to continue in the following years.

Growth in Europe's public EV charging sector, while faster than many regions, has recently experienced a slowdown. The installation of AC chargers in Europe increased by 46% in 2022, down from 76% the year before, and slowed further amounting to 37% growth in 2023. DC chargers also saw high growth rates, at 90% in 2022 and 84% in 2023.

By the end of 2023, the European Union boasted over 630,000 public charging points according to the European Alternative Fuel Observatory (EAFO), with DC chargers making up 13% and AC chargers 87% of the total number. This is a considerable increase from the 7% share of DC chargers at the end of 2021.

Deployment of public charging infrastructure in anticipation of growth in EV sales is critical for widespread EV adoption. Growth in EV sales can only be sustained if charging demand is met by accessible and affordable infrastructure, either through private charging in homes or at work, or through publicly accessible charging stations. In countries that rely heavily on public charging, the number of publicly accessible chargers has been expanding at a speed that largely matches EV deployment.

Powering progress: Iskraemeco contributes to ENFIELD's Green AI initiative

Klemen Žbontar and Anja Babič

Iskraemeco is a key player in the groundbreaking ENFIELD project, a collaborative effort to establish a leading European Center of Excellence in Artificial Intelligence (AI) research. This ambitious initiative, uniting 30 consortium partners (20 research institutions and 10 industrial leaders) across 36 months (September 2023–August 2026), is fueled by an €11.5 million investment.

Why ENFIELD?

ENFIELD's mission is to propel Europe to the forefront of AI development. Through four key pillars – Adaptive AI, Green AI, Human-Centric AI, and Trustworthy AI – the project will attract top minds and resources to conduct world-class research. This research will be directly applicable to critical sectors like healthcare, energy, manufacturing, and space. Ultimately, ENFIELD aims to solidify the EU's competitive edge in AI and generate significant social and economic benefits for Europe.

Building a sustainable and intelligent future

ENFIELD delves into four crucial areas of AI development:

- 1. Green AI:** This pillar focuses on developing novel AI approaches that minimize the carbon footprint while maintaining optimal performance, making AI more environmentally sustainable.
- 2. Adaptive AI:** This area addresses the need for AI systems that can adapt to rapidly changing environments or evolving goals, ensuring optimal responses.
- 3. Human-Centric AI:** ENFIELD strives to design AI systems that are explainable. This means users and developers can understand how the system arrives at decisions.
- 4. Trustworthy AI:** This pillar is dedicated to developing trustworthy AI tools through formal approaches to uncertainty modeling and data quality in learning tools.

The latter two pillars – Adaptive AI and Green AI – directly align with the European AI strategy. Adaptive AI is key to integrating AI into real-world applications, while Green AI reflects Europe's commitment to both digital and green priorities.

Iskraemeco's role in shaping the future of green AI

As one of the 10 industrial partners, Iskraemeco plays a pivotal role in ENFIELD. We are entrusted with co-leading the Energy Vertical, a sector where cutting-edge research will be applied and validated. Iskraemeco is actively involved in defining the thematic direction for Green AI within the Energy field.

Here's a glimpse into Iskraemeco's contributions:

- **Shaping Green AI's future:** We are defining topics and use cases for the Open Calls program, which will support top researchers in tackling specific AI challenges.
- **Driving innovation:** Iskraemeco is providing ideas for small-scale projects that will push the boundaries of AI in the Energy sector.

- **Fostering collaboration:** We are co-organizing a workshop to bring together the consortium's 30 members and facilitate knowledge exchange.
- **Data sharing for progress:** Iskraemeco is contributing valuable energy datasets to empower research efforts.

By leveraging our position within the energy ecosystem as well as our expertise in artificial intelligence (AI) and machine learning (ML), Iskraemeco aims to expand its capabilities and establish itself as a leader in the Green AI landscape. We will also utilize this platform to showcase our innovative Edge compute module and solidify our foothold in the AI domain.

Iskraemeco's ENFIELD team consists of five members, all coming from the Iskraemeco's Innovation department: Tomaž Dostal, Head of Innovation Sector, Jure Germovšek, Lead Development Engineer, and Klemen Žbontar, Lead Innovation Engineer and project leader for ENFIELD, assisted by students Amadej Pavšič and Tine Rozmanič. The team is well-rounded and possesses the capacity to assimilate the knowledge gained during the duration of the project, and act accordingly.

"The ENFIELD project provides Iskraemeco with a unique opportunity to connect and collaborate with some of Europe's most prominent AI research entities. The project kick-off meeting and recent technology and research-focused workshops undoubtedly proved that the consortium members collectively hold deep knowledge and understanding of the AI field. Interaction with various actors is on a high level and, so far, results in efficient teamwork. I am looking forward to the following months of collaboration with our colleagues from various EU countries," commented Klemen Žbontar.

Driving innovation for a sustainable future

Iskraemeco's participation in ENFIELD reflects our commitment to driving innovation and shaping a sustainable future. By collaborating with the leading minds in Europe, we are well-positioned to develop cutting-edge AI solutions that will benefit various industries and society as a whole.



Unlocking consumer engagement and grid efficiency: Iskraemeco's contribution to the BRIGHT project

Tomaz Dostal, Klemen Zbontar and Anja Babic

Iskraemeco was a key partner in the BRIGHT project, dedicated to maximizing the potential of demand response (DR) within the energy sector. The project taking place from November 2020 to October 2023 was funded by the European Union's Horizon 2020 program.

About the BRIGHT project

The project sought to unlock the full potential of demand response (DR), particularly in the light of the increasing role of renewable energy sources. It ultimately aimed to create a more efficient and sustainable energy system.

One important aspect to highlight about the BRIGHT project is its focus on empowering consumers. By incorporating social science approaches and multi-value service design, the project aimed to motivate and enable individuals to actively participate in DR through clear communication, understanding their preferences, and offering various incentives that go beyond solely financial rewards. This emphasis on community-level engagement and shifting consumer behavior is crucial for the long-term success and sustainability of the project's goals.

The BRIGHT project focused on increasing consumer engagement by combining:

- data-driven tools,
- blockchain technology,
- social science approaches,
- multi-value service design.

Enabling demand response through innovative metering solutions

Iskraemeco's role in the BRIGHT project focused on providing pilot partners with market insights and experiences as well as high-quality and reliable energy metering and edge computing capabilities combined with our internal algorithms, such as those used for EV charge control. Iskraemeco focused on integrating behind-the-meter assets through legacy and emerging protocols, facilitating the provision of demand response (DR) services. These services respond to energy market incentives, local power grid conditions, and consumer preferences, ultimately contributing to a more efficient and sustainable energy system.



Towards next generation of smart meters

Iskraemeco is leveraging the results of the BRIGHT project to empower its next-generation grid management solutions. This integration will not only optimize grid control but also democratize the energy market, enabling end-users to actively participate in various energy management programs. Iskraemeco will further amplify the project's impact by disseminating its findings to key industry groups like DLMS/COSEM and ESMIG, as well as showcasing them at relevant events to drive wider industry adoption.

Iskraemeco's smart grid expertise tested in Lenart pilot project

Building upon its contributions to the BRIGHT project, Iskraemeco participated in a pilot project demonstrating the potential of a smart flexibility system for

optimizing electricity consumption at a retirement home in Lenart, Slovenia. This initiative aimed to showcase the integration of various technologies to create a more efficient and sustainable energy system.

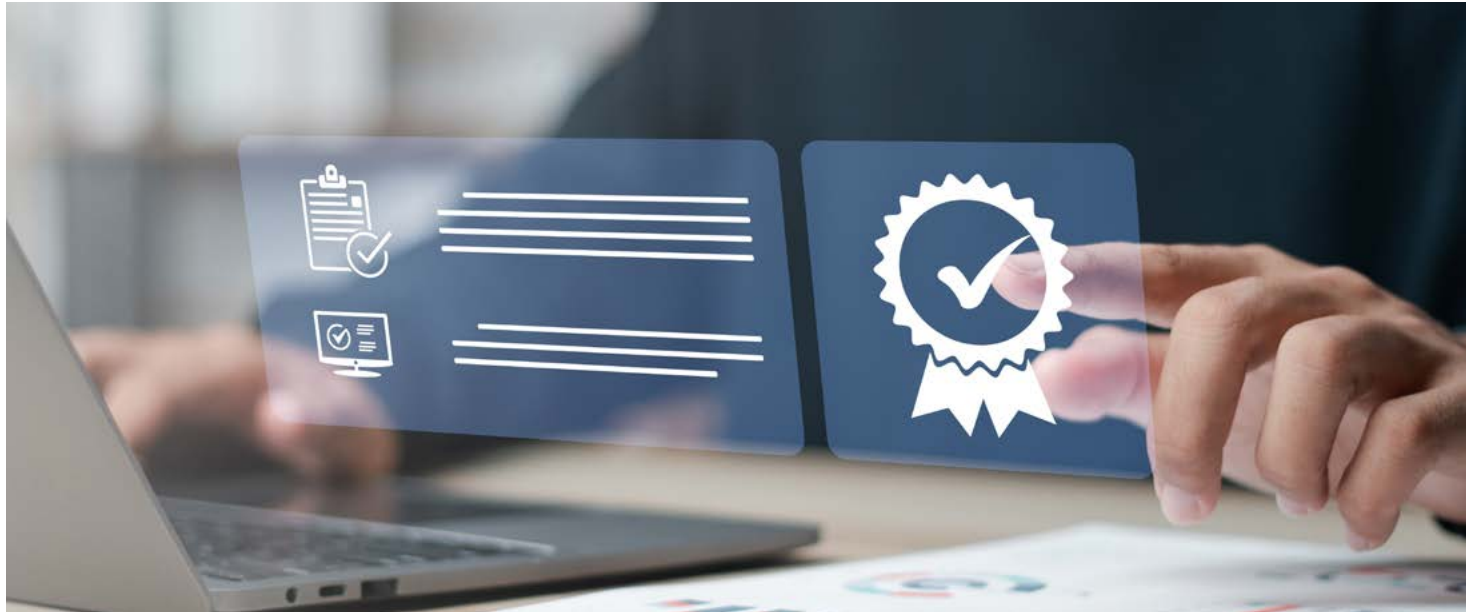
The pilot project incorporated several key elements:

- Smart electric vehicle (EV) charging stations: Stations offered smart charging capabilities based on factors like energy availability and cost.
- Photovoltaic (PV) power generation: The system harnessed solar energy for renewable electricity.
- Battery storage: Excess solar energy was stored in batteries, enhancing grid flexibility and resilience.
- Intelligent appliance control: Charging stations were smartly controlled to optimize energy consumption based on real-time data and external signals.

Iskraemeco's eIoT Edge compute module played a central role in processing data from meters, enabling communication, and hosting control algorithms for the

charging stations and their integration into the smart grid. Cloud-based AI algorithms were developed to gather the data from various smart assets, such as EV chargers, PV installations, and sensors within the retirement home, among others, and to collect information about electricity prices and weather forecasts in order to provide actuation signals to smart loads, e.g. EV chargers. These loads translate the signals into physical actions, in particular dynamic modifications of power consumption.

The successful pilot project demonstrates the viability of integrating various technologies to create a more responsive and dynamic energy grid. The valuable insights gained will be instrumental in developing future solutions for the growing EV market and coping with increasing demand for renewable energy sources. Iskraemeco's involvement further reinforces its commitment to innovation and leadership in smart grid technologies.



Breaking traditions without compromising quality

Gregor Kita

Quality and compliance are paramount in the manufacturing sector. While unconventional thinking might appear risky, companies deeply rooted in tradition must embrace creativity and a proactive approach can be the cornerstone of enduring success in an ever-evolving market.

A practical real-life example can illustrate that quality and creativity are not mutually exclusive. As we were fulfilling a substantial order from a valued client, challenges arose in the production of meters and cabinets. The unique nature of the cabinet material added complexity to delivery schedules and logistics. With the Factory Acceptance Test (FAT) approaching rapidly, our team worked diligently to meet the client's expectations. On the day of the FAT, unexpected issues arose, highlighting the importance of adaptability. The material for the meter cabinets was held at the post office. An employee immediately took action to find an out-of-the-box solution, and the inspectors readily approved both the meters and cabinets.

The scenario emphasizes the imperative of employing maximum adaptability in order to meet customer needs. This case emphasized our team's commitment to deliver on their promises and ensure customer satisfaction even in the face of unforeseen obstacles with the help of quick thinking and resourcefulness.

Consumers are looking for creative solutions that meet their actual requirements, not just the ones imposed by the industry. By thinking and acting creatively, companies can demonstrate their genuine commitment to meeting these needs without sacrificing quality. Creativity is not about abandoning established processes; it's about refining them. As Henry Ford, the founder of the Ford Motor Company, asserted, "If you always do what you've always done, you'll always get what you've always gotten." This quote underscores the need for innovation and the importance of challenging conventional thinking to achieve quality and progress.

Golden Innovation Award: Iskraemeco's IoT modular platform and IE.X smart meters recognized for excellence

Marija Iglova Andreuzzi, Anja Babič and Tomaž Dostal

In recognition of outstanding achievement, Iskraemeco's IoT Modular Platform and IE.X Smart Energy Meters have been awarded the prestigious Golden Regional Award for Innovation by the Gorenjska Regional Chamber of Commerce and Industry.





Among the best

Our innovative solutions were selected from a pool of 16 submissions by nine companies and three independent innovators in the Gorenjska region. The competition was fierce, with all projects evaluated for excellence, efficiency, and successful practical application. The four highest-rated innovations, including our eloT platform and IE.X smart meters, are nominated for awards at the national level, which will be honored at the Day of Innovation on 10 September 2024.

Overcoming limitations, embracing opportunities

Our innovative solutions address the limitations of traditional smart metering technologies by prioritizing data processing and going beyond merely measuring kWh. The eloT platform transforms meters into multifunctional devices, enabling a wide range of additional applications and services, including:

- Energy management
- Grid monitoring and analyses
- Power quality analyses

- Public lighting monitoring and control
- eMobility charging infrastructure monitoring and charging process control
- Integration of distributed energy resources (DERs), e.g. photovoltaics

The eloT platform and IE.X meters represent a significant advancement in energy metering compared to previous technologies, addressing their shortcomings through improved data management, flexible meter configuration, integration and control of different applications, energy management and grid analysis.

The platform upgrades the third generation of IE.X smart meters, enables better data

management, offers additional functionalities for network monitoring, and ensures higher security.

Major improvements

While developing and introducing the innovation to the market we have focused on the following important improvements:

- **Multifunctionality of the eloT platform.** The key value of the innovation is faster development of new products for different applications. Instead of offering a separate design for each product, the platform is a common basis for

a wide range of devices such as: IE.X meters, DIN-rail DC and AC meters, integrated charging station controllers for e-vehicles, and public lighting controllers.

- **Focus on data processing and transmission.** In new energy systems, data are of the paramount importance in efficient management of them therefore eloT platform is designed in a way that enables gathering and usage of data in the most efficient way possible.
- **Sustainability.** Reducing the meter's own energy consumption, using recyclates, reducing the number of components, optimizing energy consumption in the production process, and reducing product weight contribute to a smaller environmental footprint.
- **Possibility to adapt to additional customer requirements and customize our solutions** due to the openness of the eloT platform. Interchangeable communication modules, support for multiple simultaneous communication protocols, improved metering, enhanced tamper detection, different security levels, tailored configuration of load profiles activity calendars, tariffs, breaker operation modes, access control, power quality monitoring setups, etc.

Unlocking a world of benefits

The eloT platform and IE.X meters offer a win-win for both utilities and consumers. Utilities can benefit from a significant operational boost. These solutions provide enhanced grid visibility, which gives them a deeper understanding of energy flow and potential issues within the system. This translates to optimized grid management and, consequently, leads to reduced energy losses and improved overall efficiency.

Consumers are empowered as well. The eloT platform and IE.X meters enable active



consumer participation, allowing consumers to make informed consumption decisions that directly impact their energy bills. By promoting efficiency and conservation, the system ultimately leads to optimization of consumption and costs. Furthermore, choosing this technology contributes to a greener and more sustainable future, a benefit that is highly valued by many environmentally conscious consumers.

A sustainable approach

Sustainability is at the core of our innovation. The development process was conducted in line with the company's strategy of "one planet design", implementing the principles of the circular economy:

- Reduced energy consumption of the meter. We have achieved a 30% reduction in the meter's own consumption compared to the previous generation of the product, which, calculated over a 15 to 20-year life cycle, is a significant saving in kWh and, consequently, a considerable reduction in the carbon footprint.

- Innovated the materials used and allowed customers to purchase equipment that has "post-industrial" plastics integrated in its plastic parts and 10% recycled metals in its metal parts,
- Reduced the number of components and production time.

Our eloT platform and IE.X meters are already making a significant impact across the globe. With deployments in many countries, we are helping utilities and consumers transition to a more sustainable and efficient energy future.

Looking ahead

We are committed to continuous innovation and excited to explore the future potential of our eloT platform and IE.X meters. We believe that these solutions have the power to revolutionize the energy industry and contribute to a more sustainable world. This recognition validates our commitment to developing cutting-edge solutions that push the boundaries in the energy industry. We extend our heartfelt congratulations to all the nominees whose innovative spirit drives progress in our region.

Green Penguin: A story of sustainable learning and empowerment

Adrijana Smilkov and Mateja Kuralt

Creative ways to educate and inspire people to act sustainable are essential in a world where climate change is a pressing issue. One such solution is the Green Penguin project, which is a digital tool that teaches children, parents, teachers, and entire communities how to adopt sustainable practices and reduce their carbon footprint.



A pilot project with heart

The Green Penguin project began on June 1, 2022, with the vision of empowering individuals and communities to fight climate change. Today, two years later, the project proudly presents its remarkable achievements. As part of the project, an innovative mobile and web platform has been developed that promotes sustainable habits in a fun and interactive way. Users can take quizzes, unlock new lessons, and earn points to "save" trees and contribute to a better tomorrow. The project is a testament to collaboration, innovation, and the power of education in promoting environmental stewardship.

The heart of the project is undoubtedly the pilot schools. Seven primary schools participated in the project and actively tested the Green Penguin platform: France Prešeren Primary School, Predoslje Primary School, Stane Žagar Primary School, Hinko Smrekar Primary School, Jože Moškrič Primary School, Šmartno pod Šmarno goro Primary School, and Kristiansand International School. Three of the schools, namely Predoslje Primary School, Stane Žagar Primary School and Kristiansand International School, particularly stood out. At the final event in April, the project partners rewarded them for their active involvement, innovative approaches to learning about sustainability, and their excellent results. The awards were not just a symbolic gesture. While the Green Penguin project promotes the acquisition of digital competences, partners also recognize the importance of physical activity. That is why they decided to award vouchers to sports equipment store to each of the top three schools.

The students and teachers at participating schools welcomed the platform with excitement and actively incorporated it into their daily lives. In addition, they took the initiative and developed their own game focused on the Green Penguin concept. They regularly organize clean-up campaigns and encourage sustainable commuting to school with the "Walking Bus" (slo. "Peš bus") initiative. They also showed their enthusiasm for the Green Penguin platform



by actively entering measurements, taking quizzes, reading articles on environmental protection, participating in competitions, attending organized events, and communicating with the Green Penguin team. In addition, the school boasts smart lighting, energy renovation, regular clean-up campaigns, and promotes sustainable commuting to school. All of these activities are a clear indication that Predoslje Primary School is a true ambassador of green learning and sustainable development.

The students and teachers at the pilot schools were inspired by the Green Penguin project. The platform's playful and interactive approach introduced them to the importance of sustainable living in a fun way. "Reading the text and taking the quizzes at the end was really fun!" said Brina enthusiastically. Jaš agreed: "I liked taking the quizzes and competing with my classmates the most." Maja praised the informative explanations before the quizzes, while Filip highlighted the opportunity to learn about nature conservation. "I learned so much new stuff!" Taja added excitedly. The pupils actively participated in the project and looked for ways to save energy, water, and reduce waste. Neža suggested switching off the lights at home and school, Tim emphasized the importance of turning off computers, and Kaja advocated for dressing warmer instead of heating. Miha suggested less food waste, and Leon highlighted paper recycling.


Boštjan Orehar, teacher and project leader at Predoslje Primary School in Kranj, stressed the positive impact of Green Penguin on teaching: "Green Penguin has become our faithful companion in teaching. Children are enthusiastic about the content that the app offers. With interactive content/templates, quizzes, and other experiments, we have turned learning into a real adventure." He added that the platform makes it easier for teachers to prepare lessons, as it offers extensive material that can be adapted to the students' needs. The enthusiasm of both students and teachers for Green Penguin is a clear indicator of the project's success and its potential to promote sustainable thinking and action among young people.



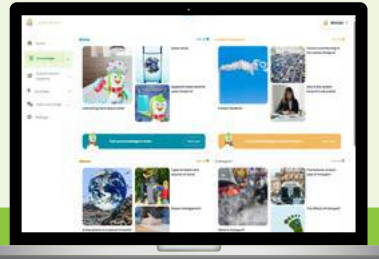
Application for sustainable learning

During the development of the Green Penguin platform, all of the pilot schools continuously provided feedback and suggestions for improvement. As a result, we have significantly upgraded the Green Penguin platform, which has both a mobile and online version. The platform's improvements include a modified platform layout, updated platform content, simpler and more transparent use for both students and teachers in the backend system, and added ability to communicate with all pilot schools.

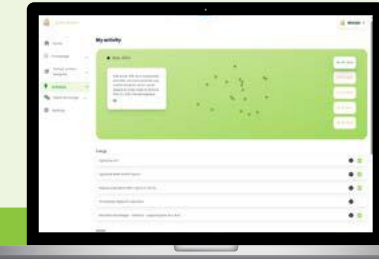
With its interactive content and fun quizzes, the platform now encourages active learning about sustainability. Users "save" trees by achieving goals, which reinforces environmental responsibility. Schools can compete to save energy, and students can exchange ideas and build a greener future together in virtual chat rooms.



Home
The penguin and an iceberg that grows as users complete challenges and lessons.




Knowledge
Users solve quizzes, unlock new lessons, and earn points.



Green diary
Users complete real-life challenges and mark them as completed in the app.



Leaderboard
Users can monitor their school's electricity, heating, water and waste consumption.



Schools carbon footprint
Users can see their personal ranking and the ranking of their school.

Explore sustainability with Green Penguin

The project encourages active citizen participation in efforts to protect the environment and reduce CO₂ emissions. Platform users can gain practical knowledge about sustainable solutions that they can incorporate into their daily lives, from saving energy and water to using public transport and recycling.

In addition to developing an innovative platform, the Green Penguin project has carried out a variety of activities to promote sustainable thinking and action. Through strong international cooperation, the project has succeeded in spreading its vision and exchanging good practices with other European projects with similar goals. Various events and conferences (Altermed & Greenvita, Hack4Climate hackathon, study visit to Norway and Slovenia, Enlit Europe, E-world, thematic and press conferences, etc.) have provided a platform for exchanging knowledge and experience, and for establishing the Green Penguin project as an important player in the field of sustainability education.

Even though the pilot phase of the project concluded on 30 April 2024, the Green Penguin story is far from over. The project team remains committed to providing support to pilot schools and expanding its operations.

Green Penguin represents a roadmap to achieving decarbonization goals. By empowering the next generation with the knowledge and tools to reduce carbon emissions and promote sustainability, we can build a brighter and greener future.

Let's move forward together with Green Penguin as a role model and create a path towards a more sustainable world. Don't miss the opportunity to join the movement! Visit our website and learn more about the Green Penguin project. Download the app and start exploring sustainability today. Together we can change the world!



Scan the QR code or visit our website now:




The Green Penguin project was implemented by a consortium of organizations, namely: Iskraemeco, d.d., the City of Kranj, the City of Ljubljana, the Association DOVES-FEE Slovenia and FEE Norway who are implementing the international Eco-Schools programme. The project was co-financed by the Norwegian Financial Mechanism and Ministry of Cohesion and Regional Development. The Norwegian Financial Mechanism stands for Norway's contribution to a green, competitive and inclusive Europe.

Continuous environmental, social and governance evolution

Dalija Delić

Over the past year, Iskraemeco has reaffirmed and strengthened its dedication to incorporating principles of sustainable development into its business operations. We have actively engaged in a range of initiatives focusing on the Environmental, Social, and Governance (ESG) aspects of our practices. Our approach to sustainability is based on implementing these principles at the level of everyday decisions and processes, strengthening the competencies and well-being of employees, and fostering fair partnership relations throughout the value chain.



Sustainability steering committee

We have continued to recognize the growing importance and intertwining nature of sustainable development and have further affirmed our position in the organizational structure by promoting it to the department of Strategy. This decision clearly demonstrates that ESG policies and activities are an important strategic priority for the company. Yet, due to the topic's gravity and urgency, it is essential to expand the decision-making scope and involve diverse actors from the company and the local community. Therefore, Iskraemeco has appointed a special Sustainability Steering Committee, which consists of department heads and sustainability ambassadors representing various departments in the company. By doing so, we can leverage diverse ideas, insights, and expertise, fostering a collaborative environment that reflects the multidimensional nature of ESG initiatives. Moreover, various external stakeholders, such as customers, suppliers, employees, local communities etc., will be included in the ESG policies formulation phase.

In this way, Iskraemeco will further align its actions with its community and value chain needs and strengthen trust through demonstrating transparency and inclusivity in our decision-making processes. This approach will yield robust, effective, and widely accepted policies that drive sustainable development, generate positive social impact and enable successful long-term business.

Energy savings and CO₂ emission reductions

In the year 2023, Iskraemeco advanced its efforts towards climate neutrality by achieving further reduction in energy consumption and GHG emissions. We lowered our specific electricity consumption per 1000 products by 8% and heat by 3% compared to 2022. Additionally, we now generate part of our electricity from cogeneration, which is a more efficient use of fuel or heat, because otherwise-wasted heat from electricity generation is put to some productive use. The company's CO₂ emissions (scope 1 and 2) have dropped by 70% since 2013, reflecting the company's commitment to fight against climate change. The solar plant on the roof of production facilities in Kranj became fully functional in December 2023. When operating at full capacity, it is expected to contribute between 20-25% of our electricity needs in 2024. In the beginning of this year, we have completed the installation of LED lights across our facilities, which further backs our electricity-savings allegiance.

These energy-saving measures contribute not only to responsible resource management and environmental conservation, but also demonstrate our corporate social responsibility, operational efficiency and cost reduction. By actively reducing our energy and electricity consumption and adopting sustainable energy practices, Iskraemeco is ensuring our products and services will be viable over the long term and available for future generations.

The road towards climate neutrality

In March 2024, Iskraemeco made a commitment to the City of Kranj and the EU in reaching climate neutrality by 2030, by signing the climate neutrality pledge in which we committed to proactively work together to achieve set goals. The mission includes projects that will help reduce CO₂ equivalent emissions by 113,263 tons by 2030 compared to 2018. The actions are described in the climate agreement, which includes defined measures, methods, and financial means to achieve climate neutrality in the City of Kranj by 2030, which will significantly improve the quality of life in the municipality. Furthermore, we have continued our commitments as a member of the United Nations Global Compact initiative, a network of like-minded entities that act according to ten universally accepted principles regarding human rights, labor, the environment, and measures against corruption.

Promoting circularity

To ensure efficient recycling and proper waste management of packaging materials (paper/cardboard, plastic, and wood), Iskraemeco has partnered with an authorized company, Surovina, in accordance with the Decree on the Management of Packaging and Packaging Waste. Additionally, waste metals from our production, such as tin, copper, and brass, are recycled to promote circular economy. Hazardous waste is handled by collectors holding permits issued by the Ministry of the Environment, Climate and Energy, such as Ekol and Dinos, in full compliance with the provisions of the Decree on Waste Management. As a result, only a small fraction of waste (<10%) is landfilled.

Energy conscious products

Iskraemeco is continually enhancing the environmental and energy performance of its products. In 2021, we introduced the new generation of RSM meters, which consume 30% less energy. Furthermore, our smart water meters facilitate water management and generate savings through enhanced capability to promptly detect leaks.

In 2023, Iskraemeco obtained an Environmental Product Declaration Certificate (EDC) for its smart meter MT880. The EDC achieved based on a conducted Life cycle assessment (LCA) analysis. The EDC provides objective, scientific data on the environmental and consequently climate impact of the product, enabling us to analyze and advance our product manufacturing and distribution processes, regarding environmental impact. It also allows any interested stakeholders, such as our customers or partners, to openly assess products environmental effects, throughout its life span.

Supply chain visibility and quality assurance

We pay great attention to transparency across the supply chain with our focus being on materials – conflict and critical, their origin and labour standards. In contracts with our suppliers and distributors we insist on increased commitments in terms of respect to ESG areas (environmental issues, human rights, labour standards and anticorruption clause). We continue with extensive questionnaires on these matters, adding them to our audits.

In order to maximise its transparency at the level of materials, components, and suppliers, Iskraemeco is also using licensed tools and has modified its own PLM (Product Lifecycle Management) tool to be able to combine component data from all sources. This enables us to provide extensive analyses on material use,

environmental assessments and innovation projects with our suppliers. Additionally, we are fully compliant with the following ISO standards: ISO 9001, ISO 45001, ISO 14001, ISO 50001, ISO 27001, ISO 27018, ISO 27019 and ISO 33061, as demonstrated through relevant certificates.

Social stewardship activities

Committed to generating value across the entire value chain, Iskraemeco actively collaborates with a diverse range of stakeholders, including employees and local communities, to create positive impacts through various initiatives and projects. From its inception, the company has prioritized promoting sport and health activities within its organization. In 2023 alone, we invested 1,240 hours in employee training sessions covering occupational health and fire safety procedures. Additionally, Iskraemeco implements an ongoing promotion of a healthy lifestyle and physical activity in the workplace.

Engaging in knowledge exchange and cultivating expertise are the pillars of our ESG philosophy. That's why we actively collaborate with various local organizations and associations, including the Slovenian Chamber of Commerce, the University of Maribor, the University of Ljubljana, CER (Sustainable Business Network Slovenia), AmCham etc. Our commitment to collaboration is evident in the successful implementation of the Green Penguin, a digital platform that facilitates experiential learning, enhances digital competencies alongside environmental literacy, which showcases our ongoing partnerships with local communities, including municipalities and schools.

Iskraemeco is dedicated to education and training, regularly hosting informative visits to our production facilities for university students. By implementing such activities, our company is contributing to building awareness and promoting the importance of sustainability philosophy and actions among young people and pupils. Through cooperation with universities, schools and municipalities, we are contributing to the community that has steadfastly supported us over the years, promoting mutual growth as we work together towards the goal of carbon-neutral cities.

Just governance

Ethical and transparent operations are crucial for cultivating the trust and credibility of the company among both internal and external stakeholders. They demonstrate that the company operates ethically and transparently, which is vital for maintaining a positive reputation. Commitment to ethical action and transparency promotes long-term planning and inclusive business practices, which are resilient to potential crises. Iskraemeco has

recently published a new authority matrix, which is designed to clearly define the roles and responsibilities of employees at all levels and will help improve efficiency and coordination throughout the Iskraemeco Group. In 2023 we adopted a new whistleblowing policy, which guarantees the anonymity and confidentiality of the whistleblower, and protects them against any type of retaliation. Such policies build and promote ethical and fair behaviour, while at the same time safeguarding the financial health and integrity of the organization. Additionally, Iskraemeco conducts regular mandatory business ethics and compliance training and tests for all employees. This is crucial for ensuring that all team members understand and comply with ethical standards and legal requirements.

Expansions to sustainability legislation and reporting

“You can't improve what you don't measure.” Peter Drucker

Monitoring our approach and progress in ESG policies is paramount for identifying areas of improvement and seizing additional opportunities. Iskraemeco annually releases environmental and energy reports, wherein we calculate our CO₂ emissions (scope 1 and 2) and energy consumption, and assess efforts toward effective waste management, among other factors. However, to ensure transparent communication of the entire scope about our impacts and practices across the value chain to all relevant stakeholders—including employees, customers, investors, suppliers, decision-makers, and the local community—the scope of reporting must expand and deepen.

Recognizing this need for broader understanding and transparency, the EU has issued a new directive on corporate sustainability reporting (CSRD) along with a set of standards for ESG reporting by companies (ESRS). Iskraemeco will report by these new standards in 2026, which will provide further clarity on our sustainability performance and the associated business impacts and risks. Additionally, to better protect consumers' rights, promote environmentally friendly decisions, and create a circular economy that reuses and recycles materials, the European Parliament is updating existing rules on commercial practices and consumer protection. This update includes banning greenwashing by ensuring all environmental claims on products are backed by verifiable sources regarding their impact, longevity, reparability, composition, production, and usage. On top of that, a new directive on green claims is in the process of adoption by the Parliament, which complements the EU's ban on greenwashing by requiring companies to substantiate environmental claims about their products with a standard methodology to assess their impact on the environment.

These initiatives present an opportunity for Iskraemeco to underscore its commitment to sustainability and further solidify its position as a company fully cognizant of its actions, actively working to perpetuate and enhance its long-term positive impact across ESG domains throughout the entire value chain, and thereby cultivating a resilient, inclusive, responsible and future-proof business/company.

Embedding ESG into the core strategy of a business is essential for advancing innovation and ensuring long-term value creation. It's not just about compliance – it's about thriving in a sustainable economy.



Environment in IE

- 2008
Smart meter introduction
- 2015
Annual environmental and energy reports
- 2015
Fair Meter project for supply chain transparency
- 2018
A dedicated person for sustainable development in Iskraemeco
- 2019
Reporting on sustainable development
- 2019
ISO 50001 Energy management
- 2020
Consolidation and energy improvements of the buildings
- 2020
Heat & electricity cogeneration
- 2020
Green Penguin project – Smart City solution 2020
- 2021
New generation of RSM meters having 30% less of own energy consumption
- 2023
CO₂ emissions reduced by 70% since 2013
- 2023
Own solar plant ≈ 20% of electricity use
- 2023
Verified environmental product declaration for the MT880 meter
- 2024
Sustainable development as a part of the strategy department and Sustainability steering committee formed
- 2024
Membership in Kranj's climate neutrality commitment

Social and Governance

- 1990
Promotion of sport activities
- 2014
Sponsoring of various marathons
- 2016
Hackathons at the Faculty of Electrical Engineering and Faculty of Computer and Information Science
- 2018
Promotion of health
- 2019
Global job rotations
- 2019
IEDC Talent Academy AmCham
- 2019
BI implementation
- 2020
Occupational health and safety standards
- 2021
Business compliance training & testing
- 2022
ARIS Introduction
- 2022
Supply chain audits on ESG
- 2023
Whistleblowing policy
- 2024
New group authority matrix

Employee of the Month Award in Kranj

Sabina Kalan and Mateja Kuralt

At Iskraemeco, we are proud of our employees and consider them to be our most valuable asset. We foster an environment in which they can develop and advance their careers. We encourage them to be innovative and dedicated, and to continually learn and grow.



Iskraemeco is rising to the top of our industry thanks to the exceptional work of our employees. We are proud of all our colleagues who, through their hard work, diligence and commitment, contribute to the success of the company on a daily basis. In this article, we would like to highlight the achievements of three of our employees who were chosen by their colleagues in Production in Kranj as Employees of the Month for April 2024: Urška Svetelj, Material Handler, Zalka Omers, Independent Production Worker, and Fatima Rekić, Line Coordinator. The three workers have contributed significantly to the company's success through their dedication, hard work, conscientiousness and exemplary behavior.

For Urška, the award is of great value as it proves that her efforts are seen and recognized by her colleagues and management. "I try to do my best and maintain a positive attitude towards my coworkers," she explained. "I believe that we are a team and should support each other." Urška advises her colleagues to believe in themselves and their work, accept challenges and help each other. Zalka was pleasantly surprised by the award. "I am surprised and happy," she said. "I enjoy sharing my knowledge and experience with my colleagues and contributing to the success of the company," Zalka explained. She advises her colleagues to approach their work with seriousness and responsibility. Fatima is also delighted with the recognition. "It is a confirmation of my work and effort," she stated. "It's important to be a good role model and motivate the team to do a good job," Fatima emphasized. She also encourages her colleagues to be conscientious, kind, and willing to help.

Their dedication and positive attitude to work were recognized not only by her colleagues, but also by their supervisors, Anica Koren Zupanec and Damjana Šivic. "These employees are true role models for others and contribute significantly to a positive working environment. Their selection as Production Employees of the Month is a testament to our efforts to create a work environment that fosters innovation and conscientiousness. They show every day that hard work, dedication and teamwork always pay off."



At Iskraemeco, we believe that employees like Urška, Zalka and Fatima are the key to our success. Therefore, we will continue to strive to create a work environment that further encourages the commitment and dedication of our employees. We would like to congratulate the award winners on their achievements and thank them for their contributions.

Shining in Europe and beyond

Elsewedy Electric has secured a series of key accomplishments in its European cable supply, solidifying its position as a trusted partner for major infrastructure projects. These are highlights of some of our recent achievements across various countries:

Hungary

VLG: Elsewedy Electric was awarded a prestigious 3-year frame agreement, demonstrating their commitment to long-term partnerships and quality cable solutions.

OPUS: Successfully delivered 88km of high-voltage 132kV cables, playing a crucial role in enhancing Hungary's power grid infrastructure.

Latvia

Sadales Tikls: Completed the delivery of 47km of medium-voltage (MV) cables, showcasing efficient project execution and timely delivery.

Lithuania

ESO: Delivered 70km of MV cables with an additional 102km in the backlog, underlining Elsewedy Electric's strong presence in the Baltic region.

Romania

ECS (Contractor): Partnered with a leading contractor to supply 7km of high-voltage cables, contributing to the development of Romania's power grid.

COBRA Projects: Collaborated with COBRA on various projects across Spain, including Andarrios, Castalla, Coronilla, Almaraz, Lora, Mula & Murcia, Requena & Sax/Salinas, showcasing their expertise in diverse international collaborations.

Brazil

ENEL: Secured an award for the supply of 15km of high-voltage cables, expanding Elsewedy Electric's reach into the South American market.

These achievements highlight EE's commitment to providing high-quality cables, fostering long-term partnerships, and expanding its international footprint. Their success in Europe and beyond positions them as a key player in the global cable industry, contributing to the development of critical infrastructure projects worldwide.



Elsewedy Utilites pioneers as first private power distributor for New Alamein City

In a groundbreaking achievement, Elsewedy Utilites has been honored by the council ministries to become the private power distribution company for New Alamein City, marking a historic milestone as the first private distribution company in Egypt entrusted with overseeing electricity distribution on such a large scale, encompassing the scope of an entire city including the oversight of over 200,000 electricity users.

NUCA (New Urban Communities Authority) and its subsidiary "the New Alamein Authority", has entrusted Elsewedy Utilites with the crucial responsibility of ensuring seamless and reliable power distribution to the residents and businesses in the New Alamein City. This strategic partnership signifies the confidence that the council ministries place in Elsewedy Utilites' capabilities and expertise in the energy sector.

With cutting-edge technology and a commitment to innovation, Elsewedy Utilites is set to enhance the energy infrastructure of New Alamein City. The company's dedicated management of over 200,000 electricity meters demonstrates its capacity to efficiently navigate and optimize large-scale power distribution networks.

New Alamein City, spanning across more than 48,000 feddans, is a visionary project featuring high-rise buildings, commercial, industries, retails and residential sectors and with an impressive capacity about 628 MW covered through 3 different substations. Expected to accommodate more than 3 million people by 2030, this ambitious urban development aligns with Elsewedy Utilites' commitment to delivering world-class energy solutions and contributing to the sustainable development of New Alamein City. This milestone reinforces the company's position as a leader in the energy management industry, setting new benchmarks for private power distribution companies.



Aleš Potočnik elected as member of the ESMIG Executive Committee

Aleš Potočnik, Director of the Iskraemeco's Technology Design Center, has been elected as a member of the ESMIG Executive Committee for a two-year term. His role strengthens Iskraemeco's active involvement in this key international organization.

ESMIG, the European Association of Smart Energy Solution Providers, is a critical organization in the ongoing transition towards a more sustainable, affordable, and secure energy future for Europe. The association boasts over 100 member companies – leading providers of smart energy technologies and solutions – who collaborate to shape smart energy policy and regulations across Europe

"Iskraemeco, as a provider of devices and solutions that enable more efficient use of energy in practice, is aware of its position in the energy market transformation and consequently wants to play an important role in this transition. I would like to take this opportunity to thank all the representatives of the ESMIG organization who have shown their trust in me and elected me to the Executive Committee," says Aleš.

Aleš's membership on the Executive Committee underscores Iskraemeco's commitment to active participation in this influential international organization. Through his leadership and collaboration with fellow ESMIG members, Iskraemeco looks forward to driving innovation, shaping smart energy policy, and achieving a more sustainable energy future for all.



In February, the Chamber of Commerce and Industry organized a meeting at which Iskraemeco met with prominent Egyptian representatives, including Foreign Minister Sameh Hassan Shoukry and Ambassador Nahla Mohamed Essam Eldin Elzawahry, who met the representatives of the Slovenian economy led by Minister of Economy Matjaž Han.

The discussions centered around strengthening economic ties between Slovenia and Egypt, with a focus on key sectors such as energy, infrastructure, ICT, and smart cities. Iskraemeco's CEO, Luis Goncalves, and CFO, Bahaa Abdullah, had the honor of presenting our experiences and insights, shedding light on the immense potential for collaboration.

Iskraemeco is poised to contribute significantly to Egypt's ambitious goal of producing 42% of its energy from renewable sources by 2030. Our innovative solutions align perfectly with Egypt's vision for smart cities and ICT advancements, offering opportunities for mutual growth. A committed advocate for international cooperation, Iskraemeco supports the creation of a joint business council that would facilitate seamless collaboration between our nations. Moreover, we support the establishment of a direct air connection between Ljubljana and Cairo, a move that will undoubtedly accelerate business contacts and strengthen our ties.

We believe in the power of collaboration, and these initiatives mark a significant step forward in fostering a robust and mutually beneficial relationship between Iskraemeco and the vibrant business landscape of Egypt.



Iskraemeco explores new horizons in its economic collaboration with Egypt

Iskraemeco participates in Africa Day conference: Advocating for EU and Africa collaboration on achieving the green energy transition

Iskraemeco actively participated in the 13th Africa Day International Conference held in Ljubljana. The conference, organized by the Ministry of Foreign and European Affairs of the Republic of Slovenia, in cooperation with the Bled Strategic Forum, the European Commission and the Chatham House Africa Programme, brought together experts, policymakers, and business leaders to discuss the future of Africa-Europe relations, with a particular focus on sustainable development and the green transition.

Iskraemeco's Senior Vice President and CFO, Bahaa Abdullah, was a keynote speaker on a panel discussing the green transition as a catalyst for economic development in Africa and Europe. During his address, he highlighted the company's ongoing projects in Africa that have contributed to the development of energy infrastructure, and our particularly productive collaboration with Egypt. He emphasized the importance of leveraging Iskraemeco's advanced metering solutions to support sustainable energy management and improve energy efficiency across the continent. A central theme of his presentation was the critical role of knowledge and technology sharing in achieving successful long-term successful partnerships.

Participation in the Africa Day Conference underscores Iskraemeco's dedication to strengthening its relationships with African nations. The event provided a platform to showcase the company's achievements, discuss future opportunities for cooperation, and reaffirm its commitment to the green energy transition. This engagement opens additional channels for collaboration, promising further advancements in energy management and sustainability efforts across the African continent.



Iskraemeco has been awarded the esteemed title of the Top Egyptian Exporter in the Electrical Industries Sector from the Egyptian Export Council (EEC).

EXXA 2024 is a prestigious annual ceremony organized by EEC to recognize the efforts of the Egyptian Industrial Sector. Sherif El Sayad, Chief of EEC, awarded the Engineering Export Excellence Awards to Egypt's largest manufacturers. As an essential partner and key player in the industrial and exporting sectors, Iskraemeco has proudly received this award for the second year in a row.

The Export Council has given out 20 prizes, 15 of which are based on statistics from the General Authority for Export and Import Control about the volume and quantity of exports accomplished in 2023. A committee was constituted to decide on applicants for the awards in an impartial manner.

The event's significance highlights Egypt's focus on expansion and development while supporting regional manufacturing through worldwide alliances with industry leaders.

It is worth mentioning that 2023 saw a boost in Egyptian exports from the engineering industries sector, with a target of 15% by the end of the year, which Iskraemeco is proud to have contributed to.

Iskraemeco wins Top Egyptian Exporter in the Electrical Industries Sector title



Iskraemeco joins Kranj's climate neutrality commitment

Iskraemeco joins a consortium of local partners dedicated to sustainability, signing a commitment to achieve climate neutrality in Kranj, Slovenia.

Selected by the European Commission's Mission 100 initiative, Kranj aims to become a climate-neutral and smart city. Iskraemeco, a company with a long-standing commitment to sustainability, has pledged its support to this ambitious goal. The climate neutrality commitment sets out the key actions, pathways and financial means to achieve the 2030 climate neutrality target, which could reduce Kranj's CO₂ equivalent emissions by 113,263 tons by 2030 compared to 2018.

Iskraemeco has a proven track record of implementing sustainable practices, reducing greenhouse gas emissions in its manufacturing plants and products. By signing the commitment, Iskraemeco reaffirms its dedication to environmental responsibility and contributing to a cleaner, healthier Kranj. We will continue to look for new ways to reduce greenhouse gas emissions and promote sustainable development in Kranj.

We look forward to working with the Municipality of Kranj, other partners and all the citizens of Kranj to create a more sustainable future for our city.



Photos: Sandi Fišer/Mediaspeed

Iskraemeco's strategic shift for ENLIT 2024

After careful consideration, Iskraemeco has decided not to participate in ENLIT 2024 as an exhibitor. Despite our absence from the official exhibition, we want to assure you that our team will be present at the fair, and we remain fully committed to maintaining open lines of communication.

Why we're taking a new approach

Our decision not to exhibit stems from a strategic shift towards focusing our efforts more intensely on local markets and our valued customers. We believe this realignment will better serve our commitment to providing you with excellent service and support.

Engaging with Iskraemeco at ENLIT 2024

Although our company will not have a booth, our representatives will be readily available throughout the fair for any discussions, questions, or meetings you may wish to arrange. We appreciate the importance of ENLIT 2024 and view our participation as visitors as an opportunity to gain valuable insights, networking opportunities and staying informed about industry trends.

Looking forward to enhanced collaboration and special events

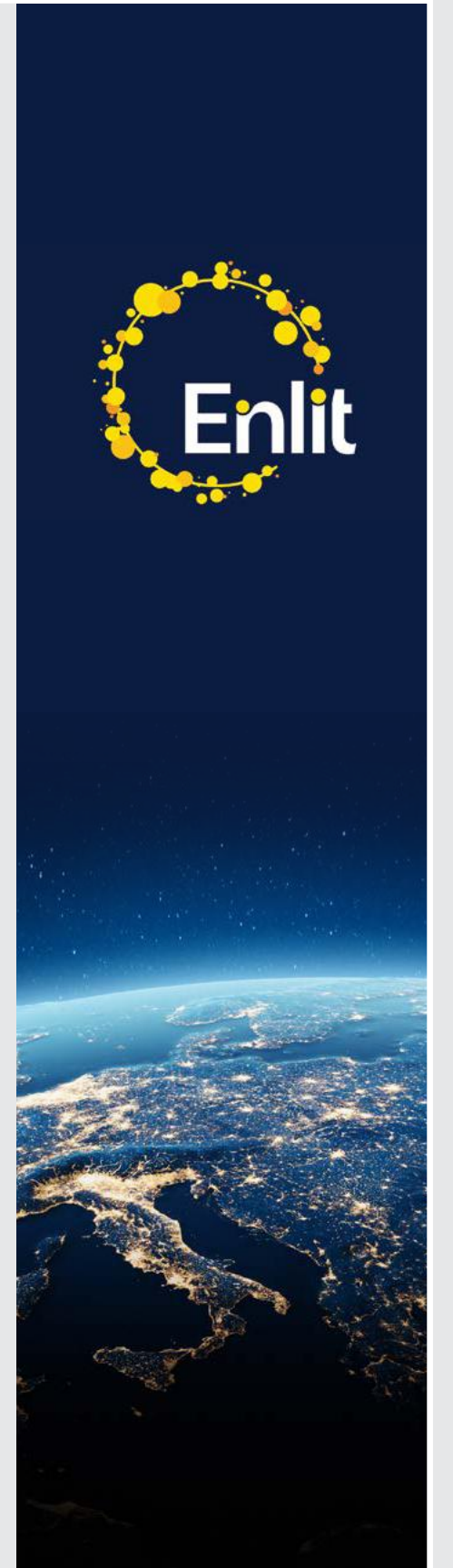
In addition to our presence at ENLIT 2024, we are excited to highlight our commitment to enhancing our collaboration with you through special visits, interactions, or events that we will be organizing in the near future. These initiatives are designed to provide unique insights into future technologies, trends, and solutions that will directly benefit your business.

Our commitment to you

We remain dedicated to fostering our relationship with you and are confident that this strategic decision will enhance our ability to meet your evolving needs. Our focus is on delivering customized service and innovative solutions that drive your success.

Thank you for your understanding and continued partnership.

Iskraemeco Team



Iskraemeco showcases smart solutions at trade fairs around the world

Iskraemeco is a leading provider of smart solutions for energy, water, and eMobility. Our commitment to innovation is evident at key trade shows around the world. In the first half of year, we've successfully participated in major events in Europe, Africa, and the Middle East, showcasing our latest developments and connecting with industry experts and potential partners.



We've established valuable connections with potential partners, generated significant interest in our products, and received constructive feedback from visitors. We're energized by the positive response and eager to continue showcasing our smart solutions at upcoming events around the world.



E-world

In February, Iskraemeco had a strong presence at E-world, the premier trade fair for energy and water in Essen, Germany. Our team presented a comprehensive portfolio of solutions, including the feature-rich Symbiot Twinner software package, the Elumia smart lighting management system, and the forward-thinking Green Penguin sustainability project. We were also honored to participate in the "European Perspectives on Smart Metering" forum, where we provided insightful commentary on the potential of smart metering to revolutionize energy efficiency.

Light+Building

March saw Iskraemeco exhibiting at Light+Building in Frankfurt, Germany. This trade fair is a hub for lighting and building technology, providing the perfect platform to showcase our innovative Elumia smart lighting monitoring system. Elumia leverages CLSM® technology to deliver real-time insights into power consumption, making it ideal for a wide range of street lighting applications. Visitors were treated to a live demonstration of Elumia, and we were excited to share two successful pilot projects implemented in Croatia. The positive feedback we received on Elumia's impact and efficiency was truly gratifying. We look forward to collaborating on potential proof-of-concept projects in various regions.





Municipalia

In April, the Iskraemeco team took center stage at Municipalia, a leading trade fair that connects local authorities with innovative solution providers. Held in Marche-en-Famenne, Belgium, the event provided a valuable platform to present our suite of smart solutions designed to address the challenges faced by modern cities. We highlighted:

- Elumia, the smart lighting monitoring solution with the potential to redefine luminary monitoring with its innovative patented technology. The system boasts near real-time detection of broken luminaries, electricity theft, and power consumption of streetlights.
- Our eMobility solution, empowering cities to embrace the future of transportation with future-proof charging infrastructure.
- Digital water solutions, designed to optimize water management for a sustainable future.

Enlit Africa

We capped off a productive May with participation in Enlit Africa, held in Cape Town, South Africa. This key meeting point for the African energy sector provided the perfect opportunity to showcase our smart solutions, Elumia, eMobility and connect with key business partners. A live demonstration of our cutting-edge smart street lighting monitoring system was a highlight, captivating attendees from a wide range of African businesses and municipalities. The productive meetings we held with potential partners further solidified the value of our presence at the event.



EVIS Summit

From May 20th to 22nd, our eMobility team made a successful debut at EVIS Summit, a major trade fair for electric mobility in the Middle East. This event provided a fantastic platform to showcase our comprehensive range of chargers for private and public use, and to network with key players in the industry. EVIS brings together leading experts, manufacturers, innovators, and enthusiasts of electric mobility.

We presented a wide range of innovative solutions for electric mobility, which were met with great interest. Many visitors flocked to our stand to learn more about our products and services, with a particular focus on our latest charging station models, the UrbanBox and NeoBox, designed for faster and more efficient charging.

Our participation in EVIS marks a significant step in expanding our presence in the Middle East, and we look forward to future opportunities to collaborate with the partners and customers we met at the fair.



Iskraemeco at IX Scientific & Technical Conference in Poland

In mid-June, Iskraemeco was part of the IX Scientific & Technical Conference in Poland. We took this opportunity to showcase its comprehensive digital grid portfolio and engage in thought-provoking discussions on the future of the energy sector.

Iskraemeco impressed attendees by presenting its entire suite of solutions for digital grids. Bernard Hajduk, Area Sales Manager, led a panel session titled "Digital twin for energy distribution networks – reality or future?" In another session, Klemen Belec, Global Hardware Product Management Director, tackled the challenge of balancing national requirements with global standards. His presentation, titled "How to combine national requirements with global standards," addressed the need for a harmonized approach to grid modernization while acknowledging the importance of addressing specific national needs.

Iskraemeco's participation in the IX Scientific & Technical Conference demonstrates its commitment to innovation and thought leadership in the digital grid space. By showcasing its solutions and engaging in industry discussions, Iskraemeco is helping to shape the future of a more sustainable and efficient energy sector.



Expert conference for Slovenian distribution system operators

On July 11, 2024, Iskraemeco hosted an expert conference titled 'Partnership for Progress: Solutions for Digitalization and the Energy Transition' at Brdo pri Kranju, Slovenia.

The event brought together experts from Slovenian electricity distribution companies and various energy professionals from notable Slovenian institutions such as ELES, Electro Institute Milan Vidmar, the Faculty of Electrical Engineering at the University of Ljubljana, the Energy Agency, MIRS, and SIQ.

Key themes and highlights

The conference provided a platform for attendees to delve into the latest trends and challenges in modern energy systems. Iskraemeco presented advanced tools and solutions for grid management and planning, while also enhancing attendees' understanding of communication technologies and cybersecurity.

The program was packed with insightful sessions, including:

- **Current trends and challenges for DSOs:** The opening session addressed the evolving landscape for distribution system operators (DSOs). Experts discussed the impact of regulatory changes, the integration of renewable energy sources, and the increasing complexity of energy distribution networks. The conversation highlighted the necessity for DSOs to adapt to new technologies and methodologies to maintain efficiency and reliability.
- **Management and planning of modern distribution networks:** This session focused on the strategic management and planning required to handle modern distribution networks. Presenters shared insights on load forecasting, grid reliability, and the integration of decentralized energy resources. Emphasis was placed on predictive maintenance and the use of advanced analytics to optimize grid operations.
- **Tools and solutions for planning and optimizing distribution systems:** Iskraemeco showcased its cutting-edge tools designed to optimize distribution systems. These tools include advanced grid simulation software, asset management solutions, and demand response technologies. Practical demonstrations highlighted how these tools can improve operational efficiency and reduce costs.

- **Practical use cases:** Real-world applications of discussed technologies and strategies were examined through various case studies. These use cases provided valuable insights into overcoming common challenges and achieving tangible results.
- **Communication technologies:** This session explored the trends and comparisons in communication technologies essential for modern energy grids. Topics included the role of IoT in grid management, the benefits of advanced metering infrastructure (AMI), and the comparison of different communication protocols such as PLC, RF Mesh, and cellular networks. Discussions highlighted the importance of robust communication systems for real-time data exchange and decision-making.
- **Cybersecurity and resilience of energy grids:** The session addressed the critical issue of protecting energy infrastructure from cyberattacks and ensuring the overall resilience of the grid. Discussions focused on methods for defending against cyber intrusions, strategies to enhance the grid's ability to recover from disruptions, and the importance of ensuring all cybersecurity measures meet or exceed regulatory requirements.

Round table discussion

A significant highlight of the conference was the round table discussion featuring prominent industry leaders:

- Mag. Igor Podbelšek, Head of Department for System Operation, Elektroinštitut Milan Vidmar
- Gregor Omahen, Assistant Director for Strategic Innovations, ELES d.o.o.
- Prof. Dr. Marko Topič, Dean and Full Professor at the Faculty of Electrical Engineering, University of Ljubljana
- Dr. Jurij Curk, Advisor to the Board, Elektro Ljubljana
- Gregor Novak, Owner of SunContract and Head of Development
- Aleš Potočnik, Global Director of Technology Design Center, Iskraemeco, and Executive Board Member of ESMIG

The discussion was moderated by Klemen Belec, Global Director for Hardware Management, Iskraemeco. It focused on the future of distribution system operators, highlighting educational needs and the exchange of expert opinions on emerging industry challenges.

Looking forward: collaboration for a sustainable energy future

The Iskraemeco conference fostered a dynamic exchange of ideas and a collaborative spirit among key industry players. Discussions underscored the pivotal role of Distribution System Operators (DSOs) in navigating the energy transition and emphasized the necessity of continuous innovation for a sustainable and resilient energy future. Iskraemeco extends its gratitude to all participants and looks forward to building on this momentum through future collaborations.



Innovating
for **Life.**

// ENGAGE - ISKRAEMECO MAGAZINE

Engage - Iskraemeco magazine
Publisher: ISKRAEMECO, Savska loka 4, 4000 Kranj
Content, design and DTP: MARCOM

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