ISKRAEMECO MAGAZINE

engage

IN THE SPOTLIGHT

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DECEMBER 2022

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Editorial

Dear Colleagues,

The time when the year draws to an end is always full of beautiful and inspiring moments. With the year nearly over, we are working to finalize important topics and preparing for the holiday season. This is also the time for reflection and setting new goals for the year ahead.

I would like to take this opportunity to also reflect on our business year and give an overview of what is on the horizon for 2023. But first of all, I would like to thank you all for your great work, support and dedication. We all know that 2022 was another surprising year, completely unpredictable and full of changes and events we did not expect. With the support and commitment of employees, customers, and partners, the Iskraemeco Group was able to achieve remarkable milestones, reaching beyond the predetermined revenue targets and achieving the best results ever. Although we experienced some variations in profitability due to inflation, exchange rates, and supply chain bottlenecks, overall business performance was strong and remained within our profit goals. Such positive business performance was only possible with your contribution, and I would like to express our gratitude on behalf of the entire management team.

Let's take a brief look into the future! We have worked hard to generate an amazing order volume that will serve as a strong foundation for 2023 and our growth plan. However, the industry is not very stable. Energy prices are rising, inflation will probably continue to have an impact on our lives, and the uncertainties on the political level will bring new surprises.

As Iskraemeco, we have considered that in our new strategy that is being communicated and will be important to execute in 2023. We need to transform our business model into a Digital Platform model by creating clear technology streams around Electricity Metering, Water Solutions and eMobility. We are prepared for this transformation and all of us will have a great opportunity to help co-create the next generation of Iskraemeco. In these turbulent times, we have a unique opportunity to use our dedication and commitment to drive us forward on this journey together.

On behalf of the all Iskraemeco employees, I would like to wish you and your families Happy Holidays and a Happy New Year 2023. May it bring joy, peace and prosperity!

Luis Goncalves,
CEO of Iskraemeco Group

Interview with Eng. Ahmed El Sewedy,

President and CEO of Elsewedy Electric

“A successful business needs more than a good pitch and superior products, it needs ambition, innovation, dedication and a sprinkling of love. So, it is that purpose, together with my belief, that I bring to Elsewedy Electric.”

Meet Eng. Ahmed El Sewedy, a successful entrepreneur, President and CEO of Elsewedy Electric, a global provider of energy, digital and infrastructure solutions, of which Iskraemeco is also part.

Elsewedy Electric is a very well-known global company, and you are the face and driver of its success. You have received many awards, met presidents and other CEOs, you influence important decisions, and are invited to speak at various conferences. Does this motivate you to continue to improve and grow or are there other factors that keep you going every day?

I believe that everyone must have a purpose in life that is freely chosen. I also believe that part of one’s purpose must be using the best of your ability to benefit your family, the people around you and society. You must focus on achieving your goals and having a positive impact on society; this is a shared responsibility to which each of us should contribute.

When you wake up in the morning, do you see challenges that you want to solve, or do you wake up with great new ideas that you want to implement?

When I wake up in the morning, I always have plans to do something new, add new skills and talents to the organization, identify new challenges, or uncover existing difficulties that needs resolving. I value the ability to be able to discover new challenges, or as I like to call them ‘opportunities to excel’. Identifying and resolving problems proactively is one of the most important things I do, as it keeps the company one step ahead of the game. I also occasionally consider recruiting new team members and planning the company’s future.

What is a ‘normal’ day like for you?

Travelling is a big part of my daily life. I typically travel for approximately two or three days per week to Europe, Africa, the Middle East, or Asia. The main objective of my travel is to develop the business, but I am also keen to strengthen our relationships with countries and people. I meet with many people, such as country officials and company presidents, attend board meetings, and witness the signing of important deals. It is of the utmost importance to me that I give the operations and people of the country I am visiting my undivided attention, as it helps me focus on the primary business purpose of my visit and successfully provide the best value for the country and its people.

When I am not traveling, I usually wake up at 6am and begin my first meeting somewhere between 7am and 7.30am. I meet with one of the primary operations, which include Iskraemeco, Transformers, Cables, the Human Resources or Finance departments, where we discuss current business and future plans. We mostly concentrate on our vision and goals for the next three years. In the past, such planning was done on a five-to-seven-year cycle, but now it is done every two to three years because business and global situation are so dynamic that we must always be aligned and at the top of our game. At approximately 10.30am, I begin meetings with my team

members or employees who want to see me or require assistance in addressing urgent matters. Between 2pm and 3pm, I hold external meetings with some of our most important clients and ministry officials to discuss business as well as regional and Egyptian-related issues. I typically conclude my workday at 9pm with a business dinner and return home at 10pm to spend the rest of the evening with my family.

You mentioned two things: long working hours and travelling. How do you balance your professional and personal life?

It is quite challenging, as I am only able to spend time with my family on Fridays and half the day on Saturdays, which I truly enjoy and cherish. Unfortunately, during the week it is difficult to spend time with them as I only see my wife and daughter early in the morning and for half an hour each evening. However, I soon intend to change this balance and devote significantly more time to my family.

In your opinion, what are the biggest challenges in today's business, and do you see them as opportunities at the same time? How do you envisage business in the future? What will change?

There are numerous changes happening on multiple levels throughout the globe as we speak. There are changes at the national level, constant local and worldwide political changes, some of which affect the economy, such as material price hikes and availability, as well as the funding of banks. There are also rapid changes happening in the business environment; changes that will occur in the next three to four years have never occurred in the preceding 100 years. I am anticipating significant changes, and the way in which we conduct business today will have to adjust radically. Businesses that are not a part of this transformation and lack a vision for the future will struggle to survive.

With this in mind, I am currently considering many ideas. I am always searching for talented individuals, who can facilitate the transition process, and considering the creation of new professions, positions, products, and solutions, as well as the establishment of new departments at the level of both Iskraemeco and the Elsewedy Electric Group. I believe that this transformation will unfold quickly, and it is imperative that we are adequately prepared before it is too late for us to react.

Our portfolio of solutions and products has developed to embrace a 'smart' business strategy across all businesses. Elsewedy Electric has established Elsewedy Technology and Elsewedy Digital, which focus on integrating relevant technology into our digitisation process and assisting governments and other businesses in their digital transformation. I believe Iskraemeco is one of the major drivers of this digital transformation inside the Group, as its future focus is on smart services, software, and intelligent digital solutions for the energy industry, in addition to the manufacturing of smart meters.

There is a highly ambitious plan in place for Iskraemeco's digital transformation, which I believe is attainable, and I look forward to overseeing its development.

Iskraemeco is just one of many companies within the Elsewedy Electric Group. In your opinion, what are the main strengths and benefits that Iskraemeco brings to the Elsewedy Electric Group?

In addition, what do you think are the main synergies between the two companies and how does Iskraemeco complement the overall business of the Elsewedy Electric Group?

There are significant synergies between Iskraemeco and Elsewedy Electric, as well as several differences, which is beneficial because both companies complement one another. Iskraemeco is strong in the European market and is also establishing a foothold in other regions. Many local experts are doing great business, executing crucial projects, and assisting in developing regions. Iskraemeco also focuses on the energy industry by enabling energy management, a field in which the entire globe is currently concentrating. Everyone is talking about energy savings, but savings cannot be generated without accurate measurements of water, electricity, and gas. This is exactly what Iskraemeco does best: we provide a comprehensive energy solution for infrastructural development.

We all know that employees are important to you and that you, together with Elsewedy Electric as a company, place a high value on diversity, inclusion, and education. What would you say good, talented, and motivated employees bring to the overall success of the company? Why is it so important for the company to attract, retain and develop employees?

Our fundamental objective is to help society and those around us, and to be recognized for who we are and the good work we do. To do so successfully, we need people who believe in, respect and are devoted to the company. For this reason, I believe that employees must be content in the company and my job is to ensure that they have a promising future, a competitive compensation package with benefits, and the knowledge and skills necessary for their personal and professional development. I want every employee to feel valued and fulfilled in their role. When individuals grow and develop, organizations grow with them.

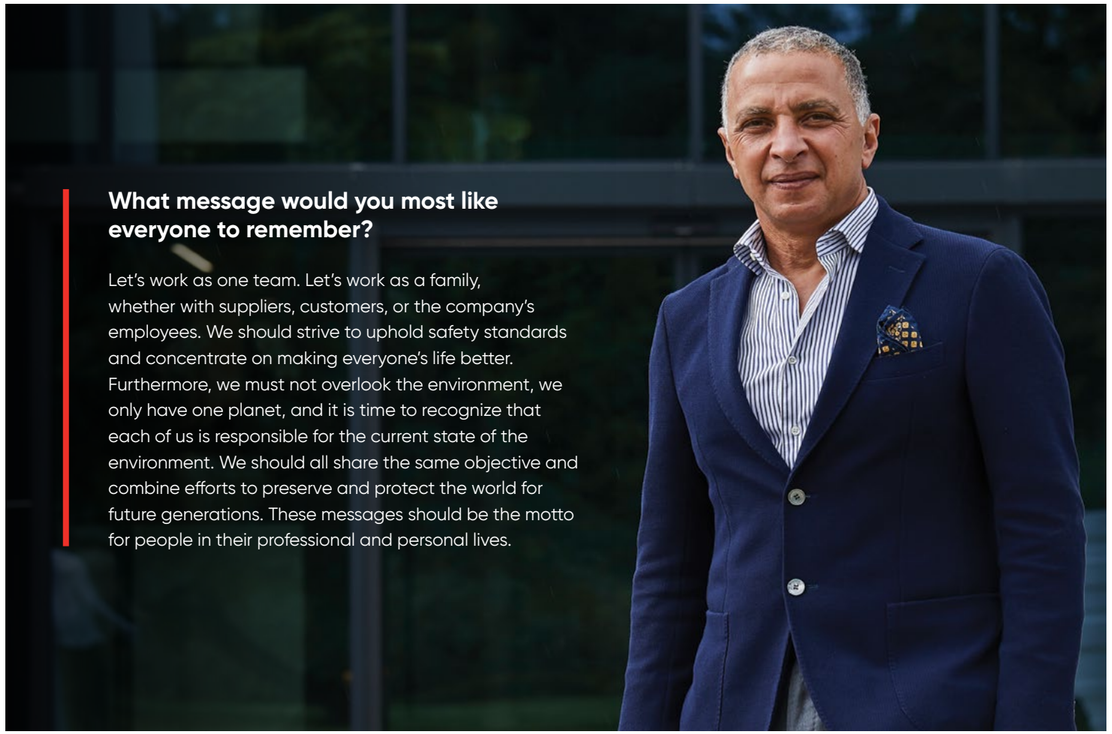
I depend heavily on fresh graduates; our aim is that they make up ten percent of our new hires. This year alone, around 1,200 new graduates will join Elsewedy Electric, which will affect the company's mindset, as we are introducing new ways of thinking, young energy, and fresh ideas into the whole Group. Obviously, we cannot underestimate the importance of experienced and professional individuals, as well as their wisdom and loyalty, which are also crucial and will guide and support the upcoming generation. By employing a workforce of varying ages, our Group gains a competitive advantage as well as financial benefits.

What are the most important values that you also implement in your business life and expect from others?

Perfection at work, innovative ideas, the ability to identify problems and propose solutions, teamwork and, of course, working together as one big family.

You have achieved a lot in your life. Do you still have any unfulfilled aspirations? Can we expect any big plans – either personal or private?

You are giving me too much credit, I consider myself normal, like everyone else! I might have numerous achievements, but admiring the past makes you neglect the future, which is where my focus is. I believe there are still many opportunities and things I can do, change, and accomplish. My focus is on the next three years and how we can successfully transform the company, thus ultimately improving the lives of our employees and contributing to the overall prosperity of society. Therefore, I am still heavily committed to activities intended to improve the future.



What message would you most like everyone to remember?

Let's work as one team. Let's work as a family, whether with suppliers, customers, or the company's employees. We should strive to uphold safety standards and concentrate on making everyone's life better. Furthermore, we must not overlook the environment, we only have one planet, and it is time to recognize that each of us is responsible for the current state of the environment. We should all share the same objective and combine efforts to preserve and protect the world for future generations. These messages should be the motto for people in their professional and personal lives.

Interview with Emad Ghaly,

Executive Chairman of the Board of Iskraemeco Group Holding and the Managing Director of Iskraemeco Egypt and Africa

"Technology, innovation, and entrepreneurship have been my driving passions from the beginning!"

Emad believes that innovation is the engine that drives growth, competitiveness, and the capacity to better serve our customers and address global challenges. As such, he seeks to implement it daily in his leadership and team coaching, business operations and management. He takes great pride in seeing it reflected in the company's culture and actions.

Utilizing diverse disciplines, he strives to always make a difference. As an engineer, he has specialized in areas including renewable energy, power generation, the tech industry, strategy, business development, and management. His mission is to provide maximum value to the people, the organization, customers, partners, and future generations!

Emad Ghaly is currently the Executive Chairman of Iskraemeco Group Holding and the Managing Director of Iskraemeco Egypt and Africa.

What do you see as the most powerful tool of organization in order to be successful on the market?

The most important characteristic of successful company today is the ability to adapt to the dynamic business world and to the constant changes in the macroeconomic and social environment, as well as the ability to recognize future trends and adjust the corporate strategy accordingly. Digitization is a perfect example of this. It impacts the markets, organization and its internal operations while simultaneously driving the development of new products, solutions and services that support the digital transformation of customers. My perspective is that the most influential individuals are those who are actively involved and motivated. Without them, businesses would not have reached their current level of success, and I am pleased that we have such talented professionals working for Iskraemeco.

What do you see as the biggest strengths of Iskraemeco right now?

Iskraemeco's relevance as a provider of smart energy, water solutions and other digital solutions, e-mobility and digital platforms, is growing. Our greatest strengths are the multinational and highly qualified teams who understand the value and power of data and are continually looking for ways to improve. Moreover, by increasing our portfolio through the acquisition of companies that complement our core business, we are ensuring that we will stay competitive in the future. In addition, we have our young, enthusiastic teams around the world that are pushing us to new frontiers.

How do you see Iskraemeco evolving in the next year, two years, or five years?

We closely monitor industry trends and other global developments that play an important role and have a major impact on our customers. By incorporating them into our strategy, we aim to bring to market the solutions and technologies that will offer significant benefits to our customers and partners. On the road to green transformation, Iskraemeco's products and solutions will play an essential role. We are placing a strong focus on driving this even further in the coming years through the implementation of smart city technologies such as the Green Penguin.

More emphasis will be placed on smart digital solutions and services, where we are developing cutting-edge offerings that address the real challenges our customers face. While preparing for the future, we are rethinking the energy and water industries and exploring new possibilities. We have a long history in metering; therefore we have a wealth of experience that we must continually transform into new services and the creation of ever more advanced software solutions.

You also act as a sponsor of new e-mobility solution in Iskraemeco's portfolio. How do you see e-mobility in today's business landscape?

E-mobility is on the rise, and we have identified it as one of the key opportunities for us. Besides software and digital platforms, e-mobility is another strategic focus area Iskraemeco has decided to pursue. E-mobility makes the decarbonization of the transport sector a reality, which in turn means a healthier and cleaner future, especially in light of urbanization and the growing demand for energy in cities. The connection between the electric vehicle landscape and sustainability is clear: more e-mobility solutions directly lead to a reduction of the carbon footprint, making them much more environmentally friendly. At the same time, this is not only a way to combat the climate crisis but also the economic crisis. The development of e-mobility will ultimately lead to growth in the sector and create millions of new jobs in electric vehicle manufacturing, software development, and supply chains.

Since the e-mobility concept is based on green energy, our holistic solution has all the functions that stakeholders in the e-mobility environment need for efficient and stable operations. This includes energy providers as well as municipalities which are trying to ensure that infrastructure is ready without compromising the electrical grid and supporting services.

Charge point operators (CPOs) must obtain permission to build infrastructure, and grid operators are responsible for connecting charging stations to the electric grid.

The entire concept of e-mobility hinges on a secure and robust electric grid supported by technological solutions to balance the impact of electric vehicles on local networks. In this regard, distribution system operators (DSOs) are crucial to the progress of transportation.

Although the e-mobility market is experiencing rising consumer demand and rapid infrastructure development, it is only at the beginning of its journey. At Iskraemeco, we are ready and excited to help shape the future of e-mobility.

Given the increased focus on energy and sustainability, what is the scope of digital solutions for energy efficiency and sustainability that Iskraemeco is currently working on?

Digitization of the energy industry is vital since it places the energy consumer at the center and reduces energy prices for consumers through energy efficiency and participation in flexible demand response mechanisms. Environmental change and digital transformation, supported by advanced technology and an innovative approach, go hand in hand when it comes to making communities more resilient and energy efficient.

At Iskraemeco, digital solutions serve as levers to accelerate benefits for utilities, cities and communities by combining a higher and more sustainable quality of life with improved service performance. We offer digital solutions that make data-driven energy management possible. This improves energy and water efficiency, boosts business performance, and saves money, time, and resources.

By placing digital platforms at the core of our operations, we can serve our customers with a reliable, robust data management foundation that opens up new value creation opportunities and enables us to kickstart new initiatives. We are investing in initiatives and services that leverage data science to provide innovative solutions to optimize energy consumption, streamline operations more effectively, and drive green and digital transformation. Using new technologies and big data analytics, we are also putting more attention on the need to update the grid and make infrastructure more reliable.

Iskraemeco is becoming an important partner in smart digital networks and IoT technologies and solutions. It is ready to support advanced IoT applications, e-mobility challenges, smart cities and communities, and it enables the transition to a circular economy. As part of our overall strategy, we offer the Symbiot software suite. This has helped us develop a very strong method for helping companies manage their digital transformation.

To act responsibly on a local, national, and international level, Iskraemeco is actively engaged in improving its environmental and social footprint. Collaboration plays a significant role; through close knowledge transfer, great impact can be achieved. All stakeholders in the industry need to be educated, but an even more important aspect is spreading awareness among customers and other stakeholders, which we are already actively performing.

What has been your most rewarding accomplishment during your career?

I have always paid attention to what our customers challanges are in order to find ways to address their pressing issues and provide high-value services. Being proactive in these instances is absolutely essential if you want to gain the customer's trust and deliver the promised solution, which on many occasions has been awarded through contracts worth billions of euros.

Another aspect to highlight is the importance of encouraging business growth through innovative practices, strong governance, and excellent operational processes. I would like to emphasize also how pleased I am with the company for having such dedicated employees, and it gives me great pleasure to witness the success they accomplish as a direct result of the guidance I provide them.

What are still your goals for the future?

One of my ambitions is to realize Iskraemeco's new vision of being one of the most innovative platform companies for tackling energy, water, and city challenges. That will undoubtedly be one of my priorities. Using the power of data and the latest technology to create digital platform solutions will enable cities, businesses, and individuals across the globe to optimize their energy and water consumption and, therefore, live more sustainably.

I am certain that an environmentally sustainable and technologically advanced future is feasible, and I have made it my purpose to strive for excellence, the best possible quality, and maximum operating efficiency. I have no doubt that, owing to the efforts and devotion of our workers, partners, and customers, we will be recognized as one of the most successful companies in the industries, where we operate and an enabler of the green and digital transformations in the not-too-distant future.

What is something you like to do outside of work that would surprise people?

I value the time I spend with my family and loved ones because it brings us closer together and allows us to better understand each other. One of my personal goals is for future generations to benefit from my ideas, life experiences, and accomplishments.

It is also important for me to constantly widen both my personal and professional perspectives by engaging in activities that are not directly related to my day-to-day job. Furthermore, one of my favorite activities is to regularly enhance my knowledge in a variety of areas, such as technology, innovation, climate change, and sustainable practices.

Is there anything else you'd like to share with our readers?

Let us work hand in hand with our employees, partners, and customers to master the digital journey toward a more sustainable and efficient future.

As forefront in innovating the future, we hold ourselves, communities, and all industry stakeholders responsible for delivering significant benefits that transcend far beyond the boundaries of our own businesses and will result in meaningful, long-lasting change that leaves the world a better place for future generations.

Be SMART. Go GREEN.

Domenico Lamparelli

eMobility at Iskraemeco improves mobile charging infrastructure and the grid efficiency, significantly reducing energy demand and carbon emissions.

Iskraemeco is launching a new business unit that will explore the eMobility landscape in depth and provide solutions for all eMobility applications. E-vehicles and charging stations are the first things that come to mind when people consider eMobility. As expected, the story is somewhat more complex, there are more players in the game; some of them are less visible than others, but no less important.

Transforming the automotive industry

By 2031, a significant share of new car sales will be comprised of electric vehicles in a number of European countries. This will be driven by legislation, but incentives to purchase electric vehicles and charging equipment are now already available in several nations.

Plug-in electric vehicles and hybrids (PHEV) will replace internal combustion engines (ICE) in all new cars from 2030 on. As a result, electric vehicles will become increasingly prevalent in the second-hand car market. Obviously, this tendency aligns with Iskraemeco's vision for environmental sustainability.

There is, however, another side to the story. The transition from internal combustion engines (i.e., fuel powered vehicles) to electrically powered vehicles will have an influence on the capacity of electricity networks to manage the growing demand for power.

Without a comparable expansion in network capacity, energy supplies and Distribution Network Operators (DNOs) will face a rise in energy demand. At the same time, DNOs will manage the change from traditional energy sources to renewable energy sources with different profiles depending on how much electricity they make.

Our concept requires the addition of one extra factor. In the modern world, increasing network capacity to meet rising energy demand is neither good for the economy nor for the environment. Instead, peak consumption could be moved to times of the day when the generation capacity is available, which would balance the demand.

In conclusion, there are EV owners (ultimately us) on the one side of the equation, and on the other we have the electrical network operators, with the cost of energy and the quality of services in the middle. Therefore, Iskraemeco decided to intervene and provide eMobility solutions and services with genuine value.

Addressing customers' needs in the eMobility sector

Iskraemeco has recently acquired GL Charge, a Slovenian startup company specializing in eMobility solutions and services, in order to put the puzzle pieces together and deliver this genuine value. By joining up with GL Charge, Iskraemeco is able to address the needs of consumers as well as the challenges energy providers will face in the near future.

Part of our product line are currently private and public charging stations. The home charging stations are capable of dynamic load management, which means that the station can adapt the energy used to charge the vehicle to the energy required by other household appliances. The more energy is available, the faster the e-vehicle will be charged based on the available contractual power. In other words, we avoid overloading the home energy network. Iskraemeco's smart metering expertise can be used to provide dynamic load control between the charging station and the smart meter (via the X1 port). This is the first level of integration with energy providers.

The eMobility portfolio also includes electric charging stations for community and public applications. The charging process is enabled by an RFID card, so the energy used may be assigned and subsequently billed through the management systems of the community (e.g., HR system, ERP system). They can be utilized in hotels, gated communities, and company parking lots.

If you have ever taken a lengthy vacation with an electric vehicle across multiple countries, you know what it is like to have to download multiple apps from various operators in order to authorize and pay for the charging process. Why not use your known and trusted credit card? GL Charge PAY charging boxes make this feasible. The eMobility portfolio items are OCPP-compatible, which means that items can exchange information with the eMobility back-end systems in a standard way.

Individual mobility and electricity industries are becoming increasingly intertwined

Predicting the future can be challenging, but we can predict a large number of connected electric vehicles, intelligent charging stations, and information systems at the intersection of the electricity and mobility sectors. In other words, two previously distinct industries, such as individual mobility and electricity, are becoming increasingly intertwined, with software systems serving as the 'glue' between them. In recent decades, software systems have played a significant role in enabling intelligent energy management, which contributes to a more efficient system for generation, transmission, distribution, and consumption.

Due to the proximity of eMobility and energy management, we anticipate a number of significant improvements, including a finer monitoring granularity of the grid and an increase in the automation of energy management. eMobility will give grid operators brand-new challenges to deal with, like the fact that EVs' demand on low-voltage networks is unknown and could be very volatile. However, it will also open up new opportunities, like using EVs as energy storage units or for demand-side control strategies.

This brings us to an additional concept that is essential for Iskraemeco. With the 'local' version of Dynamic Load Management, we take care of our domestic grids; we should do the same for the national energy grid. As stated in the premise, expanding network capabilities is not always the solution; in fact, this can be a costly and inefficient solution; sometimes energy resources are available, and the problem is 'only' that they are not available at the same time in the same place; therefore, it is not necessary to increase the resources, but rather to utilize them wisely.

Furthermore, machine learning algorithms can monitor the grid and its utilization level, reallocate loads dynamically, and maintain grid balance. The eMobility infrastructure is ideal for this purpose. When everything is working well, the amount of energy used by charging stations can be measured in minutes.

In conclusion, once again, it appears that system integration is the key to achieving benefits for both EV users and grid operators. AMI (Advanced Metering Infrastructure) systems, eMobility back-end systems, payment systems, and NMS (Network Management Systems) can work together to enable the benefits outlined in the preceding paragraphs if the integration projects are implemented by competent teams with a comprehensive understanding of the challenge.

Meet GL Charge, a new member of the Iskraemeco and Elsewedy Electric family and a Slovenian provider of EV-charging solutions

Smilja Dolgan Paternoster

GL Charge's mission is to contribute to a more sustainable future by making eMobility accessible to everyone, everywhere. Therefore, they have developed innovative and reliable electric vehicles charging solutions, ultimately facilitating the transition of their customers to a sustainable future.

GL Charge has created unique smart charging stations intended for electric vehicles using cutting-edge technology and is currently offering a diverse selection of home charging stations, community charging stations and public charging stations. In addition, GL Charge offers a complete back-end solution for the management of charging stations and, most importantly, charging stations with an integrated payment system to make charging "gas station easy."

GL Charge and Iskraemeco have joined forces to make eMobility more user-friendly and flexible, while simultaneously maintaining the electrical grid and infrastructure in the most cost-effective manner.

Learn more about GL Charge:

"I have always regarded myself as a very future-focused individual who views the world through the eyes of technology. As a representative of a younger generation, my motivations and passions have always been innovative technology and renewable energy. By establishing a company GL charge, we have brought the concept of a green-focused organization to life. Now, a number of years later, we are excited to have joined Iskraemeco since together with them we can truly attempt to expand globally in the area of eMobility and play a significant role in eMobility markets and grid stability. By continuously enhancing our products and services, we prioritize the consumption of renewable energy. This will be accomplished through digitalization, the utilization of new technologies, and integration within the Iskreameco smart ecosystem. Together, let's power our green future."

Matevž Grabar,
CEO of GL Charge

GL Charge
an ISKRAEMECO company

DIGITAL WATER SOLUTIONS

Smart Pumping Optimization

Peter Cheung, Henrique Gustavo da Costa and Jože Rotar

Although water scarcity and energy are current risk factors, water utilities, ranking among the biggest energy consumers, need to supply water as usual. To achieve this, pump industries offer devices with high-level energy efficiency, control and automation systems, variable speed pumps and other equipment. On the other hand, operational control teams should be engaged for operating water distribution systems in an efficient way, e.g. saving energy. It requires a strong commitment and some behavioral changes as well. Pumping optimization improves operational efficiency and helps on lower CO_2 emissions.

Iskraemeco's Water Business Unit launches a new solution – Smart Pumping Optimization

Unlike traditional pumping operations that are controlled by reservoir water level or network pressure, the digital Smart Pumping Optimization solution interacts in real time with sensor data and software to manage the pumping operations.

Benefits for the water utility

- Operational efficiency: reducing the amount of energy and electricity costs.
- Minimizing asset lifecycle costs: reducing total cost of ownership by lowering operating and maintenance costs through condition monitoring.
- Environmental regulations: aiming to reduce greenhouse gasses and carbon emissions on a global scale.

Organizing data in a Data Lake

Water utilities produce huge data volume from different formats and sources such as SCADA and Telemetry, IoT devices for monitoring flow and pressure in the water distribution, weather data stored in cloud or on-premises. This data is organized into a Data Lake which ingests, stores, processes, and analyzes data in real time or in a batch mode.

Optimization algorithm

One of the recent developments in water engineering modelling is the employment of the modern optimization methods, which can be described, in simple terms, as the maximization or minimization of the real function by systematically choosing input value of the function. Here, the digital pumping solution determines optimal operating parameters, e.g. switching a pump on or off, or setting the optimal frequency variable pump speed, aiming to maximize efficiency and minimize real-time energy and operational costs.

Smart Pumping Optimization Solution

Smart Pumping Optimization is a digital solution that promotes the transformation of data, which is extracted in real time within cloud automated engines, from internal and external sources (SCADA, IoT Loggers) into real insights. It improves operational and energy decision support of the water systems, reducing waste and increasing security. The solution is aligned with the need for efficient operation management of water supply network management entities, and has a visible impact on their operating results, delivering high economic return without increasing operational risks.

To assist water utilities in their decision-making and day-to-day management of the water supply network, the solution gathers data from sensors installed in the water supply network and, coupling them with meteorological data, predicts water consumption for the next 24 hours at all points of consumption. Based on these results, the solution schedules all water pumping operations for the next day, minimizing operational and energy costs. The solution's operational mode is therefore based on three pillars: Forecasting, Simulation and Optimization. These pillars serve as the basis for the modular architecture which supports operation in three modules: 1) operational monitoring module and performance indicators (KPIs); 2) forecast module; and 3) the operational and energy optimization module. In the KPI's dashboard it is possible to verify the system performance metrics specified by the Specific Cost of Production (SCP), the Specific Energy Cost (SEC), and the Standard Specific Energy Consumption (SSC), measured in €/m^3, €/kWh and kWh/m^3, respectively.

The solution presents itself as a multifactorial tool and its effects are manifested at the most diverse points of the water collection-treatment-distribution system. Some of the benefits responsible for optimizing resource use are given below:

- Relocation of pumping operation schedules to times when the energy cost is shown to be more favorable, i.e. not operating the electric pumps at peak hours.
- Reprogramming frequencies and operation mode of the variable speed motors of the electric pump, sets for the moments of greater energy efficiency with consequent reduction of energy consumption for the same pumping work.
- Better operational safety for the Operational Control Center (OCC), in the control of pressures of the distribution network and consequent reduction of the volumes of treated water losses.
- Reduction of labor costs with the automation of on-and-off pumping operations and the operational supply planning, with real-time performance indicators (KPIs).
- Reduction of carbon emissions, motivated by the efficiency in programming the frequencies of lifting stations.

CASE STUDY

Smart Pumping Optimization Solution for water utility Sanepar

Sanepar is the largest company of Parana State in South of Brazil. The water utility supplies treated water to more than 10 million people in 345 cities and 57,5 thousand kilometers of water network.

Water Distribution System

Iskraemeco's Smart Pumping Solution was applied to Passaúna Water System in Curitiba, Paraná (Brazil). The system represents a total of 43,595,044 m^3 of elevated volume (water), 6,110,179 kWh of energy consumed and 1,061,628 € in energy bills in 2021.

Like other water utilities in Brazil, Sanepar has many challenges, including the collection, storage and analysis of a high volume of daily operational data, since much of this data is not used due to the complexity of manual and/or semi-automatic analysis.

Prior to the implementation of solution, the process of turning on and off the pump was done manually and relied on the operator's experience and judgment. Another challenge is data integration, since Sanepar uses solutions of various suppliers.

Efficient operational management of water production and supply is based on effective procedures in the motorized pumps that maximize energy efficiency in systems. Most of the excessive energy consumption occurs due to pump operations being outside the ideal point of work and/or due to poor sizing. These require predictive maintenance actions, such as digital monitoring and control. In its strategic planning Sanepar recommends that it is essential to promote actions to reduce expenses and energy consumption in the company's facilities and operations. For this purpose, it is necessary to encourage innovation, applied research and the development of good practices that promote the energy efficiency of the company's process.

"Smart pumping optimization makes use of various types of data from different sources, applying its Artificial Intelligence algorithms for prediction. It is a comprehensive platform that can be integrated into various operational and strategic functions. For SANEPAR, optimization has made an operational impact by bringing significant benefits to daily operations, especially in electricity costs".

Anderson Schamme, PoC Coordinator - Sanepar

Quantitative Results

A) Reduction of consumption in peak hours

The comparison between the mode of operation of Sanepar before and after the introduction of the optimization platform showed that the power consumption in the peak tariff period dropped by 60% at the Passaúna Treatment Station and by 100% at the Lifting Stations.

B) Potential savings

When considering the calculation of the costs of energy tariffs (Dec/2021), we can report savings of 19% on energy costs. This is more than 140.000 € of savings annually.

C) Reduction of CO_2 emissions

During the project, the reduction in CO_2 emissions was also calculated. The final value is around 67,456 kg CO_2/year, or 0.1264 kg CO_2/kWh.

Water Network	**42.609 m**
Produced Volume	**174 431 091 m³**
Energy Consumption per Year	**28 520 497 kWh**
Metering Points	**94 231**
Inhabitants	**240.000**

Reduction of 19.47%	Reduced energy expenditure on the monthly bill for energy distribution company
Reduction of 100%	Reduced consumption at peak hours in pumping stations
Reduction of 97 Ton	Reduction of carbon emission per year

A deeper dive into the new advancements to our communication technologies

Sandi Gruden and Nouran Bahaa

Communication modules are the key to turning electricity meters into smart metering devices. In today's environment where communication technologies are rapidly evolving, they provide utilities with much needed flexibility for future smart grid endeavors. A modular meter supports multiple communication technologies and gives utilities the flexibility needed to implement the latest market requirements into their systems.

Any wireless network relies heavily on communication technologies. Since the networks are made up of energy-constrained devices, low-power communication solutions are required. With the advent of NB-IoT, LTE-M and a lot more technologies, utilities may now provide cellular connectivity all the way down to the meter, which is both practical and advantageous in many circumstances.

The market is headed towards LTE Cat M1, but why is that?

Currently, LTE-M is considered more suitable for electrical smart metering because it supports push/pull concepts, firmware upgrades, and better latency, which means that devices can react in milliseconds when needed – all features required for smart grid and near-real-time communications. On the other hand, NB-IoT is a better fit for gas and water meters. In these cases, only small amounts of data typically need to be transmitted and low battery consumption is important. NB-IoT devices sleep most of the time and data is sent only in a certain period of time (once a day, week, month).

Iskraemeco's communication modules

Our communication modules A7 support both technologies LTE-M/NB-IoT with fallback to 2G (standard SIM version) in one device (module), which enables easy switch-over between the two technologies, based on the network coverage and signal quality in the field. This also means easier device management since there is no need to keep track of different device types, based on the technology used in certain locations. Today more suitable choice for IoT connectivity is the Cat M1 due to higher data transfer speed, good latency and affordable module price. Also, both technologies, LTE-M and NB-IoT, are future proof, supporting 5G networks.

The new 450 MHz spectrum networks

In recent years, a new class of networks has emerged that offers tremendous potential for public safety, transportation, utilities, and rural broadband – 450 MHz spectrum. It supports LTE services, thus offering a great potential for the Internet of Things (IoT) and machine-to-machine (M2M) applications, and delivers the greatest value for organizations that need a reliable network for critical communications or smart power grids, and meter reading in particular.

The 450 MHz networks provide cost-effective broadband coverage across wide rural areas. Each individual base station on the 450 MHz network can cover a much larger area than higher frequencies (such as 1800 MHz or 2100 MHz) and potentially support a very large number of devices.

The low frequency also means that radio signals propagate well inside buildings and underground. Utilities can therefore use it to connect equipment installed in basements to a network.

Another important benefit is that public authorities and utilities can have a private LTE 450 MHz network that remains completely separate from other network traffic and consumer services. The 450 MHz provides them with secure, reliable communications without any interference.

Here are some of the early adopters of the 450 MHz private spectrum:

- **PGE, Poland**
- **Utility Connect, the Netherlands**
- **450 Connect, Germany**
- **Tele2, Russia**
- **ArgoNET, Austria**

Iskraemeco is already working with some of them and developing new communication modules that support the 450 MHz spectrum.

Glimpses into the key benefits of Iskraemeco's communication modules

- **Modular solution** that is always up to-date with the latest communication technologies.
- **Simple installation**
  - 'Plug&Play' concept, without the need for any tools.
  - insertion of the module into the fully operational host device.
  - no reconfiguration of meter needed when replacing faulty module.
  - no external power supply.
- **Interchangeability** of the communication modules between host devices:
  - Hot-Swap of modules.
- **Flexibility and upgradeability** – The communication modules support multiple communication technologies (2G, 3G, 4G, LTE-M, NB-IoT).
- **Integration into the top cover** of the host device, to ensure a temper-proof solution and reduce possible fraud.
- **Controlled power down** of the modules to prolong lifespan of the host device.
- **Full control of the module from the host device** (firmware and configuration) - ensuring single point of management. Smart is in the host device, not the module.
- **Reliable communication interface** from device to the HES, one of the main applications for our software suite – Symbiot.

Iskraemeco's communication technologies are constantly evolving; stay tuned to learn more about the new advancements that will be available in the near future!

A comparison of some key characteristics between NB-IoT and LTE-M1

NB-IoT

- Low throughput (download 127 kb/s, upload 150 kb/s).
- Better connectivity in areas with poor coverage.
- Optimized for Energy Consumption (battery powered devices).
- Not optimal Firmware Upgrade Support (slower speed).
- More suitable for push, not pull concept.
- More demanding network configuration from network operator point of view.

LTE-M1

- High Throughput (download 1 Mb/s, upload 1 Mb/s).
- Strong signal penetration.
- Good latency.
- Effective Firmware Upgrade Support.
- Suitable for push and pull concept.
- Easier upgrade of mobile network to support LTE-M.

SYMBIOT
POWERED BY ISKRAEMECO

Transforming the smart metering industry by incorporating the latest trends

Aleš Glavina and Nouran Bahaa

In Iskraemeco's comprehensive solution, Symbiot is part of a broader picture. That is why there are continuous upgrades in the software suite. Our number one aim is to provide solutions that tackle the industry's challenges. Therefore, we are able to transform the energy management industry by translating customer's needs into real solutions.

Our state-of-the-art software suite Symbiot is always on the lookout for market demands, committed to translating them into astonishing features. We are eager to unveil our astounding Symbiot's Map View Feature. This feature is found in one of Symbiot's three main applications, Symbiot HES (Head-End-System).

What is the ultimate focus of our Symbiot's Map View Feature?

As a new feature enabled by Symbiot Operator, we have included device displays on a map depending on their geographical locations. The new map feature shows a country map with devices clustered per region and granularities dependent on the number of devices in each cluster. The user can search for devices on the map and adjust the zoom level to view the devices based on the displayed viewport.

A map marker represents the location of the data of one or more devices. When users change the focus by zooming in/out, the map is loaded to display the device depending on the map's current viewport, and when the user chooses a cluster, a notification occurs with the number of devices in the selected cluster.

Additionally, the user can filter the meters displayed on the map and manage the displayed meters depending on predetermined filters.

When the user right-clicks on a map marker, a context menu with extra information about a single device appears; the same is true for clustered devices. In this manner, users can view the general information, breaker status, communication type, and communication status of the devices.

Furthermore, the user can display a specific device on the map and customize the appearance of a single device marker on the map.

It is envisaged that future Symbiot editions would include additional improvements, stay tuned!

SYMBIOT
POWERED BY ISKRAEMECO

Power your way with Energy 360 app

Nouran Bahaa and Ziad Matar

Meet our Symbiot's Energy 360 solution

The Symbiot web and mobile application was created for the convenience of our customers and designed for a unique user experience comprising a smooth, useful and desirable usage. The user experience and user interface encourage a promising and positive interaction of every user.

This is not your ordinary app, it is the ultimate easy-to-use meter consumption management app!

Current challenges faced by customers

In response to increasing demand for sustainability and understanding energy consumption on the one hand and the growing complexity of billing systems on the other, we were able to develop a solution that addresses all of the mentioned challenges and more.

Powering the way into the benefits – why Energy 360 is the optimal choice

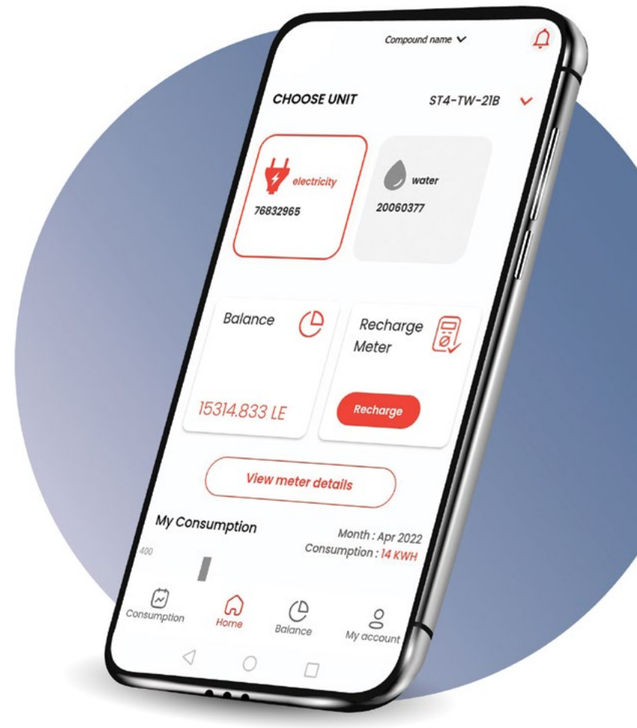
- Interoperability.
- Easy access to all information.
- Digitized process.
- Platform scalability.

With a few simple clicks, end-users will be able to unlock:

- An easy navigation through installed meters.
- A multi-tenant app, viewing different meters from various destinations.
- Recharge and monitor the balance.
- View electricity and water consumption history.
- Pay bills quickly and efficiently.
- Select and pay for more than one meter at a time.

Interoperability offered through versatility and flexibility

The Energy 360 mobile application was created in order to provide possibilities and flexibility to tailor customer needs. This is achieved by establishing and implementing an integration layer that includes web services for use with any Head End System and Meter Data Management system. An opportunity created for your convenience – by integrating our software suite Symbiot you will gain access to all the necessary data from any Head End System.



Building new quality testing experience for top-notch solutions

Gregor Kita and Anja Babič

Iskraemeco is developing the first end-to-end solution testing center for Digital Grids and Secure Smart Infrastructure in Europe. The brand-new facility will provide a testing experience unlike any other and will feature a validation facility, a lab and a demo room. The testing center is anticipated to start operations in the first quarter of 2023.

"Our customers are under tremendous stress and risk because they are part of the key infrastructure. In addition to their everyday challenges, they must constantly adapt to new industry advancements and trends, including the integration of renewable energy sources, digitalization and information technology. This results in an increase in complexity in a system that must be dependable, resilient, and safe, and we must assist them in managing it." According to Gregor Kita, Area Director of Quality and project manager responsible for the creation of the new center, "The design of the end-to-end solution testing center is based on a thorough understanding of customer pain points and helps clients grasp the potential they have when faced with new trends."

Iskraemeco's teams are combining their efforts, industry knowledge, and consumer insights to advance the testing process. With its three entities, the new testing center will closely mirror real-life environments and scenarios.

- The validation entity will enable us to test thousands of meters simultaneously and model the grids of our customers. It will also help us both find and prevent any potential system flaws.
- With an impartial testing setting in the lab, we will be able to supply services, solutions, and products that meet client requirements and go above and beyond Factory Acceptance. The newly designed environment will bring about better results, lower costs and higher confidence in the performance of the tested solutions.
- In the demo area, visitors can interact with a display of connected applications they can offer to the end-users.

We are excited to welcome you to the new testing facilities soon.

IE.X – Connecting electricity solutions and digital platforms

Aleksander Bergant and Nouran Bahaa

Over the past decade, we were able to offer a variety of tailored end-to-end solutions integrated with our software systems. Our primary goal has always been and will always be energy efficiency and grid betterment. Therefore, whether we are talking about hardware or firmware, all our solutions are future-proof, which means they are built to last. Their future-proof value is demonstrated by incorporating these primary areas: accessibility and system improvements, multi-utility environments, and end-to-end processes.

In the past twenty years, we went through several evolutions, progressing from smart to smarter meters. Our meters are the foundation of the solution and a building block upon which we create the communication technologies that our software suite utilizes to transfer accurate data. The aim of the process is to optimize and improve the grid, and gain better grid insights.

Following a period of collaboration and exchange of expertise, the Iskraemeco team managed to create a successful solution that incorporates what is the definition of a built-to-last platform. Crafted for the next 10 to 15 years, the advanced and modular IE.X platform solves all field challenges with four main offerings.

> **New solution, new platform, new era of metering – recognized through the use of smart metering!**

What does our IE.X portfolio offer?

- **Modularity**

The main value lies in providing the needed requirements to tweak or coming up with the solutions for customers. Our eIoT platform tailors our products and services to meet the individual needs of each customer. Our product portfolio also caters to requirements at every possible scale, from simple residential meters all the way up to advanced, industrial scale measuring systems, and everything in between. That is why IE.X has been developed using a highly flexible modular approach applied on the smart meters` hardware and software layers.

- **Connectivity**

Communication technologies require constant amendment, which means we need to keep up with the evolution. We already support the latest communication technologies – such as NB-IoT, CAT-M and LTE-M – through M2M connectivity and offer full backward compatibility with 2G, 3G, and 4G, with an up-to-date security. With our eIoT platform, connectivity gradually transitions to 5G. It is happening all over the world, but what is the current rate of adoption?

The new demand is centered on LTE-M, also known as CAT-M. We are on the verge of using CAT-M technologies in smart devices. The advanced technologies like NB-IoT are already used in water and gas sensors for data transfers. Water and gas meters, on the other hand, are expected to change, which is important in order to choose the most suitable technology.

- **Scalability**

We can easily add new functionalities to quickly react to market needs. This is done through the architecture of the platform which allows us to deliver products with specific features that can be easily scaled for various applications. These are puzzled perfectly together to serve the RSA, RSM, and C&I + Grid segments with scalable hardware and an embedded software architecture (eMOS).

- **Sustainability**

For the past five years, we have been driving the trend and we can safely say we can offer professional consultations on this topic. Product footprint is one of the primary drivers in product development, as is design and the introduction of new technologies. IE.X is distinguished by its low power consumption and a design that influences the overall cost of the meters, as well as optimized logistics services. The meter is made of recyclable materials, making it simple to disassemble at the end of its lifecycle.

Indian Smart Grid market

Ankita Seth

Smart grids emerged all over the world in the early 2000s. Ever since, governments across the world have taken initiative for the implementation of smart grid through various policies and mandates.

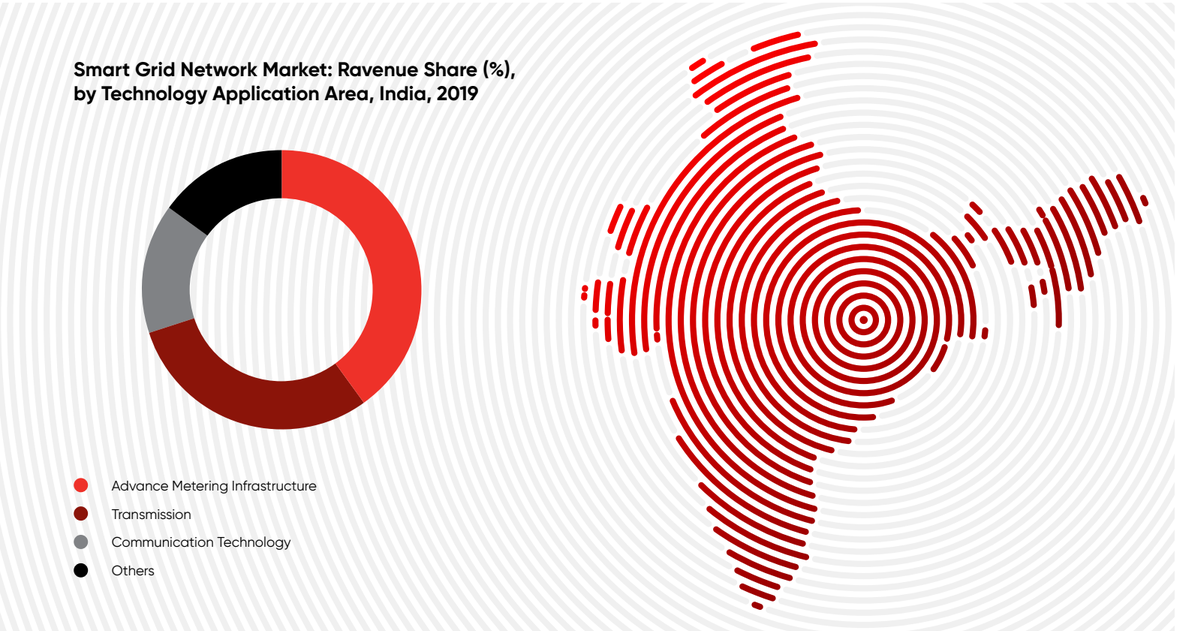
Jumping on the revolutionary bandwagon, India is viewing smart grid technology as a strategic infrastructural investment that will sustain its long-term economic prosperity and help achieve its carbon emission reduction targets. This, in turn, is expected to provide a plethora of opportunities to companies involved in the smart grid network market, in the near future.

Indian market overview

The eight working groups for the Indian smart grid market are:

- Grid modernization and Smart cities.
- IoT, Smart metering, AI and Analytics.
- Digital architecture and Cyber security.
- Policy, Regulations and Business models.
- Renewables and Microgrid.
- Flexibility and Electric mobility.
- Smart Gas.
- Smart Water.

Of these, the smart electricity meters segment constitutes the largest market share because of the increasing focus on better management of electricity consumption.



Indian Smart Grid market forecast for the next five years

The Indian Smart Grid network is expected to yield a CAGR of 3% between 2022 and 2027. The pandemic and subsequent lockdown has led to widespread realization among energy suppliers that smart grid network equipment such as smart metering is truly beneficial. It not only provides operational efficiency and grid stability, but also facilitates mitigation of demand losses incurred by the DISCOMs during the lockdown period. Furthermore, India's state-owned Energy Efficiency Services Limited (EESL) has announced installation of one million smart meters across the country and intends to eventually install 250 million smart meters over the next few years.

Market drivers

- Reduction of T&D losses.
- Peak load management, improved QoS and reliability.
- Reduction in power purchase cost.
- Better asset management.
- Increased grid visibility and self-healing grids.
- Renewable integration and accessibility to electricity.
- Increased options such as ToU tariff, DR programs and Net metering.
- Satisfied customers and financially sound utilities.

Potential challenge

The huge investments required for setting up and revamping power generation, transmission and distribution and weak private sector investments may cause hindrance to fast-paced smart grid deployment in India during the forecast period.

Go-To market strategy

The main focus is to provide end-to-end managed services to our customers with utmost transparency and flexibility in customizing AMI components. Collaborations with leading names in the industry are being formed, keeping the greater agenda of providing universal solutions to meters of all makes, in mind. Iskraemeco India is taking the correct steps towards creating its own Firmware to remove third-party dependency. A new technological center of excellence has also been set up where new talents are being sourced and existing resources are being trained for the same. Emphasis is being given on streamlining the process of communication with customers. Iskraemeco in India is climbing up the smart metering despite the proprietary nature of the market and can soon become one of the forerunners in the South-East Asian metering industry.

Digitization development project “Digital Twin for Digital Lean”

Miha Jež

In an increasingly connected world, businesses need much more than the smartest meters available in the market – they are looking for experienced, dedicated companies that can help them manage data and data streams.

With our solutions, we aim to continue to build on global sustainable policies and implement our sustainable development strategy, offering the customers flexible, across-the-board energy solutions that encompass extensive expertise on the Internet of Things (IoT) as well as digitization of data flows.

Digitized solutions based on the principles of the IoT, data lakes and smart cities provide companies with the data they need to manage energy consumption and optimize costs, and also help consumers to act more sustainably and thus significantly reduce their energy bills.

The Digital Twin for Digital Lean is a project submitted by Iskraemeco as a leading consortium partner in the tender ‘Digital Transformation of Companies’, which was announced by the Ministry of Economic Development and Technology.

Iskraemeco and GL Charge have received a grant as part of a consortium with four other partners (ADD, Iskra AMS, 3 Projekt, Q-Mins) with an aim to improve our internal processes using lean strategies that will be based on lean data analytics services. Iskraemeco’s key partner, with whom we will work to build a new business model, is the company ADD.

As part of the consortium’s digital transformation project, Iskraemeco will implement seven advanced and intertwined digital technologies which comprise the following:

1. Robotics and process automation.
2. Internet of Things.
3. Artificial intelligence for the transformation of decision-making systems.
4. Blockchain technologies/distributed record technologies.
5. Digital twins (production and knowledge).
6. Big data.
7. AR/VR.
8. 3D printing.

With the development of a digital twin, we will monitor the business impact of digital transformation through outcomes measured by LEAN parameters. The benefits offered by the project are the improvement of both Iskraemeco’s internal and external processes along the entire chain (supplier – Iskraemeco – customer). In collaboration with the consortium’s technology partner, we will transform these processes into a new business model of the XaaS (Anything as a Service) type, creating a digital twin platform, AI smart analytics and data visualization based mainly on IoT data collection.

Financira Evropska unija
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REPUBLIKA SLOVENIJA
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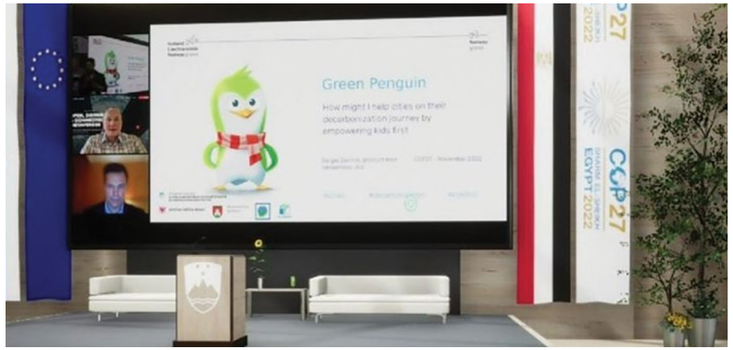
Green solutions and innovative insights: Iskraemeco at COP27

Sergej Zavrnik and Anja Babič



With sustainability embedded in our DNA, we considered it a great pleasure to participate in the 27th edition of the United Nations Climate Change Conference COP27. Our representative Sergej Zavrnik, Product Manager for the Green Penguin Project, presented Iskraemeco's solutions and gave inspiring insights into the Green Penguin Project.

Our visit to COP27 was packed with various activities where we shared our visions and solutions towards a more sustainable future. Iskraemeco was invited to the pavilion of our parent company Elsewedy Electric, gave two presentations, and participated in a conference as part of the Slovenian Day.

Green digital solutions

Conference attendees had the opportunity to discover Iskraemeco's intelligent solutions. The aim of our presentations was to raise awareness of the importance of digital tools. Cutting-edge solutions enable the optimization of grids while contributing to energy efficiency and decarbonization.

Our role in reducing CO_2 emissions

If we want to accelerate decarbonization, we all have a role to play – that was one of the key messages of the presentation 'How might the digital platform Green Penguin help cities on their decarbonization journey by empowering kids first'. With more than 70% of CO_2 emissions coming from cities, we need to get a grip on the growing urbanization and high energy demand that comes with it. These challenges are addressed by the Green Penguin Project, which aims to raise the overall awareness of the impact individuals have on the environment and our role in sustainable development. The project gives consumers valuable insights and supports them in adopting and employing new, more sustainable habits and behaviors.

Sustainable innovations

To make a sustainable future a reality, we need to take innovative approaches. We had the opportunity to share our vision at the conference 'Digital Innovations for a Green Transformation', which was organized as part of the Slovenian Days at COP27. Together with other speakers from Slovenian companies and organizations, we welcomed the audience at the Metaverse MetaCOP on the platform Distriverse, which had not been used before at any UN climate conference.

About COP27

This year's conference focused on the severity of the global climate challenge and the need for bold and swift collective action which includes the following:

- The Egyptian Presidency's vision is to move from planning to implementation – words must be followed by action.
- Across the globe, millions of people are suffering the consequences of increasingly frequent extreme weather events. The climate crisis will exacerbate economic, social and environmental threats – our response must be focused on creating a resilient planet.
- Collective action and collaborative efforts are key if we are to secure a sustainable future for all.

Short interview with Iskraemeco's representative at COP27

We had a chance to catch our colleague Sergej Zavrnik during his trip to Egypt and he shared some inspiring insights with us.

1 Sergej, to attend such a huge and important international event must make for quite an experience. What are your impressions?

Indeed! This global event brought together all key sustainability-related stakeholders all in one place, to discuss, decide and act together on sustainability issues. I was impressed by the diversity of nations and cultures coming from private and public sectors to present their environmental and social challenges, as well as solutions. What was also exciting to see was that the messages of the climate challenges and solutions were not only conveyed through presentations, panels and meetings, but also by means of cultural activities and performances, such as small concerts, art exhibitions, public talks, dance events, and many others.

2 This really conveys the message on how everyone and everything have to be connected in order to tackle the climate change. What are some of the key takeaways you would like to share?

I will try to summarize them in three points:

1. To be able to change and mitigate environmental as well as social risks, we need to create incentives for all stakeholders in the system – governments, economy, financial institutions, representatives of society, environment and others.
2. An active dialog between the government, enterprises and society should be established in order to align governmental strategic sustainability goals with enterprise innovations and social needs.
3. Last but not least, sustainability and its related issues cannot be defined solely by numbers but should be addressed using narratives from all around the world. Understanding other cultures, natural environments as well as business ecosystems could improve the quality of innovations answering the questions of sustainability and climate change.

3 Thanks for this recap. One last question – this year's conference focused heavily on the importance of accelerating our actions to fight the climate change. What role can a project like Green Penguin play in making this a reality?

That's a great question. As presented at COP27 and already addressed earlier, we as a society, governmental actors and enterprises need to change our perspectives and behaviors to decrease the negative impact on the environment. In that context, the Green Penguin digital platform contributes to this goal by increasing awareness, leveling up the knowledge and enabling us to change our habits, focusing on the kids first with our Green Penguin mobile app in development. By connecting energy and resource consumption data with the user behavior data, we will create an engaging user experience for kids and give them contextualized knowledge and activities to decrease energy and resource consumption. A mobile app for kids will be the first digital solution in the Green Penguin digital platform, which will be followed by the development of digital applications for households, industry and businesses, as well as public institutions.

The digital platform, covering and supporting all stakeholders in the urban environments, will enable mapping of end-user behaviors and sharing end-user insights with governments, energy and resource sector, all with an aim to adapt current policies, create new innovations and change their operations to fit the end-user demands and needs.

Norway grants

REPUBLIC OF SLOVENIA
GOVERNMENT OFFICE FOR DEVELOPMENT AND EUROPEAN COHESION POLICY

The Green Penguin Project is being implemented by a consortium of companies, 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 program. The project is co-financed by the Norwegian Financial Mechanism and SVRK (Government Service for Development and European Cohesion Policy). The Norwegian Financial Mechanism stands for Norway's contribution to a green, competitive and inclusive Europe.

Looking for innovative and forward-thinking companies in the digital grid management area

Vladimir Milošević and Nina Merše

Energy is the lifeblood of modern society and every kilowatt-hour of energy and every cubic meter of water is becoming increasingly important and valuable. Iskraemeco has been active in the electrical grid industry for the past 77 years. We are well aware that all companies in the energy and utilities sector need to evolve beyond hardware and automation and to incorporate prediction and optimization services. Of course, this also applies to water, heating and gas areas. The time to digitize the grids is now! At Iskraemeco and Elsewedy, we are driving the transition towards digital by investing in the acquisition of new companies, teams and talents through Data2050.

The existing electrical grid needs to evolve from a centralized system into a decentralized one, where energy can be produced by almost every citizen, without having a negative impact on the grid. For the purpose of its solutions, Iskraemeco explains: "A digital grid is an energy distribution network connected through an array of devices such as smart meters and sensors. It facilitates bilateral digital communication between all participants in the network. This enables digital grids to become complete systems for monitoring, analyzing, controlling and communicating within supply chains to streamline resources consumption and expenditure and maximize reliability, transparency and oversight." Digitalization is drastically increasing grid complexity and as one of the measures taken in order to facilitate this transition, Iskraemeco is actively acquiring new teams and companies – that is the key role of Data2050, Iskraemeco's incubator and accelerator.

We create innovations through collaboration

Innovation and the generation of ideas are essential components of our corporate culture, supporting long-term vision, strategic thinking and competitive edge. We strive to solve our customer challenges by delivering tailored, customer-ready solutions.

At Data2050, we use a variety of methods of discovery to identify suitable companies and talents. Primarily, we want to make sure that we can help the company scale by including them in our projects or by helping them acquire the projects for which they may currently lack the size or resources. The next stages involve several types of due diligence, including practical due diligence for the project and the team. If we really work together, we can help grow the business and we can effectively diversify.

We have already made several investments in companies that bring us closer to comprehensive digital grid solutions and we are currently in the process of including additional teams and enterprises. For us it is essential to enable the newly acquired companies to remain in the lean startup mode while being able to adhere to a wide range of corporate standards.

Iskraemeco strongly believes that digitization and decentralization, with a focus on artificial intelligence and machine learning services, is the right or perhaps the only way to maintain the complexity required to operate real digital grids safely and reliably, and to provide all the services our customers expect.

data 2050

We are always looking for enthusiastic teams to take on the challenges ahead. If you know a company or you are the one who is looking for new ways to expand, you are welcome to contact us.

Strong presence and growth on the Swiss market

Miha Jurman and Nina Merše

Trends, customer needs and rapidly changing technologies demand constant changes, agility and quick response. Together with partners and customers we are constantly looking for new ways to ensure efficient operation and the achievement of set goals.

Development of the Swiss energy market

As part of the Swiss federal government's energy strategy, conventional electricity meters must make way for smart meter solutions. Thus, Swiss utilities are gradually implementing smart meters into their infrastructure and Iskraemeco has included active engagement in the Swiss energy sector as part of its strategic plan.

Iskraemeco operates independently on the Swiss market with its own subsidiary that takes care of certain customers and a sales partner who is vital to our successful performance in the Swiss market. Iskraemeco has been working closely with GWF MessSystems AG since 2018, providing the utilities with smart metering solutions and benefits and enabling them to take steps towards implementing a smart grid.

GWF is the leading Swiss company for the metering and recording of gas, water, heat and electricity consumption data. They is very active in the implementation of the Swiss Energy 2050 strategy. With the support of Iskraemeco's products and knowledge, they can be confident to deliver the best solutions and services to the entire measurement area.

Switzerland is one of the most developed countries in Europe and the Swiss electricity market is very versatile with around 900 companies involved in the generation, distribution and supply of electricity. Nearly 700 DSO's supply electricity to approximately 5.6 million consumers. The leading players in the Swiss energy industry have displayed a strong interest in smart grid technology and are eager to make the electricity sector more efficient and more sustainable. GWF is an important link between Iskraemeco and other players in the Swiss market.

"The biggest challenge the country is facing is connectivity. According to the OECD Overview, Switzerland has the best broadband network, as utilities and telecom operations are working together in the Rollout of Fiber to the Home. They also have a very good and modern mobile network that offers the required technologies, such as LTE-M, NB-IoT or LoRa, nationwide. Since most meters in Switzerland are installed underground, it is a challenge to achieve this via mobile radio. Of course, the appropriate software tools and interfaces are also required to implement an IoT solution, but with the right specialists, this is not a hurdle," said Roland Schwarzentruber, Head of Smart Metering at GWF.

Working closely together to strive for excellence

Market conditions and customer expectations require new adaptations and improvements. Striving to develop solutions to tackle contemporary global challenges, Iskraemeco is working on many initiatives from different strategic directions. Our focus is on continuous improvement and unwavering commitment to excellence, superior quality and operational efficiency. GWF is actively participating in the majority of the national roll-outs and relies heavily on Iskraemeco's most advanced technology. This means Iskraemeco is one of the most present providers of metering technologies in the energy sector in Switzerland. Combining system environment with communication technology and measuring devices, our portfolio meets the expectations of the Swiss market.

With our knowledge, experience and innovative approach, we managed to create an environment in the company that encourages the development of new comprehensive solutions for energy management. Iskraemeco is proud to be working with several utilities in the Swiss market and for complexity reasons runs the largest projects such as Spontis, Viteos, EW Luzern and IB Chur through its Solutions and Delivery department. Due to the large number of distributions, we need to use flexible solutions with many variables included in each project and we need to provide meters with different communication options (4G or CAT-M1/NB-IoT). The projects also require multiple additional services, implementations of different use cases, offering different levels of support, knowledge transfers, etc.

The latest project underway in the Swiss market is with the utility IB Langenthal. We will provide three-phase AM550 meters, the Symbiot software suite, and the key management system (KMS solution).

Counting on SaaS

In the last months we invested a lot of our effort and knowledge into preparation of our SaaS (Software as a Service) solution, which is the strategic orientation of Iskraemeco in the future. We expect that SaaS will become the most common way of doing business in various markets. Instead of having to install, and maintain software, customers can simply connect to the application (Symbiot) over the Internet, freeing themselves from complex software and hardware management. The biggest benefits for utilities are low setup and infrastructure cost, accessibility from any device, anywhere in the world, scalability, service levels agreements for uptime and performance, and highest-level security. SaaS can benefit businesses of any size, from cost-effective outsourcing for small utilities to holistic big-picture solutions.

In response to supply challenges, this year we have successfully switched to a newer version of AM550 meters, named PGBK, for which we obtained the METAS certificate. METAS, the Swiss Federal Institute for Metrology, stands at the cutting edge of measurement accuracy in Switzerland. It serves as the federal center of competence for all issues related to measurement, measuring equipment and measuring procedures. By obtaining its approvals by the Federal Institute of Metrology, Iskraemeco is fully set to be part of smart metering projects in Switzerland.

Plans for the future

Regardless of market volatility and the overall component supply challenges tackled on a daily basis, the Swiss market is on the rise, which fills us with optimism for upcoming projects. Moreover, the excellent work of both teams is best reflected in the increasing number of orders over the years. We are preparing a smooth transition to the new generation of our meters – IE.X, and we will continue to implement numerous innovations in the field of products and solutions. Our goal is not only to be among the leading meter manufacturers, we strive to be the best in the market.

Miha Jurman, Project manager at Iskraemeco: "In any cooperation, trust in the other party is key. I think that in the past we have proven that we have a tightly-knit partnership committed to shared goals. The Solution & Delivery department is in daily communication with partners and end customers and successfully coordinates all the challenges arising in the demanding Swiss market. Behind the scenes, there is a lot of activities and coordination by the entire team to meet the customer's expectations."

Iskraemeco and the New Republic

Alyaa Sakr

The New Republic strategy is Egypt's most recent national project. This strategy is part of the Egypt 2030 Vision, which promises to improve the country's economy, innovation, healthcare, education, and society as a whole by raising public awareness and achieving sustainable objectives.

We are proud to be a part of Egypt's historic transformation that encompasses a range of activities, from the development of old urban neighborhoods to the construction of advanced road networks, all while creating strong infrastructure – and that is where Iskraemeco comes in.

Our prepaid and smart meters perfectly comply with the state's approach for digitization and data management. It allows both end users and utilities to better monitor their consumption, save immense resources on administration and complaint resolution, and thus enable the state to efficiently manage and distribute all resources.

Iskraemeco proudly provides other important services besides the smart metering system to governmental distribution companies. These services include servers and the necessary infrastructure, networking points, operating systems, and a Database Management System along with the necessary licensing and support.

Deployment of smart meters with these communication systems such as GPRS and PLC communication technologies enables:

- Secure transmission of data, either obtained manually or automatically through automatic scheduling data collection provided by HES, to the consumers, the Distribution Network Operators, or another operator (for example Metering Operator).
- Bidirectional communication between the smart meters installed in consumer/producer environment and the data concentrators (information management points) belonging to the Distribution Network Operators.
- Remote control connection/disconnection from the network or demand limitation at the consumer's side.
- Implementation of differentiated tariffs.
- Generation of reports for multiple data and events produced by the metering points.

In this regard, we take great pride in our collaboration with the Egyptian Electricity Holding Company (EEHC) and the Holding Company for Water and Wastewater (HCWW), which are both following the same policy that Egypt is adopting. This collaboration has resulted in many success stories, and we certainly look forward to more fruitful projects in the future.

Iskraemeco has always been a reliable partner in all governmental megaprojects and we have continued to support major national projects such as Decent life, JICA, and AMI, into which the state has invested a lot of attention, efforts and funds.

Successful implementation of the project in Oman

Nouran Bahaa

Oman is modernizing its electricity distribution network into a smart grid environment by integrating Iskraemeco's smart metering solutions. The transformation of the smart grid infrastructure will play an important part in the country's efforts to increase energy efficiency through strategic actions. Once the infrastructure is in place and technologies are deployed, these actions can be expanded to take advantage of the digital transformation era and advanced metering management.

The initiative is widely believed to be a pioneering national digital transformation project, with smart meters set to replace mechanical meters. It is consistent with the Sultanate's socioeconomic development strategy, Oman Vision 2040. The aim of the strategy is to keep up with global developments and ever-changing technology in order to provide Omani citizens with efficient electricity-related services.

In an interview with

Mazoon Electricity Company S.A.O.C.,

we talked about their synergistic collaboration with Iskraemeco and exchanged views on the most recent market trends, expectations, project executions and overall feedback.

First and foremost, would you mind sharing some thoughts on your visit to Iskraemeco's headquarters in Kranj and your overall impression of Slovenia?

Slovenia abounds in natural beauty; it is enchanting and charming. Very different from Oman, of course, much smaller but nature here is so serene. We were also impressed by the warm welcome and harmoniously balanced working environment we noticed as soon as we entered the office.

Moving now to smart energy management, could you walk me through the current Omani market needs?

In Oman, the current movement is paving the way for smart metering, and there is a high level of intensity in terms of meter rollouts for 2025 and beyond. The main goal is to make the grids much smarter, and the processes smoother and more efficient.

As you know, the competition is fierce. What were the factors that influenced your decision to choose Iskraemeco?

Surely, the competition is tough. We have actually analyzed providers on the basis of the benefits they deliver, and we discovered that Iskraemeco was able to provide everything we need. The single-phase and three-phase AM550 meters and communication technologies deliver greater value for lower costs. The flexibility of adapting the technologies to different networks was also huge plus.

During our visit, we gained valuable insights on the European market and we also heard from other utilities about the high added value and successful operation of Iskraemeco's meters. This was further proof that we made the right decision.

Speaking of added value, would you care to elaborate on that?

Absolutely. Iskraemeco provides the required data in a transparent and accurate manner. Additionally, it offers top-quality technical support, particularly after-sales support. Whenever something happened or we had a query, the team was there to assist and guide us through the process of overcoming the obstacles.

What did you gain from this collaboration, particularly as regards to end users?

With Iskraemeco's assistance, we were able to reach the customers and understand their needs much better. The products and the data we gained enabled us to act from a different aspect. However, based on the current experience and with future collaboration, we can positively influence the end users, helping them to become more aware of their consumption, join the smart transformation journey, and act sustainably.

Regarding the topic of market awareness, could you please offer more insight?

Smart metering is the next big thing, and we need to be ready for it. We believe that with Iskraemeco's meters, we can achieve proper reading, accuracy, troubleshooting, or resolve any incidents on the field with greater ease and efficiency. As a result, we will be able to provide our customers with what they need and assist them at a faster rate.

How did the FAT (Factory Acceptance Testing) and training go, were your expectations met?

The procedure was thorough and well-organized. From A to Z, we covered a wide range of parameters. We talked in detail about testing, product quality assurance, training, and other activities. Overall, it was a positive experience, and all our expectations were met.

What about future collaboration, and what are the next steps?

So far, we have had a positive experience with insightful results that have allowed us to get closer to our customers. In the upcoming tenders, the Omani market has many goals, one of them being to install 1.5 million meters. To achieve this, we should be quick to react to market demands and requirements and it is good to know that Iskraemeco's system is adequate and will live up to our requirements. In short, we are eager to seize any opportunities that present themselves in the near future.

Would you like to share any final thoughts?

Surly, the working environment at Iskraemeco was a great blend of older and younger generations, and it clearly demonstrated a high level of professionalism, helpfulness, and positivity. What we noticed was the diverse range of nationalities, and expertise to convey ideas and experience. The premises are well-designed, and we certainly enjoyed our visit. We felt very welcome and we enjoyed developing relationships with others through personal and professional interaction.

Active collaboration for building digital grid infrastructure

Smilja Dolgan Paternoster and Nina Merše

Iskraemeco has had a strong presence in Germany for a long time. We always had a deep awareness of the business environment and the needs of our German customers. More than 15 million of our meters have already been installed in German households.

Our customers play an important part in our successful performance in the market and we are proud to have such great collaboration with a customer with whom we can put ideas into action and together achieve business growth.

We conducted an interview with

Johannes Klumpp,

Referent Counting Technology at ENBW, one of our key customers in the German market.

When and how did your collaboration with Iskraemeco begin?

Iskraemeco and EnBW have collaborated on several projects over the course of several decades. My first experience working with the company was during an audit that was carried out in the middle of the year 2022. In Kranj, Slovenia, we were given an in-depth look at the manufacturing process by touring the facility, which included the production halls.

Why did you decide to collaborate with Iskraemeco? What were the gains, synergies, and possibly shared beliefs or values?

I believe that the values of EnBW and iskraemeco are close to each other. Iskraemeco is active in the VDE FNN committees and associations, is able to react flexibly to requirements and changes, has its main location in Europe and attaches great importance to sustainability and environmental responsibility.

What impact and transformation do smart products, solutions, and new technology have on your business?

We want complete grid transparency and that can only be achieved through implementation of smart meters. Our goal is to have a full roll-out of smart meters, which would lay the foundation for the platform of tomorrow.

Where do you see the most potential of growth?

ENBW sees great potential in the platform concept of smart meters. The integration of smart meters and other emerging technologies, such as those for smart homes, smart living, smart health, and other areas, are potential opportunities for growth.

The German market is unique in comparison to the rest of Europe. Why do you think the differences exist?

In Germany, we have legal regulations with a very high safety standard, which also have an influence on the device technology. Compared to other European countries, Germany focuses on a secure roll out. Customer data and data protection is our top priority.

How do you see the German market developing in the future? Which way will it turn?

An exciting question. Current world events are accelerating the energy transition in Germany. The transition away from fossil fuels and towards renewable energy sources is being accelerated. For this reason, we also need smart meters for a digital grid infrastructure more quickly. In addition, we are following the amendment of the Metering Point Operation Act in Germany. The industry is hoping for an acceleration of the smart meter roll-out.

Smart metering systems, play a significant role in Germany's shift to green energy. The new official rollout and installation began few years ago. Where are we now? What are the challenges?

Until now, we have installed more than 600,000 modern metering devices and more than 20,000 smart metering systems. So currently, we are in the middle of the roll-out. One of the biggest challenges is the legal requirements, such as the secure supply chain and the economic pressure due to the price caps.

The purpose of smart meters is not just to help manage the electricity grid; they also add value for consumers. What are the benefits in your opinion?

The cost of energy is expected to continue growing, which will result in an increase in the number of individuals paying attention to electricity consumption. By using a smart metering system, we have the following advantages: variable consumption tariffs, multi-utility capability, consumption information via app and access to value-added services.

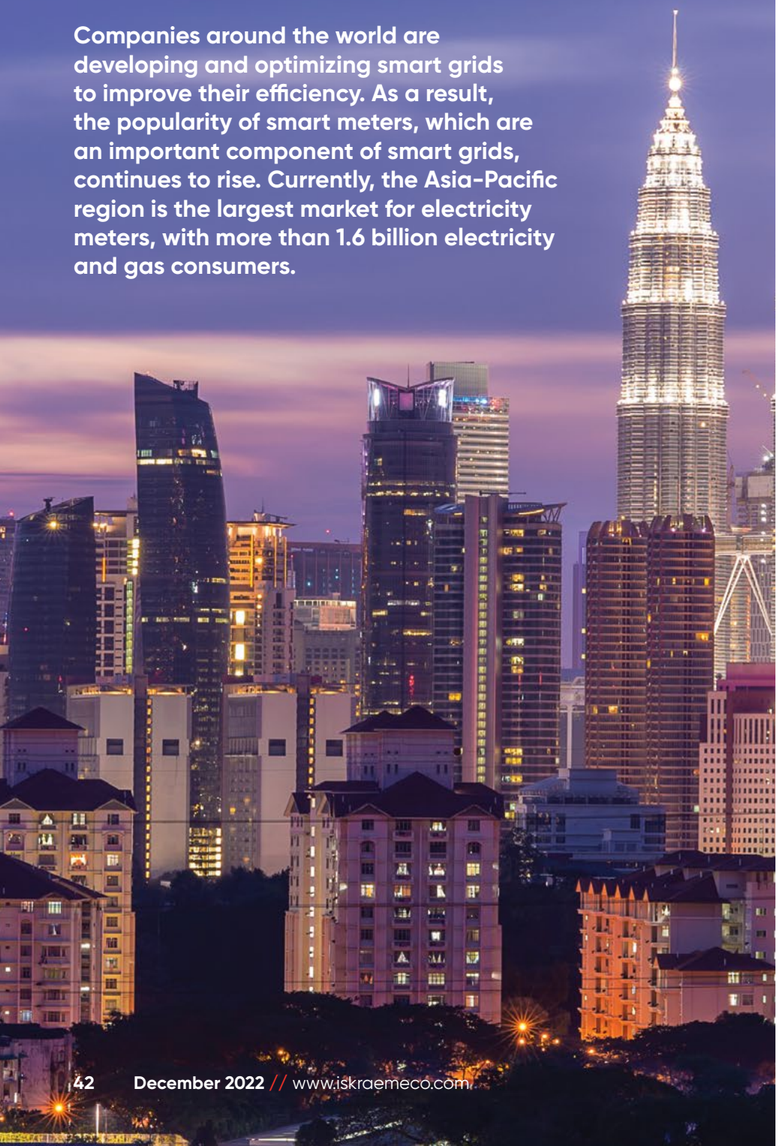
How important is sustainability awareness and green transition for your company and country?

Sustainability is one of our main goals. We have set ourselves the goal of being a climate-neutral distribution grid operator by 2030. Because of this, we also pay special attention to self-consumption, quality and the long-term stability of the devices, that we can keep them in operation as long as possible.

The start of smart meter production in Malaysia

Rosli Saidin and Mateja Kuralt

Companies around the world are developing and optimizing smart grids to improve their efficiency. As a result, the popularity of smart meters, which are an important component of smart grids, continues to rise. Currently, the Asia-Pacific region is the largest market for electricity meters, with more than 1.6 billion electricity and gas consumers.



Therefore, the trend toward the deployment of smart grids, analytics, and cloud computing, as well as the increasing demand for remote monitoring and control of electricity grids are having a significant impact on the technological penetration of the smart metering market in this region. Several governments are also emphasizing the importance of implementing emission controls to counter the negative effects of pollution. In response to rising energy prices and environmental concerns related to power generation, all industries are looking for new, innovative, time- and cost-efficient ways to manage power generation and distribution. This is a major growth opportunity for companies like Iskraemeco to grow their business and help our customers build smarter grids with our transformative solutions.

The above trends are even more evident in one of the most active countries in installing smart metering projects and one of the fastest developing countries in Southeast Asia - Malaysia. Concerns about smooth and consistent energy supply across the country have increased, mainly due to growing concerns about the safety and reliability of the power grid, the increasing use of renewable energy sources, and the adoption of electric vehicles. As a result, Malaysia is an attractive target for expansion into the smart metering market and has the potential to become the smart grid market leader in Southeast Asia.

Iskraemeco's presence in Malaysia

Iskraemeco has been present in Malaysia since 1990. From 1990 to 2005, we supplied single-phase electronic residential meters to the major utilities in Malaysia, namely Tenaga Nasional Berhad (TNB) and Sabah Electricity Berhad (SESB).

Six years after expanding to Malaysia, on 18 March 1996, Iskraemeco Malaysia Sdn Bhd.

was established in Ipoh, Perak. In Malaysia, we manufacture, assemble, test and calibrate single-phase and three-phase residential meters. As of this year, the factory is equipped with machines that also support the production of single-phase and three-phase smart meters.

Iskraemeco is committed to upgrading the electricity infrastructure with smart meters, working to contribute to cleaner energy, improved resilience, optimization of electricity grid operations, improved transparency of operations and avoidance of interruptions. By taking advantage of the short supply chain, we will be able to deliver the products and services at the highest quality levels and within the delivery time specified by the customer. This will help us build good relationships with our customers and increase their satisfaction.

A new milestone for Iskraemeco in Malysia

This year, Iskraemeco in Malaysia has joined the group of the most important players for supplying single-phase smart meters ME100-V2, which are RF communication meters, for the utility Tenaga Nasional Berhad (TNB). TNB has become the first provider in the ASEAN region to embark on the Advanced Metering Infrastructure (AMI) project. With their future-focused concept, TNB planned to change its entire population of 9.2 million conventional meters to smart meters by 2026, with the focus on becoming a grid operator and accelerator of energy transition.

Iskraemeco being awarded the TNB contract was due to our complete and reliable facilities for the production and supply of single-phase smart meters. In addition, we have also passed TNB's System Integration Test, User Acceptance Test and Factory Acceptance Test (FAT). Furthermore, our products comply with TNB's requirements, including Trilliant's Certificate of Integration (COI) for RF communications, and are certified by SIRIM QAS, a local product certification body. Our company is also certified to ISO standards: ISO 9001 and ISO /IEC 17025. For effective implementation of the project, teams in Malaysia and Slovenia collaborated closely so that the COI process and commissioning of the production of smart meters ran smoothly.

TNB is a government-controlled entity, and it is the policy of the Malaysian government to give preference to local manufacturers in all projects and business opportunities. Therefore, TNB aims to employ several suppliers, especially local manufacturers who can meet their requirements and are able to achieve the required capacity. By complying with these requirements, Iskraemeco qualified to become one of TNB's suppliers. Thanks to our local presence, we are able to solve challenges faster and have shorter delivery times. We also introduced our software suite Symbiot to TNB and delivered the first batch of meters to TNB for the pre-deployment process (Field Test). Delivery for the entire contract will be completed by mid-December this year.

In the future Iskraemeco will not only position itself as the supplier of single-phase smart meters to TNB, but will also supply three-phase smart meters, IE.5 meters, and ICG meters. In addition, by the year 2024, the company plans to enter the Asia-Pacific market, which is now the most lucrative market for energy meters.

Manufacturing engineering is essential for business growth and development

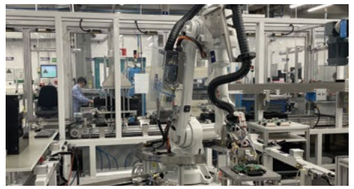
Andrej Kos, Martin Slivnik, Peter Štefe, Ludvik Vidic and Mateja Kuralt

Nowadays, manufacturing engineering is of long-term and crucial importance for the optimization of production processes, rapid industrialization of new products, and the company's competitiveness in the market. Iskraemeco acknowledges the major role of new technologies of digitalization, automation and robotic processes, which is why we strive for continuous production improvements and upgrades. This helps us to increase efficiency and optimize both simple and complex processes and systems.

The main purpose of the Manufacturing Engineering sector is to industrialize new products, optimize the production processes, implement new technologies, ensure additional capacity and respond more efficiently to personalized customer requirements. In so doing, the sector helps increase overall performance, improve energy efficiency, cut costs, eliminate WIP, improve workplace ergonomics, and enhance the coordination among departments and the ability to adapt quickly to different needs. The outcome is a more effective use of resources: people, materials, equipment, tools and information.

This year, Iskraemeco has made several investments to improve its technical and technological production process, automation, robotics, workplace ergonomics and to optimize PCB assembly. With an aim to improve the manufacture, testing and storage of PCBA's, we have implemented five advanced systems that boost the efficiency of our production processes, improve the quality of our products and, consequently, enhance the satisfaction of our customers.

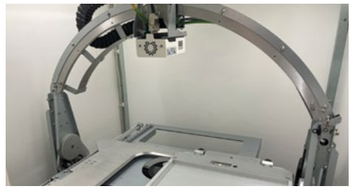
Robotic cell for circuit board testing



In order to take the productivity and accuracy of our production process, as well as the quality of our products, to a higher level, we have set up a robotic cell for automated assembled circuit board testing. The test sequence starts with loading the cell directly from the THT line, which allows for immediate fault detection and eliminates WIP. The robotic cell combines two operations: ICT (In-Circuit Testing) and FT (Functional Testing).

The conveyor belt of the robotic cell is positioned above the existing conveyor belt of the THT line, ensuring a continuous flow of parts and eliminating any part manipulation between operations. The modularity of the first test unit supports in-circuit testing of a variety of PCBA's, while the quick and easy change of adapters reduces changeover times. Functional tests are carried out on the existing test devices, which are easily mounted into designated test fixtures and supplied with PCBAs by the robotic cell.

X-ray machine for PCB inspection



The introduction of newer versions of smart meters has increased the complexity of PCBA manufacturing, the number of components that cannot be visually inspected, and the potential for manufacturing errors. As these are difficult-to-correct defects that are only detected in the final stages of meter manufacturing, they can lead to very high reject or rework costs. Rework and scrap is greatly reduced by the use of an X-ray machine.

The X-ray inspection detects defects in electronic circuits that are hidden from the eye. In the PCB assembly industry, X-ray machines are most commonly used to find defects in solder joints beneath electronic component enclosures, thereby also helping to eliminate faulty parts. The root cause and corrective action (RCCA) analysis carried out in the next step improves the production process further. On the whole, X-ray inspection contributes to higher product quality and greater customer satisfaction and with this new acquisition, Iskraemeco is now able to provide customers with an X-ray inspection service for PCBAs and other products.

PCB depaneling machine

The depaneling machine is used to separate circuit board panels or multi-blocks that contain several boards for easier processing and logistics. Individual circuit boards are connected by bridges. Compared to the traditional depaneling process using separators (routers), the current process is more flexible and reliable in achieving more complex clearances and better quality.

The machine separates the boards using a precision milling head, which results in better repeatability of the cut, less stress in the material, dimensional accuracy and low cutting times. The machine thus helps to optimize the production process for the most demanding PCBA products. By bringing the process in-house, we will reduce manufacturing costs, which is not only beneficial for our company but also for our customers.

Automatic PCBA storage system

Before the automated system was set up, the operator manually sorted the PCBAs according to the technological process. This presented a challenge, as manual handling of the boards could lead to damage that could only be detected later in the testing process. An investment in an automated PCBA storage system removed the challenge of manual handling and mechanical defects and helped to increase product quality. In addition, the new investment, together with the 3D AOI (Automatic Optical Inspection) machine for inspecting the joints between electronic components will automatically store the boards in conveyor and separate the bad from the good pieces.

Automatic laser cell for marking communication module housings

At Iskraemeco, we are aware that continuous improvement of technological equipment is the key to success, and we are gradually replacing and upgrading traditional laser technology systems (CO2 lasers). The purchase of an automatic laser marking machine thus contributes to our vision of more automated production and strengthens the competitiveness of the company.

The new automatic laser module marking cell consists of a conveyor belt, a buffer and a replaceable vibrating drum for correct orientation and feeding of the products to the marking point, collectively delivering two hours of full machine autonomy. And with an advanced diode laser and 100% automatic quality check, the cell ensures that every product is marked as quickly and as accurately as possible.

At Iskraemeco, we are always improving and upgrading our work and production processes to facilitate our business and contribute to the long-term growth of the company. By investing in production machinery, we have taken a further step towards the full automation and digitalization of our production processes. In the future, we are also planning process and system upgrades that will help us to remain competitive and provide our customers with the products they need and require.

Another significant landmark in the African region

Alyaa Sakr

As part of our regional expansion strategy, Iskraemeco has established a manufacturing facility in Nigeria. The state-of-the art factory that will serve as another technological hub for the region and neighboring countries. will make it easier for our products and solutions to reach our customers in countries such as Chad, Cameroon and Benin.

Continually reshaping the African energy management area

Iskraemeco's facility in Nigeria will produce Smart STS single- and three-phase prepayment meters Mx514. The production capacity of the new plant will be 500 meters per shift and 400 thousand meters per year.

Why smart STS meters are the long-awaited solution for the problem of chaotic consumption?

Our Smart Prepayment solution integrates the vending system with AMI Infrastructure, realizing functions such as: remote prepayment, meter reading, remote control. It adopts advanced communication and metering technologies to measure, detect, collect, manage and analyses energy data automatically. Having this precise management and analysis data will help to identify consumption patterns and load curves to be able to predict peaks and blackouts and also to be able to estimate load curves, thus allowing utilities to save millions of dollars by reducing peak demand, avoiding peaker plants, and decreasing downtime.

Our production lines will include installation of a universal production line for new smart meters (e.g. AM550, JICA, IE.X or any smart meters) and will have the benefits in terms of:

- Logistics (no customs for MEA, short distance).
- Lower transportation costs, faster delivery, etc.
- Calibration and test benches modification.
- Calibration and testing of smart meters.

Furthermore, our customers will be pleased to learn that our production facility has been approved by MANCAP (The Mandatory Conformity Assessment Program), which is a mandatory product certification scheme put in place by SON to ensure that all locally manufactured products in the country conform to the relevant Nigerian Industrial Standards.

This is meant to emphasize that Iskraemeco is assisting African utilities in improving their services by moving away from haphazard measurement, outages, and fraud to a more disciplined, organized, and digitalized system.

This is only the beginning of a long and fruitful journey that Iskraemeco intends to continue until the African region becomes a beacon for energy management digitalization.

Strategy and processes behind the Technology Design Center in India

Ankita Seth

Iskraemeco in India has taken impressive strides towards becoming a self-reliant provider of end-to-end metering solutions with a firm belief in 'no hostage' policy. The aim is to put in place a sound, flexible and transparent system that allows customization of AMI components for customers and utilities.

To do this, a Technology Design Centre (TDC) has been set up under the leadership and guidance of Mr. Mazhar Umer. The TDC is a cross-functional department that comprises Product and Project Management skill set and works in close collaboration with the Indian Sales and Solution Delivery teams as well as the technical team in Slovenia.

Business Support

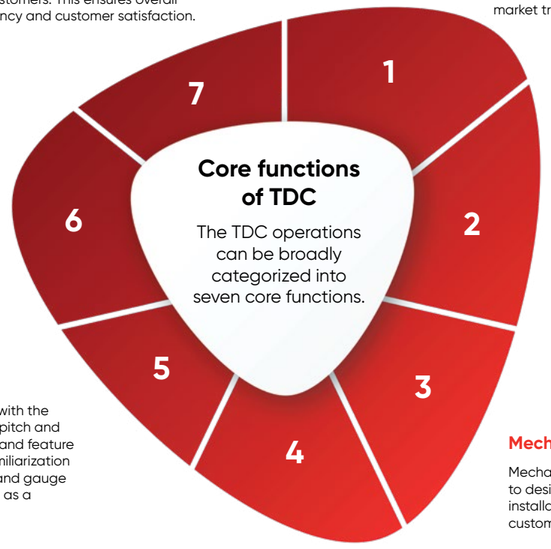
Business support involves providing sustenance for all products currently operational internally as well as externally, i.e., across all departments and to customers. This ensures overall transparency and customer satisfaction.

Hardware (HW) Design

HW Design extensively designs and develops energy meters, communication modules NB-IoT, RF and other cellular communication. The team is focused on cultivating a dynamic principle of work as it has to constantly keep up with the pace of ever-changing customer needs and market trends.

SW Development

SW Development focuses on developing web/desktop application, technical interfaces, specifications, and architecture.



Firmware (FW) Development

FW Development is made out of FW specification and FW architecture. There is a keen interest in developing our own FW that can be integrated with meters of all makes.

Product Management

This is a collaborative function with the Product Management team to pitch and position new ideas for product and feature development and to ensure familiarization with product line components and gauge potential impact on the market as a whole.

Mechanical Engineering

Mechanical Engineering caters to designing, manufacturing, and installation of components to meet customer and market demands.

Component Management

Component Management takes care of monitoring the current parts inventory and forecasting parts needs. It also includes pricing of parts to maintain profitability.

The priority for the Indian TDC department is to make Iskraemeco India an independent entity, i.e., removing third-party hinge as much as possible. Time and resources are being invested in the expansion of the department with a bird-eye vision of individual and organizational growth. Painstaking efforts are being made to find the optimum capacity-capability ratio to work towards the common goal of customer satisfaction. The aim is to become a Centre of Excellence for an all-round competency development so that the vision of an energy-efficient world is more of a day-to-day reality.

Process

In India TDC process operates on two levels:

1. **Design of devices and solutions**
2. **Development of software and solutions**

The main emphasis is on keeping up to date about latest methodologies and developments that can be incorporated into TDC to yield the best possible products and solutions.

Some of the methodologies that are used to design smart meters, communication modules and data concentrator units:

- **DFSS or Design for Six Sigma**
  Used primarily for the complete re-design of existing product or process.
- **DFM or Design for Manufacturing**
  Involves efficiently designing or engineering an object, generally during the product design stage, when it is easier and less expensive to do so.
- **DFT or Design for Testing**
  This resource-limited process uses a testing approach to verify that the pre-release reliability goal has been met.
- **DFA or Design for Assembly**
  A process by which products are designed with ease of assembly in mind.
- **FMEA or Failure Mode and Effects Analysis**
  The process of reviewing as many components, assemblies, and subsystems as possible to identify potential failure modes in a system and their causes and effects.

The methodologies used to develop solutions and software include Agile, Waterfall Development, Lean Development, and Dynamic Systems Model.

What can we expect in the field of sustainable development?

Lara Šarabon Štojs

In mid-November, the world's population reached 8 billion. This milestone and the fact that population growth is the driving force of climate change resonated strongly with the general public. The planet has warmed by almost 0.9 degrees on average since 1974, when the four billionth human being was born. However, overpopulation of the planet is not the only problem contributing to climate change. We have to accept that climate change is primarily driven by humanity's resource consumption, particularly in the developed world. This means that children who are born today will not have the same conditions for life that children had 30 years ago, because Earth's resources are being depleted much too fast. Earth Overshoot Day (EOD) is the illustrative calendar day on which humanity's consumption of resources and ecosystem services for the year exceeds Earth's capacity to regenerate these resources that year. EOD comes earlier every year – this year it happened on July 28.

Sustainability is no longer just an option or added benefit but rather a business imperative for every company and a hot topic in board rooms. The economies around us are speeding up their sustainability projects and measures, aware that sustainability will be an important benchmark in terms of competitiveness as well as in terms of brand reputation and access to finance. The stakeholders in the energy management value chain have yet to live up to their promises to deliver the green and digital transitions of the energy sector with an emphasis on energy efficiency and empowering consumers, which will enable decarbonization of our societies and aid society in effectively managing the 'Earth overshoot' risk.

Given the above facts, it is obvious that it is high time for a strategic and ambitious set of measures.

Fortunately, an important mutual agreement has been reached between policy makers, governments, societies and economies on a global scale, and a legislative tsunami can now not only be seen happening in the EU but also globally. We and our customers must react and comply with various new legislative acts, such as:

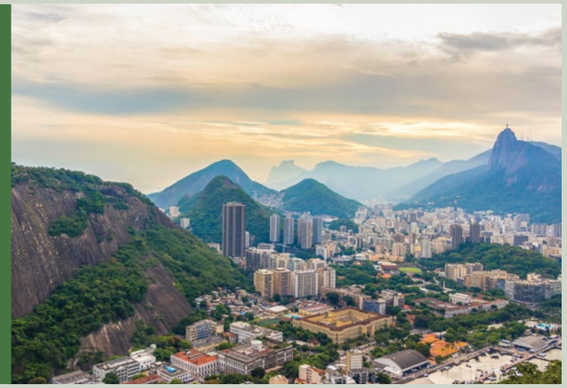
- **Corporate Sustainability Reporting Directive** – This directive extends the scope of reporting, demands clear KPIs and extends the scope to all large companies. It requires the audit or assurance of reported information, introduces more detailed reporting requirements and a requirement to report according to mandatory EU sustainability reporting standards as well as requiring companies to digitally 'tag' reported information so it is machine-readable and feeds into the European single access point envisaged in the capital markets union action plan.
- **Sustainability Due Diligence Directive** – The aim of the proposal is to foster sustainable and responsible corporate behavior throughout global value chains. In February 2022, the European Commission adopted a proposal for a Directive on Corporate Sustainability Due Diligence. Identifying adverse impacts across the value chain will be made easier if companies conduct due diligence and more information will be available on adverse impacts on human rights and the environment. The scope of the directive is focused mainly on the obligation to carefully review business in terms of the adverse effects on human rights and the environment. Additionally, the Directive demands that every company produces a clear Climate Action Plan with KPIs and reported results.
- There will be many new demands coming out in the form of the **EU Sustainable Product Initiative**, demanding:
  - Ecological design of products.
  - Embedded circular economy principles.
  - Energy efficiency and material efficiency of products.
  - Life-cycle assessment of products (LCA).
- **Carbon border tax** – This tax will be introduced in 4 years' time and will apply to products imported into the European Union that do not meet EU climate standards in their production and are heavy emitters of CO_2. It places a carbon price on targeted products to avoid 'carbon leakage'. This will ensure that European emission reductions contribute to a decline in global emissions instead of pushing carbon-intensive production outside Europe. It also aims to encourage industry outside the EU and international partners to take steps in the same direction. In parallel, it is important to know that in the last year the price of carbon emissions has shot up by more than 250%, from EUR 33/t in January 2021 to EUR 88/t in February 2022.
- **EU Taxonomy** – The taxonomy establishes an extensive set of requirements for financial organizations to channel their investments towards supporting the transition to a green economy. Consequently, companies must report to financial organizations about their sustainability results. The EU taxonomy is a complex system for classifying which parts of the economy can be marketed as sustainable investments. It includes a long list of economic activities as well as detailed environmental criteria that each company must meet in order to earn a green label.

There are also other global initiatives aiming towards the same aforementioned goals.

China has set high sustainability goals and generates more solar power than any other country. This might not seem overly impressive given the country's enormous population, however, it is a sign of where the country is heading. China's wind power installations more than tripled those of any other country in 2020 and the country plans to reduce the proportion of the energy generated from fossil fuel sources by more than two thirds.

The United States has set a goal to reach 100% carbon pollution-free electricity by 2035. Environmental sustainability laws in the USA include the Clean Water Act, the Clean Air Act, the Endangered Species Act, and others. Sustainability reporting standards in the USA are higher than in Europe, hence Europe often looks up to the USA's reporting standards.

In response to the international commitment to sustainable consumption and production, Latin America and the Caribbean have taken a series of steps aimed at strengthening a regional strategy of sustainability based on a change in production and consumption patterns. Countries promote sustainability through investment and tax policies.



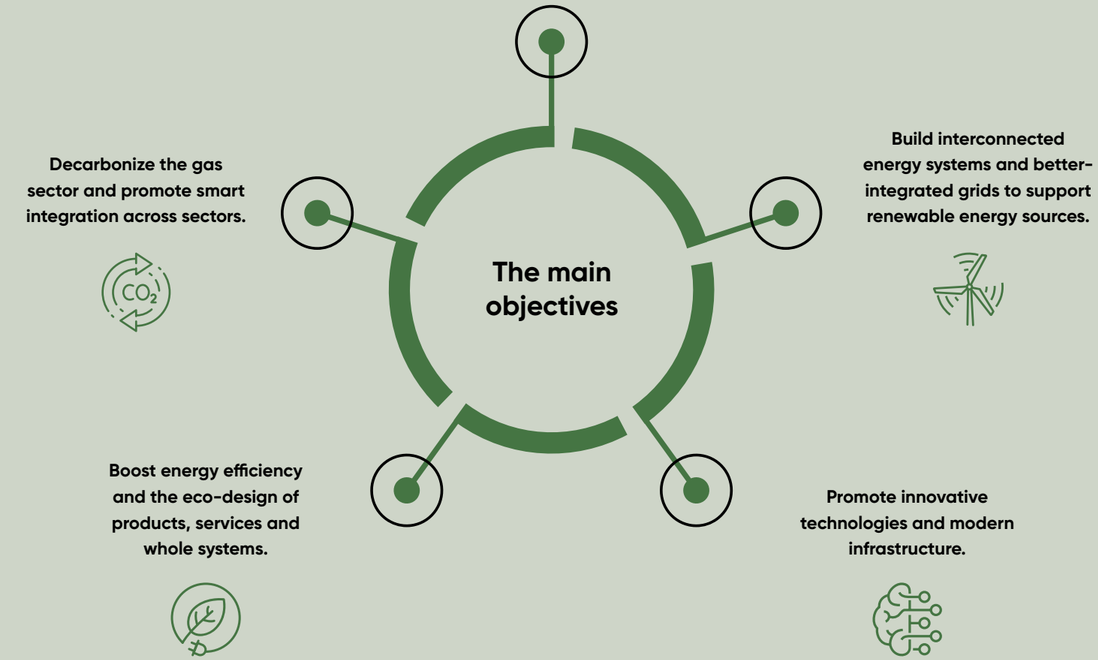
The production and use of energy accounts for more than 75% of the EU's greenhouse gas emissions, while globally, this figure stands at over 70% of greenhouse gas emissions. Decarbonizing the EU's energy system is therefore critical to reaching its 2030 climate objectives and the EU's long-term strategy of achieving carbon neutrality by 2050.

An important fact is that energy demand is growing. Therefore, a clean energy transition is crucial. The main objectives on a global scale are: ensuring a secure and affordable supply of energy; developing a fully integrated, interconnected and digitalized energy market that prioritizes energy efficiency; improving the energy performance of buildings; and developing a power sector based largely on renewable sources.

Iskraemeco offers quality products, solutions and services that enable efficient use of energy and water worldwide. Digitized solutions based on the IoT, digital networks and smart cities, utilities, infrastructure and communities provide the data needed to manage energy and water consumption, forecast demand, and optimize costs.

These solutions enable more sustainable operation among consumers, thus our solutions are helping to change the world and enabling a better and safer future – for us and for our children.

Empower consumers and prosumers and help countries to tackle energy poverty.



SUSTAINABILITY

Corporate social responsibility

Luciano Gonzalez and Nina Merše

At Iskraemeco we strive to have a positive impact on in the local area by responding to the needs of society, contributing to a higher quality of life, and setting an example for other stakeholders. Investing in the micro and macro environment and in the future of employees is part of the company's corporate policy and sustainability strategy.

We are proud to participate in the program. In this way, Iskraemeco in Argentina is implementing the social responsibility policy that also distinguishes us worldwide.

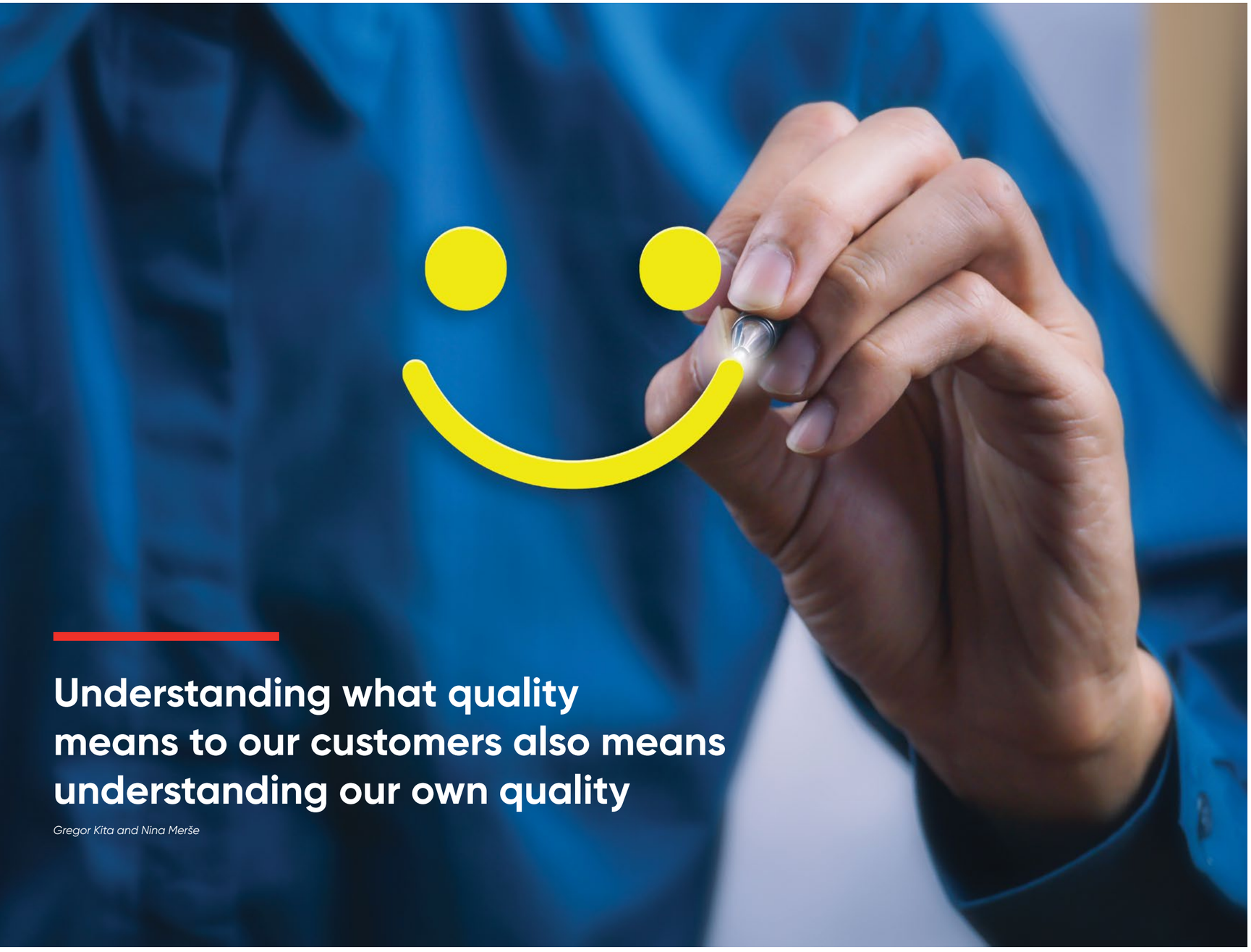
Social inclusion, support and safety are of great importance to our company that aims to establish itself as a strong and solid employer and thus secure a better position in the labour market. We have a responsibility to create high-level job satisfaction for employees and a workplace environment that helps them develop their ability to succeed on the job, achieve their work goals and use their strengths to achieve better results.

At Iskraemeco, we perceive employees as our main asset in innovation, quality and productivity. Accordingly, the sustainability in employee's performance and development of competences has become one of our key focus area.

In Argentina we started certain activities in collaboration with the Government of the City of Buenos Aires through the Ministry of Economic Development and Production. Their 'Employment Training Practices' program is intended to make a positive social impact on the population.

This high-impact social program allows many citizens to enter the labor market in an orderly, formal and progressive manner, carrying out professional practices that adequately train them for a permanent employment in the companies located in the city. The program has several benefits such as social impact, inclusion, training, identification of talents, and promotion of employment integration.

Iskraemeco involvement in the program has yielded excellent results. Withing the program, we were able to identify the best human resources available for our production lines. The candidates shortlisted by the Secretary of Labor, Industry and Commerce of the City of Buenos Aires have proven to be qualified for the requirements and objective profiles of our industrial operation. The experience has been so successful that today we are carrying out a second experience designed to pinpoint our future colleagues.



Understanding what quality means to our customers also means understanding our own quality

Gregor Kita and Nina Merše

COMMITTED TO QUALITY

Utilities are only one component of a comprehensive and essential energy infrastructure. None of its components, which include power generation companies, transmission system operators, distribution network operators and suppliers, should be the weakest player in the market.

The challenges of e-mobility and the direct connection of solar power plants to the distribution grid are a major risk and cause grid fluctuations. Energy suppliers uniformly state that the answer to these challenges is digitalization. Today, it is no longer enough to install quality elements (e.g. cables, transformers) and maintain the quality of the grid. There is also a need for a better-quality management and control of the power grid. Digitalization is increasing the efficiency of grid management. But how? Well, this is where Iskraemeco comes in.

By installing high-quality, reliable and durable meters we are supporting functionalities required by power distribution companies. The meters are able to provide large amounts of data that are of key importance in the decision-making process that needs to be very precise and really fast. As a part of critical infrastructure, metering comes with a great responsibility. We are in an area where there is no room for errors. But, we need to bear in mind that it is not just about meters. The software is a key factor in this system as it collects data from meters, displays it and analyzes it. Iskraemeco's software suite Symbiot plays a crucial role in this. The ultimate goal is to ensure that the whole solution works properly since it is part of the critical energy infrastructure. In the near future, Iskaremeco's solution will be complemented by a whole range of services based on the use of data, enabling utilities to manage the grid at a whole new level of quality.

The complexity of managing current distribution networks cannot be compared to earlier years. The game's just getting started. Adding to the complexity of the whole system is an increasingly active end-customer. We need to realize how important our solutions are for the quality management of the distribution network. Iskraemeco's solutions do not end with successful implementation and operation. Thanks to their complexity, they are able to accommodate newly emerging demands that need to be answered immediately.

Understanding our customers' processes and their quality systems, products and services is key to the responsiveness and accuracy of the solutions they require. Our solutions are the first to detect that something is wrong with the distribution network. Therein also lies our great opportunity and responsibility to help customers solve their problems that go beyond remote reading of energy consumed.

Quality is and remains the loudest voice of the customer in all processes of our company.

> **The technical support process is praised for its high level of responsiveness and the response time that is measured in minutes.**

Transforming customer experience with digitalization

Robi Zorman and Nina Merše

Digitalization is not a new concept but rather a process that every company is working on today.

For Iskraemeco, digitalization is of great importance, and we believe it requires continuous work in the field of process optimization and empowering employees to become digitally literate and develop a deeper understanding of customer needs.

It is important that all employees understand their specific role and know the expectations of the customers because every one of us is responsible for providing them with products and services that meet their requirements. Digitization is bringing us closer to our customers, allowing us to find and define the top-quality products and services best suited to their needs, and enabling us to provide customers with the accurate information that will help them maximize their business potential.

Customer experience optimization is a continuous process

Iskraemeco is present on the global market and we aim to be as close as possible to each of our customers. We believe that this closeness is an essential ingredient for developing long-term relationships and providing prompt customer service of any kind. Customers are an essential part of our success, and therefore it is only right that they play an important role in the process of shaping the future with us.

If we want to provide the highest quality of support and efficiency, we need to make sure that our internal processes run more smoothly, efficiently and quickly. Digitalization and globalization are significant factors that can help us achieve this goal. Just as Iskraemeco connects customers and internal processes at all levels, our internal systems connect different teams located in different corners of the world. Our internal information technology services have been integrated, and all our locations now use the same platforms for ERP, CRM and software development.

Because we use a single internal service, we are able to support and interact with our customers through any channel, whenever and wherever they choose. We are able to deliver on our promise of higher level of accuracy and faster response time for orders, inquiries and requests.

Iskraemeco consolidated its ERP system with all global teams to enable them to work together seamlessly, regardless of where they are physically situated. We are able to provide all relevant information to our business partners and customers as quickly as possible. Order traceability is more accurate throughout the production and logistics process. In order to provide the most accurate data for the departments involved and customer inquiries, we have connected internal services in a common community. We empowered our employees to adopt a modern data-driven culture with business intelligence and gave them the ability and access to self-service analytics on a global scale. The level of digital literacy of our employees has improved thanks to the valuable insights we have gained from this data.

Furthermore, Iskraemeco is actively involving consumers in the development of products and the design of services through our local partners. This is done to help customers get the most out of their businesses. To this end, a partner portal has been set up for all our partners, where they can easily find all the documentation related to the portfolio they manage. We have also set up a self-service portal for partners and customers to provide them with easy and quick after-sales support.

We believe digital transformation will bring customers even closer to the provider by narrowing the gap between them and by increasingly involving customers and their needs in the development of products and services. Employees will develop a heightened awareness of what the market and customers are looking for, and they will also try to create a harmonious environment between the customer and the provider. As a company we are also committed to sustainability – it is an area in which we invest considerable time and resources and where we have already achieved significant changes for a better future for us all.

Iskraemeco has adopted digital transformation and like Amit Zavery, VP and head of Google Cloud once said: *"Think of digital transformation less as a technology project to be finished than a state of perpetual agility, always ready to evolve for whatever customer wants next, and you'll be pointed down the right path."*

Elsewedy Electric and Deutsche Bahn join forces to operate and maintain Egypt's first high-speed rail network

In conjunction with the UN Climate Change Conference (COP27), held in Sharm al-Sheikh, the Egyptian government has awarded the contract to operate the country's first high-speed rail network to Elsewedy Electric and the German Deutsche Bahn International Operation (DB IO) which has an initial term of 15 years. The signing was witnessed by Prime Minister of Egypt, Dr. Mostafa Madbouly, Transport Minister of Egypt, Kamel al-Wazir, and German Ambassador to Egypt, Ambassador Frank Hartmann.

The contract was initialed by the three parties represented by Chairman of National Authority for Tunnels (NAT), General Sherif Hassan Lail, CEO DB E.C.O. Group, Niko Warbanoff, President & CEO Elsewedy Electric, Ahmed El Sewedy, and Chief Innovation Officer Elsewedy Electric, Emad Ghaly.

The state-of-the-art high-speed network will comprise three lines. Set to connect the metropolitan regions of Cairo, New Administrative Capital and Alexandria, the first line of the transport network (dubbed the "Suez Canal on rails") will cut travel time in half for 30 million people as early as 2025. Two additional lines and 60 stations will eventually connect Abu Simbel, Luxor and the Red Sea port of Hurghada to Cairo and the rail network. Once the new network is completed, 90% of Egypt's population will have access to rail.

Last August, Elsewedy Electric and DB IO signed a term sheet with the National Authority for Tunnels to operate and maintain the high-speed network projects in Egypt. The signing was witnessed by Transport Minister of Egypt, Kamel al-Wazir, Chairman National Authority for Tunnels (NAT), General Sherif Hassan Lail, DB ECO Group CEO, Niko Warbanoff, DB Schenker Egypt CEO, Khaled Morsi, Elsewedy Electric President and CEO, Ahmed El Sewedy, and Elsewedy Electric Chief Innovation Officer, Emad Ghaly. It is worth mentioning that the new high-performance rail system will be a central pillar of the sustainable expansion of Egypt's public transport infrastructure.

ELSEWEDY ELECTRIC

On this occasion, Eng. Ahmed El Sewedy, Elsewedy Electric President and CEO, expressed enthusiasm for the new project, saying *"The new high-speed rail network aims to improve traffic safety and curb air pollution, aligning with the Egyptian government's efforts to develop the sustainable transportation sector and expand environmentally-friendly mass transportation in major cities. With the construction of the three lines, the climate-friendly rail will cover a distance of 2000 Km. To implement this green project, our company will exert every possible effort to hire, train, transfer knowledge to local talents, and assign the employees to Germany in order to gain an international experience, as part of investments in the country's long-term development."*

Meanwhile, Niko Warbanoff, DB E.C.O. Group CEO said, *"We are delighted that by operating the new system we will be making a significant contribution to the modal shift to rail and will be actively protecting the climate and supporting Egypt's economic development. In addition to its political relevance, especially for active climate protection and the promotion of economic development, the project offers potential for Strong Rail in Germany in terms of technology cooperation and securing skilled workers."*

Elsewedy Electric in partnership with ReNew Power signs a Framework Agreement with the Government of Egypt for a Green Hydrogen Project

On the sidelines of COP27, Elsewedy Electric, the leading integrated energy and infrastructure solutions provider in the Middle East and Africa, in partnership with ReNew Power Private Limited, a subsidiary of ReNew Energy Global Plc ("ReNew"), one of the leading renewable energy companies globally, have signed a Framework Agreement with the Government of Egypt to jointly develop, finance, construct, operate and maintain a green hydrogen project with its related ancillary facilities.

The Framework Agreement is entered into with the Sovereign Fund of Egypt Infrastructure & Utilities Sub Fund, New and Renewable Energy Authority, Egyptian Electricity Transmission Company, and the General Authority for Suez Canal Economic Zone. The project comes in line with Egypt's National Green Hydrogen Strategy issued during COP27.

In a signing ceremony witnessed by Dr. Mohamed Shaker, Minister of Electricity and Renewables, Dr. Hala El Said, Minister of Planning and Economic Development, Dr. Rania Al Mashat, Minister of International Cooperation, Eng. Tarek El Molla, Minister of Petroleum & Mineral Resources, Mr. Ayman Mohamed Soliman, CEO, The Sovereign Fund of Egypt, and Mr. Omar Foda, Corporate Investment Director, ELSEWEDY ELECTRIC. The co-developers announced that the cooperation entails development, finance, construction, operation and maintenance of a green hydrogen facility that will aim to produce 220,000 tons of green hydrogen annually to be implemented in different stages.

Initially, a pilot electrolysis plant is expected to produce 20,000 tons of green hydrogen annually. While for the next phase, the annual output of the plant will be raised by up to 200,000 tons of green hydrogen, bringing the total production to 220,000 tons.

Based on the Framework Agreement, the partners will be further undertaking project and site studies in the coming months and are expected to make the Final Investment Decision over the next 12 to 16 months. The pilot phase project is expected to be commissioned in 2026. Usufruct agreements for the project are also expected to be discussed going forward, basis which land shall be allocated to the partners for developing the Green Hydrogen project and the renewable energy resources needed to power the project.

ELSEWEDY ELECTRIC

During the signing ceremony, Eng. Ahmed El Sewedy, President and CEO of Elsewedy Electric, stressed the importance of Green Hydrogen, saying: *"Green Hydrogen is the catalyst for carbon neutrality. Therefore, we are committed to inject more investment in this industry. Partnering with one of the world's leading renewable energy companies diversifies Elsewedy Electric's portfolio to impact different sectors, in line with our strategy that aims at providing sustainable integrated solutions in order to support communities' betterment. We are also keen to support the localization of the Green Hydrogen's feeding industries in Egypt; paving the way to achieving Net Zero. This comes as part of Elsewedy Electric's long-term sustainability strategy, leveraging Egypt's National Climate Change Strategy 2050 and supporting the global efforts to address Climate Change."*

Speaking on the signing, Sumant Sinha, Chairman and Chief Executive Officer of ReNew, said: *"We are proud to move forward in our partnership with Egypt as it shows global leadership in taking on the existential threat of climate change. Green Hydrogen is critical for decarbonizing major hard-to-abate industries globally. This Framework Agreement shows that ReNew Power, with partners such as the Government of Egypt, intends to take a pioneering and leadership role in this emerging sector and in the global efforts to combat climate change. Green growth in the Middle East and Africa region is extremely important for the global economy and ReNew Power is ready to partner for this growth."*

PHOENIX project presented to ESMIG

Tomaž Dostal and Nina Merše

The energy industry has undergone significant changes in recent years. In addition to digital transformation, companies are facing the challenges of globalization and growing demands for information and cybersecurity.

In early September, the PHOENIX cybersecurity solution was presented to the Data Communication and Protection working group of ESMIG, the European association of smart energy solution providers.

New trends, customer needs and rapidly changing technologies require companies to embrace change, develop agility and respond fast. As ESMIG members are small to multinational companies that develop and manufacture devices, information technologies and services for multi-commodity metering as well as display and management of energy production and consumption, the cybersecurity topic was a great opportunity to present the complete solution, including its background. Since the group is active in smart metering business, we focused on presenting a solution suitable for that purpose.

The EU legislation on cybersecurity is the Network and Information Security (NIS 2) Directive, which defines the "Network Code on Cybersecurity", requiring introduction of an incident detection system and the exchange of incident information in the energy sector. Cybersecurity has become more than relevant for the smart metering industry, and the PHOENIX project is a perfect solution for this demand.

The main topic of the presentation was the Universal Security Gateway (USG), which ensures that existing energy devices can be connected to the Phoenix system. We introduced a special variant of the USG (named Integrated USG) that can be installed on smart meters, thus bringing the PHOENIX functionality to the existing (i.e., legacy) smart electricity meters. The solution can be implemented in critical areas such as hospitals, power plants or similar. We also presented a solution with a standalone USG that can cover a group of meters (for example meter room or G3-PLC network) where the USG can be implemented on a data concentrator and/or border router. The third option was implementation on the head-end system, i.e., the data aggregation software that aggregates data from all smart meters.

Another interesting feature presented was Secure API, which defined how EPES devices can connect to the PHOENIX platform. The API raised many questions and generated considerable interest as it was seen as an interesting feature to implement in a new generation of smart meter infrastructure devices.

The part of presentation (in a limited manner) also included the results of the USG penetration tests conducted in May, which proved that the USG is secure and robust against cyberattacks. We also presented the results of LSP3, where PHOENIX is demonstrated on the AMI, which is upgraded with the USG interface.

Overall, the presentation was well received with positive feedback. The main idea was to promote the solution to the smart metering community, which is not yet fully aware of the project but could be a very interesting target customer. The project is also presented on the PHOENIX web page.

Bionika: Co-creating a new program for training high-tech personnel

Anja Babič and Nina Merše

At Iskraemeco we strongly believe in training, expanding knowledge and continuous development of our employees, and we work systematically to live up to this commitment. At the same time, as one of the leading technology companies in the region, we are aware of our role in promoting the training of future high-tech employees, whose shortage in the market has become a concern in recent years.

That is the reason why we are joining forces with several other organizations in co-creating a new educational program called Bionika. The project is the result of cooperation between the Municipality of Kranj, education providers, and high-tech firms in the region. Its main goal is to close the training gaps identified in the current and future high-tech professionals.

The Bionika program includes targeted training tailored to the needs of companies, as well as the accreditation of a new study program to improve or attract talent to the Gorenjska region.

Bionika is the response of the Municipality of Kranj to the region's reported lack of human resources with ICT skills and competencies. The initiative came from the business community, namely from the high-tech companies in Kranj struggling with talent shortage.

Bionika will focus on cybersecurity, system architecture, product design, data analytics, smart energy and other high-tech and management content. Top lecturers from Slovenia and abroad will impart their knowledge to students. The Faculty of Organizational Sciences has received EU funding for the development and implementation of the program, which will also be available for on-the-job training.

Bionica will use the concept of microcredits, which allows customization of learning materials. The content of the courses will be determined by the Faculty in collaboration with the companies, taking into account their needs for technological and other competencies. Students will have the opportunity to complete part of the course on the premises of participating companies and to complete specific development tasks through mentorships. The planned outcomes for the companies are many, from easier access to new knowledge and colleagues to mutual involvement in development tasks and joint search for opportunities to apply for development funds in collaboration with the regional development agency BSC Kranj.

"We joined the Bionika project because the knowledge and development of current and future colleagues means a lot to us. Bionika plans to provide existing employees with new skills and better connect students with the industry and their potential work environments. The educational content is designed to be closely interwoven with our strategic directions. As such, the program covers topics such as smart energy, cybersecurity, IoT and data processing. Collaboration with local companies creates new possibilities to invite well-known foreign lecturers. As Iskraemeco is committed to being actively involved in the local community, the project is also a great opportunity for collaboration between education systems and businesses."

Aleš Potočnik,

Senior Director of Technology Design Center at Iskraemeco

*source: Mestna občina Kranj / City Municipality of Kranj

Slovenian Prime Minister visits Iskraemeco's headquarters

Smilja Dolgan Paternoster and Anja Babič

Iskraemeco hosted a visit by Prime Minister of Slovenia, Dr. Robert Golob. The management team of Iskraemeco welcomed Prime Minister Golob for a visit to the production site, which was followed by a short strategic discussion on the challenges faced by technology companies, the difficulties in recruiting competent professionals for green jobs, and the energy crisis in general.

The Prime Minister emphasized that Iskraemeco operates in a sector that can importantly contribute to the transition to green energy.

According to Golob, Iskraemeco's products and solutions can have a positive impact on the energy savings of companies and individuals, optimizing the environmental impact and ensuring a better future. "Our solutions contribute to the reduction of CO_2 emissions and support the global vision of a green future," said Luis Goncalves, CEO of Iskraemeco Group.

The Prime Minister and Iskraemeco's management also touched upon a topic of public-private cooperation and identified opportunities how both sides can support each other towards a shared goal and stronger positioning of the Slovenian and European industry.

At the end of his visit, the Prime Minister highlighted that Iskraemeco is one of the companies that emerged stronger from the COVID-19 pandemic, also thanks to successful investments. Iskraemeco, employing a workforce of over 800 people, is of great importance both for Slovenia and for the EU, as it operates in an industry that can help to generate significant energy savings.

This visit underscores the need for the public and private sectors to work together in addressing the challenges faced by society and businesses – all with a view to a sustainable future.

First steps towards Lean Production

Eva Šturm and Nina Merše

How do you stay relevant and at the top of the game in an era of fierce global competition in the electrical industry? One way is to switch to Lean production.

Iskraemeco in Slovenia hosted the first global Lean event, which was attended by Lean, 5S and automation project leaders from Egypt, India and Malaysia.

Global competition in the electrical industry forces us to constantly improve our processes, reduce costs, and increase quality. Therefore, the main objective was to create a vision and strategy for implementing Lean manufacturing in our companies. In the future, with our combined knowledge and experience, we will standardize the Lean documents and prepare the guide for the implementation of Lean production in our existing and future plants.

This four-day event consisted of active workshops, where participants learned the basic Lean methods and tools (5S – Organization of Workplaces, VSM – Value Stream Mapping, 7 Wastes in Production), developed proposals for improving production processes at various factory workplaces, and determined the criteria for our first official standard document – the 5S Audit Checklist.

We are pleased with the ideas and suggestions collected and are confident that they will help us implement new excellent practices in the production facilities.

Appointment of Emad Ghaly as Executive Chairman of the Board of Iskraemeco Group Holding

Smilja Dolgan Paternoster

We are pleased to announce the appointment of Emad Ghaly as Executive Chairman of the Board of Iskraemeco Group Holding. It is a privilege to welcome a strong leader with decades of expertise and experience who will drive the business and significantly impact the company's growth trajectory.

"I am thrilled to assume the position as the Executive Chairman of Iskraemeco Holding Group," stated Emad Ghaly. *"I am looking forward to working with the leadership team to master the impending challenges and opportunities to support the transformation for the advantage of all Iskraemeco's stakeholders."*

"We are delighted that Emad has joined our Board as Executive Chairman. His leadership and expertise will be crucial to the future growth of our organization. We will draw on his extensive experience and valuable insights as we continue to grow and transform our business," added Luis Goncalves, CEO of Iskraemeco Group.

With the new and fully functional Board of Directors, we are looking forward to the future and are eager to usher Iskraemeco towards the next chapter in its journey.

Iskraemeco at Metering India 2022

Payel Roy Chowdhury

Iskraemeco's team in India attended the 9th edition of Metering India on 'Resilient Utilities and Empowered Consumers', which was organized by Indian Electrical & Electronics Manufacturers' Association (IEEMA) in New Delhi. Iskraemeco's experts presented its end-to-end digital solutions for the energy and water sector in India.

'Metering India', powered by IEEMA, is a biennial event organized in collaboration with metering companies and various stakeholders in the electrical ecosystem and provides for a platform to metering companies to exchange their perspectives on metering, and the utilities to adopt new technologies.

The session was inaugurated by Chief Guest, Alok Kumar, Secretary at the Indian Ministry of Power. Mr. Kumar emphasized on safety, cost reduction and quality of smart meter manufacturing and expansion of the RDSS scheme and smart distribution in India. He raised a concern on sustainable disposal of old, discarded meters and urged that IEEMA should focus on the above as well as consumers connect and make smart meters affordable and capacity building of the utilities.

Mr. Rohit Pathak, President of IEEMA and CEO of Birla Copper Hindalco Industries Limited, expressed that smart meters are a key enabler for India's transition to an electrified, digital, sustainable and net zero economy.

Out of more than 20 metering companies in India, the CEOs of top five manufacturers started the roundtable on 'Industry Perspective – Opportunities and Challenges' to validate the industry's potential to deploy 100 million smart meters per year. Luis Goncalves, CEO of Iskraemeco Group, was one amongst the five panelists.

"Understanding and focusing on consumer requirements and behavior is extremely important," emphasized Luis. He mentioned that data extracted from smart meters is extremely important for assessing consumer demand and their usage patterns. He also deliberated on flexibility to adapt to every environment, interoperability and critical infrastructure to implement a proper security system for data protection. "Forecast, i.e. having a clear outlook for the future and collaboration with supply chain," he added, "would be significant in the success of smart meter deployment in India." Other industry experts added that metering is the pride of India and truly 'Made in India' and India has come a long way in the metering sphere.

The two-day conference reflected on the opportunities and upcoming new technologies to make most of the opportune moment. One of the largest such events in India, it witnessed an attendance of more than 500 delegates from more than 75 utilities, PSUs and government institutions.

Successful days at Enlit Europe 2022

Anja Babič

Iskraemeco participated in the most important industry event of the year, Enlit Europe 2022. We showcased our future-proof solutions for the energy and water sectors, provided insights into inspiring projects, and met with our valuable partners and customers.

Enlit Europe is the place where industry experts, companies and organizations meet every year to discuss the current trends and present solutions. Many visitors visited our Smart City booth, where Iskraemeco experts presented the solutions for smart energy and water, digital platforms and eMobility. Being aware of the power that digitalization holds for the future of our industry, we demonstrated how Iskraemeco supports companies in their digital transformation while contributing to decarbonization goals.

In addition to welcoming visitors to our booth, we also hosted a live demonstration and presentation on 'Big Loads Under Control with Symbiot Software Suite'. Using various use cases, we demonstrated how utilities can use real-time monitoring and optimization to increase flexibility in their system.

It is through examples like this that we can really demonstrate the importance of smart digital and software solutions for green transformation. We need to empower our customers to embrace digital transformation and support them with a future-proof portfolio by sharing our knowledge and experience to solve their challenges.

These include, above all, the growing complexity of networks, the demand for energy, the integration of renewable energies, new infrastructures for e-mobility, and others. They all need to be addressed if we want to achieve energy efficiency, which is the key to a sustainable future.

Enlit Europe gave us the opportunity to discuss the above topics and also:

- Showcase our Energy and Water Solutions, Digital Platform and eMobility.
- Inspire visitors at our booth.
- Demonstrate software solutions for grid management.
- Give insights into sustainable projects.

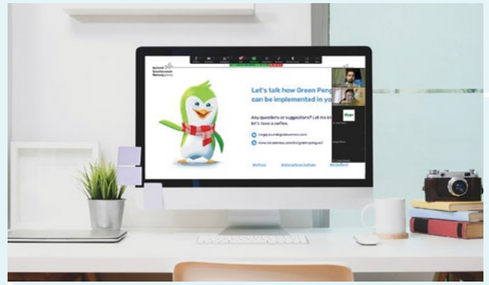
We would like to take this opportunity to thank everyone who visited us and brought their great energy! We are already looking forward to welcoming you next year at Enlit Europe 2023 in France.

Direct shipments of meters to Germany

After a thorough production line inspection of our factory in Egypt, we are pleased to announce that we successfully concluded the audit performed by KBS PTB, which allowing us to execute the German national sealing on our products.

Attending conference in Poland

Tuning in from the IT Systems and Energy Sector Conference (SIwE) in Wisła, where our team is presenting our expertise in the IT area of the Energy sector. The team has already had some great discussions about our software suites Symbiot HES and Symbiot FieldAssist.



Inspiring webinars on Secured Smart Grid

As part of our sustainability initiative, we were pleased to have participated in one of CIGRE Chile's inspiring webinars on Secured Smart Grid, which focused on efficient planning and implementation of the entire electricity market value chain. It is always an honor to be a part of such events, where we can inspire new ideas for a greener future.

Photo exhibition by Iskraemeco's employees

We recently held a contest for Iskraemeco's photography-loving employees, inviting them to send submissions that captured the energy of the moment. At the end of the 'Energy of Moments' contest, the winners were announced at a small event.

Digital Water Days, a two-day event for our team and partners

With the main goal of improving operational efficiency and securing revenue, our experts focus on optimizing the water network and creating value for utilities. The agenda was packed with interesting technology, market insights and discussions about current trends to help our customers save water efficiently through Iskraemeco's digital water solutions.

Great impressions after two days at the Metering Days in Fulda, Germany

Our colleague Ivan Kern, Area Sales Manager DACH, was one of the speakers at the Metering Days. He spoke about the topic of sustainability and the importance of strengthening partnerships: "Everyone was thrilled that we were finally able to meet in person again after a few difficult years. More than 650 attendees were eager to share their views and opinions on the industry and broader issues. This kind of knowledge and experience sharing allows us to understand our customers' challenges even better."

Innovative and inspiring ideas at the NEOM conference

Vishal Wanchoo, CEO of OXAGON, and Luis Goncalves, CEO of Iskraemeco Group, met in Berlin at the NEOM conference to discuss innovative and inspiring ideas, as OXAGON will be a new paradigm in which people, industry, and technology coexist in harmony with nature. Inspired by the vision of creating a better and more sustainable future, Iskraemeco assists on the journey of NEOM as a committed participant. Nadhmi Al-Nasr, CEO of NEOM, said: "If we are to solve the challenges of tomorrow, we must face up to them today, no matter how difficult they may seem. We are redefining the future now."

Iskraemeco's Global Technology Conference

Iskraemeco's international team of twenty various nationalities convened at the Conference Centre in Brdo, Slovenia, to share their creativity, knowledge and experience. International diversity is an ideal starting point for discussions on technology streams and trends, future roadmaps, and market developments, with the end goal of providing innovative, future-focused solutions to our customers. Iskraemeco is committed to staying on the cutting edge of digital transformation and is prepared to assist customers in overcoming their challenges.

Iskraemeco at Energy Innovation '22

The traditional meeting of innovators in the energy sector was an excellent opportunity to learn about interesting solutions that offer answers to some of the key development questions in the energy sector. Luis Goncalves, CEO of Iskraemeco Group, opened the event Energy Innovation '22. In his speech, he pointed out that the most developed countries in the world are also the most innovative: "If we do not promote innovation, people will not be encouraged to change." A lot of spotlight was on the Green Penguin, Iskraemeco's project that empowers people to reduce their impact on the environment.

National Award for Special Innovation Project goes to Iskraemeco's Green Penguin

As part of Innovation Day, the Slovenian Chamber of Commerce presented national awards to the most innovative companies. Iskraemeco received a special award for innovation project Green Penguin. With the Green Penguin, we want to prove that every individual, provided they have enough knowledge and information, can impact the environment and their own and collective future by reducing the consumption of energy and resources. We are so delighted that our efforts to create a better and more sustainable future have not only been noticed but also recognized and granted the highest national award.

Sharing expertise at WETEX & Dubai Solar Show

The showcase was all about Smart Energy and Water Solutions, including the next generation of energy IoT meters, our state-of-the-art software suite Symbiot, eMobility solutions and much more.

Special guests at Iskraemeco

Children ages 8 to 10 who attend the Champ Center Summer School visited Iskraemeco. The children were very curious about our automated and robotic production, but they were most captivated by the Hololens vitual reality headset. When they left Iskraemeco, they took with them new memories, enthusiasm for technology, and a small gift.

Bahaa Abdullah at Bloomberg Adria's show "Start"

We are proud that Bloomberg Adria Slovenia was having us as guests on show "Start". Bahaa Abdullah, CFO of Iskraemeco Group, spoke about foreign trade, the situation on export markets, the reasons for Slovenia's considerable increase in imports, and about how exporters are responding to the current conditions.

Expanding Iskraemeco's presence in Asia

Our team attended Enlit Asia in Bangkok to share all the latest news about Iskraemeco's smart solutions, Symbiot, our powerful and future-forming data management system and the multiutility solution for near-real-time data management.

One of the largest eMobility projects in the City of Kranj, Slovenia

Iskraemeco and our recently acquired company GL Charge are pleased to partner in one of the largest eMobility projects in the City of Kranj. With our products and knowledge, we support the sustainable initiative of the City of Kranj to replace municipal vehicles with electric vehicles and introduce e-car sharing in municipal facilities.

IWA World Water Congress

It was a great pleasure to meet Mr. YB Datuk Haji Julaihi bin Haji Narawi, Minister of Utility and Telecommunications, and to present our smart water solutions at the IWA World Water Congress. Thank you for visiting our booth and a big thank you to all our customers and partners who have visited our Iskraemeco Digital Water team.

Iskraemeco's Global Human Resource Conference

We were happy and proud to host the first Iskraemeco's Global Human Resource Conference in Slovenia. We brought together experts from India, the UAE, Egypt, and Slovenia to align, share valuable practices, and build a common strategy. The main focus is to implement new ways to develop employees, measure performance, and strive for consistent improvement of the teams.

International MBA students visit Iskraemeco

The group of MBA students from the global program of the EDHEC Business School in Nice visited Iskraemeco. Lara Šarabon Štojs, Gregor Kita and Mojca Volf presented Iskraemeco, our activities, projects and sustainable development to the group. This was followed by a discussion and presentation of the challenge, for which the students presented their findings and solutions.

Summer internships 2022

We were thrilled to host the 2022 summer internship at Iskraemeco in Egypt, because we strongly believe in our business and social responsibility. Our talented teams have been helping students and young talents develop their careers and engage in a vibrant environment that will strengthen their motivation to study, grow and discover new opportunities.

Global Management Conference 2022

During our two full days in Frankfurt with the global team representing seven different regions, we took an in-depth look at a range of topics and new business areas and shared insights from around the world. The focus was on the energy transformation, e-mobility, smart water management and digital platforms.

Honorary Doctorate for Eng. Ahmed El Sewedy

We are proud to announce that Eng. Ahmed El Sewedy, President and CEO of Elsewedy Electric, was granted an Honorary Doctorate at the annual convocation ceremony of Amity University Dubai, on the 18th November 2022. Eng. Elsewedy was awarded the doctorate of philosophy in view of his significant contributions towards bridging the gap between businesses, academia, and society, via the establishment of Universities, as well as Elsewedy Technical Academy (STA). The STA's working under the umbrella of the Elsewedy Electric Foundation, a non-profit organization, is a long established academy for technical and vocational education, this initiative aimed to improve the technical education and training in order to have a better connection between the technical school and the professional work environment, by providing an enhanced educational program focusing on training the students and developing their skills in a real work environment.

// BRINGING INTELLIGENCE TO ENERGY

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