



ensto today

STAKEHOLDER MAGAZINE 2023

ENSTO EXPANDS: **NEW MARKETS & TECHNOLOGIES!**

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ensto today

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From the Editor

NEW LOOK, SAME SOUL

Ensto has changed a good deal over its 65-year history, but perhaps never as much as in the past five years. In 2018, the third generation of owners took control of Ensto. In 2021, we made the biggest decision in the company's history and divested Ensto Building Systems. In 2023, we have a new CEO. We are concentrating as never before on being a leading expert for distribution system operators.

This issue of *Ensto Today* is all about that change. You'll read about who's leading us, where we've invested, and about our people and technology that are the key drivers of that change. And you'll read about what's going to guide us in the change that's yet to come.

But there's one thing that hasn't changed: our values. Today, Trust Capital, Creativity, and Winning Together make up our core values. They are all part of a Finnish family company's unwavering commitment to live up to the vision its founder had 65 years ago.

Pia Hänninen
Head of Brand, Marketing and Communications

DEFINING THE 'HOW'

Ensto's new CEO, Markku Moilanen, has inherited a set of core values and a clear goal. His challenge: Articulate the "how" to chart Ensto's course to growth and profitability.

✍️ Scott Diel 📷 Oscar Lindell

While the "what" and "where" (to do business) aspects of Ensto's strategy have been decided, **Markku Moilanen**, Ensto Group's new President and CEO, is now charged with developing the "how" of things: how to make it all happen.

"The 'where' is DSOs-plus," he says, "meaning that our customer base focus includes distribution system operators, but also other utilities and even some industrial customers who have electricity distribution networks. What's left to do is define the 'how': Which geographies? Which technologies? Which part of the value chain? That's the work we're going to do."

CORE VALUES

However Ensto defines the "how," one thing remains the same: "The world changes, the company changes, but our values don't change," Moilanen says.

"Trust capital has always defined Ensto, our relationship with employees, customers, and surrounding society." Creativity and innovation is another enduring value. "Enso Miettinen was an innovator, both in production and in products. And also winning together. We win over the customers and win their trust. We win over our team members. We win over ourselves sometimes, if we're having a tough morning."

"And of course there's sustainability. In Ensto's time it wasn't part of our slogan, but Ensto has always been sustainable. For me, integrity toward the environment is sustainability, solutions for ourselves and future generations that help the world use electricity in a more sustainable way."

ENSTO TODAY

To Moilanen, who assumed his post on June 1, Ensto's core values are a critical foundation on which to build a future in an environment where everything is fluid.

Moilanen's work for his doctoral degree dealt with industry evolution. He speaks of survival, which is critical to family companies like Ensto. And even the biggest, he says, have to change to

survive. "Nokia once made rubber boots, then mobile phones, and now they make something else."

Managing change is tricky in the electricity distribution business which, despite its appetite for tech solutions, Moilanen says is still in many ways quite traditional, "Yes, it's tech-oriented, but on the other hand it has a high level of standards, and strict demands for security and reliability, which makes the engineers in the industry often conservative – with a need to see things before they'll believe them. What is great is that we're engineers, too, and our engineers can prove to them that our tech works."

ENSTO TOMORROW

"With same spirit of creativity and innovation, serving customers, winning together, we need to look forward and have a dialogue with customers and wider stakeholders, including regulators, politicians, and industrialists. Where's the world going? What do we need? What are tomorrow's challenges? We'll listen to stakeholders. Give them our views."

That dialogue will help Ensto focus on innovation in areas where it can solve both today's and tomorrow's challenges. "I believe we'll see new technology differentiating Ensto more than ever before. The latest acquisitions, like Arcteq and Protrol, are good examples. We'll develop these internally together with our partners, and also examine opportunities through mergers and acquisitions."

As early as his first week at Ensto, Moilanen emphasized profitability, competitiveness, and the right to grow as components of a great workplace. "The right to grow is to understand that growth takes investments. If we enter new geographies or develop new products or acquire a company, these all need investments. And that money comes from the profits. And a competitive, successful, developing and growing company is a good place to work." ♦



MARKKU MOILANEN

Work experience:

SAS Institute, Fortum Corporation, Ramboll Group, YIT Group

Education:

Ph.D. (Tech.) Helsinki University of Technology; M.Sc. (Tech.), Helsinki University of Technology

Personal:

Married to a mathematician. Has four adult children and two grandchildren (all boys). He enjoys skiing, hunting and, like every good Finn, felling trees with a chainsaw.



COME AS YOU ARE



Marjo Miettinen on why a culture of diversity, equity, and inclusion is a prerequisite for both thriving in business and solving big problems facing the world.

📷 Scott Diel 📷 Oscar Lindell

The share of female applicants for technical- and IT programs in universities in Finland is higher than ever, women representing from 20 percent to nearly 40 percent of applicants depending on the program. **Marjo Miettinen**, Ensto's Chairwoman and one of Ensto's owners, deserves some credit for this.

In 2013, she and four other prominent ladies in the tech world founded Women in Tech Finland to inspire more women in the technology industry and to stimulate discussion about the choices related to study and occupation. The very first conference was to a packed house, and today, to avoid turning applicants away, the conference may be joined remotely online.

Miettinen's mission wasn't entirely altruistic: she wanted more women to come to work in her companies, as well. And she's still not satisfied. Ensto's goal is not only growth, but to contribute to tackling climate change with smart technologies for electricity distribution. And that requires a new way of thinking and working, which she believes cannot take place without diversity.

NOT ENOUGH DIVERSITY

Ensto has a formal target of having one-third of senior positions filled by women and other genders by the year 2025. Currently, women occupy 17 percent of senior positions.

"When I talk to young women, they say they want to be involved in solving climate change," says Miettinen. "This could be why women are interested in tech. They want to solve the big problems. I'm not trying to fill all the positions with women, but rather I'm making the point that we need all genders. And without a clear target nothing happens. Diversity and inclusion are positive. You get more."

continued ▶



“WHEN I TALK TO YOUNG WOMEN, THEY SAY THEY WANT TO BE INVOLVED IN SOLVING CLIMATE CHANGE. THIS COULD BE WHY WOMEN ARE INTERESTED IN TECH.”

MARJO MIETTINEN
Ensto's Chairwoman

Miettinen says diversity and inclusion have always been a part of Ensto's roots. "My father, Ensto's founder Ensio Miettinen, used to say that 'the only people we don't want and need are men who wear dark suits.' By that he meant to avoid people who think they're better than others. Of course we all sometimes wear dark suits, but his point was to have a 'come as you are' culture, to try to hire genuine people, those comfortable with themselves and others."

"By the end of the 1970s, Ensio understood that machines needed people. He was reading philosophy and thinking about creating a workplace that was inspirational and innovative. If we want to solve the big problems of the world, we'll need the right team. And getting that team requires diversity, equity, and inclusion."

BIG AMBITIONS

Ensto's core values have enabled it to remain true to itself while its face and its business continue to change. "A small family business that once worked extensively in the East is now aiming to be a big family business working in West," says Miettinen.

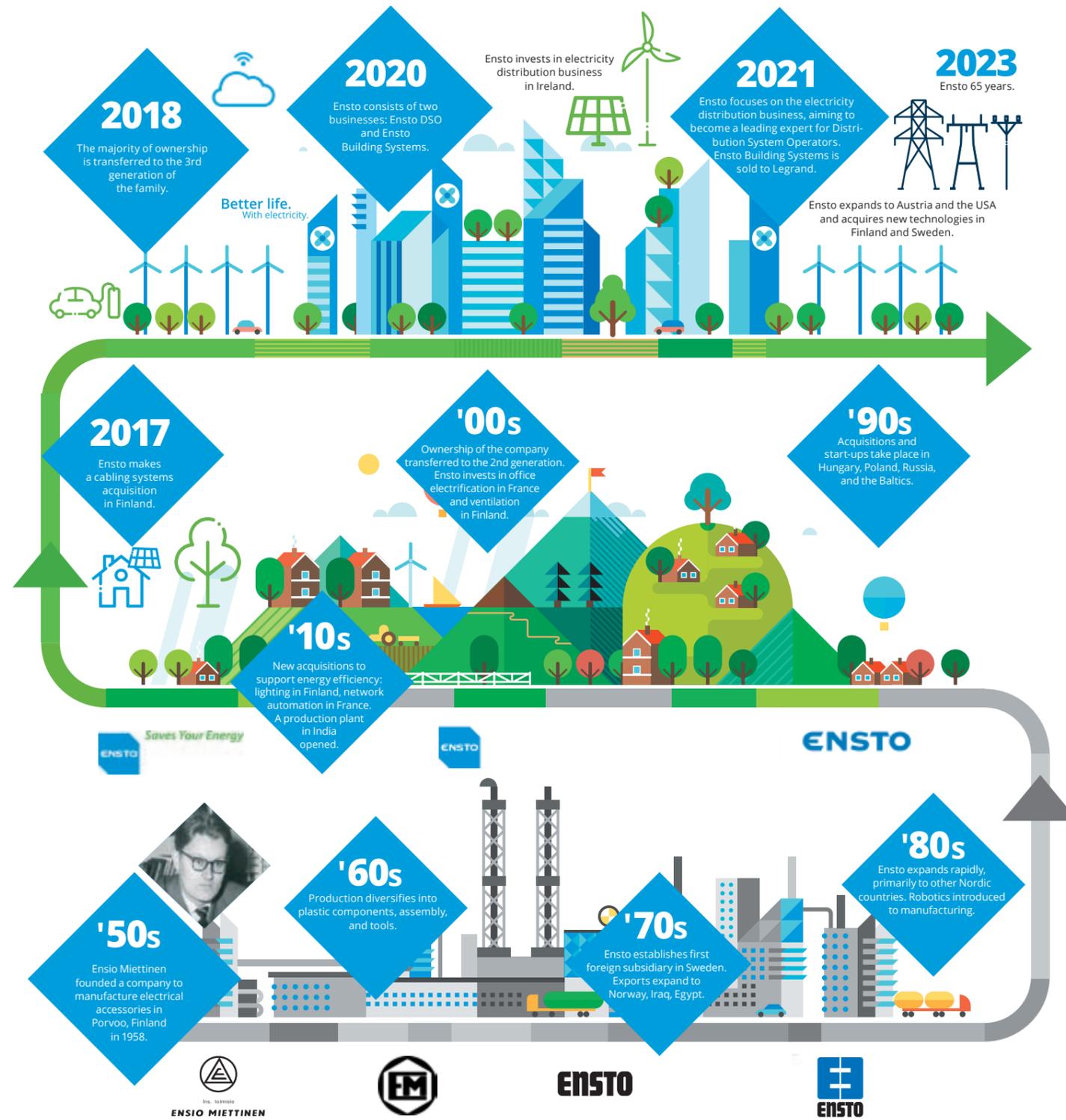
Conditions are favorable for that to happen. Ensto has streamlined its business and has the financing for growth. And the market is ready, too. "Every day you read an article about electricity and energy," says Miettinen. "Since it's expensive now, people are keen to understand why. They're interested in what's behind the socket in their wall."

What remains is to continue to assemble the diverse team that will carry Ensto toward its goal. "It won't be easy. It has never been easy," says Miettinen. "Energy is a conservative business. But the modern utilities and other businesses are all moving in the same direction." ♦

65 YEARS

HAPPY BIRTHDAY, ENSTO!

A profile of Ensto's 65 years in the business.



THE BEST ARC PROTECTION IN EXISTENCE

No hyperbole here: Arcteq's patented solutions are literally the best in the business. Now all that's left is to tell the world.

✍️ Scott Diel 📷 Christoffer Björklund, Oscar Lindell

Whenever there's a power discharge between two conductors, there's risk of an arc fault that can trigger an electrical fire. But despite this danger, the solution in much of the world has been to rely on a fuse and hope for the best.

"Forgoing arc flash protection is like having a company car without seat belts or airbags," says **Juha Arvola**, Arcteq's Managing Director, who notes that zero arc protection has been the norm in much of the world. But, given the evolution in both technology and safety culture, that is changing, and Arcteq solutions are having their day.

WHAT ARCTEQ KNOWS (THAT THE COMPETITION DOESN'T)

Arcteq, part of Ensto Group, has two product lines under the solutions umbrella of protecting power grids. The first is arc flash protection products for substations. The second is pro-

tection relays, intelligent electronic devices that protect the grid from faults, shutting down the smallest section of the grid possible, keeping humans safe and SAIDI and SAIFI numbers at their best.

COMPLEMENTARY CULTURES

Arcteq got its start in 2010 with five founders, Arvola among them. "It was a private company from the start. Ensto was a customer from the early days, since Arcteq made smart controls for Ensto's Auguste." (Arcteq puts the smart in Auguste's smart recloser). In 2016, Ensto acquired a minority stake in Arcteq, and then in 2021 purchased 75 percent of the company.

"The companies are complementary in many ways," says Arvola. "We both are family- or privately owned. We both focus on DSOs [distribution system operators]. Arcteq is stronger in some areas and Ensto stronger in others. Also,



Juha Arvola, Managing Director of Arcteq

Ensto is fully committed to smart technology, and there's nothing smarter than a protection relay."

Ensto is fully committed to smart technology, and there's nothing smarter than a protection relay."

THE DREAM

Like Ensto, Arcteq has ambitious growth plans for the next five years. Its goal is to double its turnover to 20 million euros. It currently employs 45 and sees its size as a key advantage. "We're more flexible, and this size allows us to offer better customer service," says Arvola.

In addition to its headquarters and manufacturing operation in Vaasa, Finland, Arcteq has offices in the United States and Dubai, plus sales representatives in 50 countries. "Our dream when we started," says Arvola, "was to see the Arcteq lights and logo in all major countries, to be a competitive alternative in selected segments to huge players like ABB and Siemens. We don't plan to grow tenfold, but we do want to contribute in a meaningful way to making electricity distribution safer." ♦

DON'T GET DISTRACTED

Despite the fact he possesses the best technology, Arvola doesn't like to get distracted by it. "Technology has always been the starting point for us but it's not our goal. We're after solutions with a good base tech." He points out that Arcteq protection relay solutions are incredibly flexible, which means they make sense for a grid that is constantly changing. "We are ready for all the changes that are coming."

Well over 90 percent of Arcteq products are sold in



“
ARCTEQ IS STRONGER IN SOME AREAS AND ENSTO STRONGER IN OTHERS. ALSO, ENSTO IS FULLY COMMITTED TO SMART TECHNOLOGY, AND THERE'S NOTHING SMARTER THAN A PROTECTION RELAY.”
JUHA ARVOLA
Arcteq's Managing Director

ENSTO'S AMERICAN EXPANSION

Ensto invests for triple-digit growth in the USA.

📷 Scott Diel 📷 Shutterstock, Ensto

The US grid is massive, aging, and often unreliable, but there are ambitious plans for upgrades — meaning the US market has probably never been more ready for Ensto products.

In 2020, the average American experienced just over eight hours of power outages, while the German average, for example, was a mere 12 minutes. What is more, the US grid simply cannot keep pace with the needs of the American population.

“The US grid is slated to need double its current capacity by 2035 to keep up with the needs of the consumers,” says **Alexis Dennis**, Ensto President for North America. But the grid is in such bad shape that it’s not yet ready to even support electric vehicle charging stations. “If only half the population got EVs,” says Dennis, “it would crash the grid.”

MORE POWER

Dennis says the solution is a combination of building new lines and getting more power out of the existing grids. “The scale of a brand-new grid is simply overwhelming and something that’s not doable. Even the biggest investor-owned utilities don’t have the manpower to meet the needs. A thousand miles per year isn’t manageable.”

Part of the solution is a massive effort at the federal level. To expand and modernize the grid, the US Department of

Energy announced 13 billion dollars of financing, which is said to be the largest single direct federal investment ever in transmission and distribution infrastructure.

“The US is so vast,” notes Dennis. “We have different issues in different places: wildfires in the west, ice storms in the east, and hurricanes in the south. So far, Ensto has worked primarily in the west, but our products are capable of solving problems in other regions, as well. Ensto can help improve the sturdiness and reliability of the grid across the entire country.”

ENSTO SOLUTIONS

Dennis sees real potential for Ensto fully-covered conductor solutions and the arc suppression coil (ASC). “The ASC has huge potential for 2024 and beyond for arc flash mitigation. Wildfires are the relevant application in California, but it’s hurricanes in Florida. We have to market the ASC regionally, according to the primary need of the area.”

Arcteq protection relays, and their arc flash mitigation and arc quenching technologies are already sought after. “People recognize these products and are asking for them.” Dennis says current lead times for US- or Mexico-manufactured equivalent products is 30 to 40 weeks. Ensto can deliver in two to four weeks. (Yes, two to four weeks.)



ENSTO IS ALREADY INSIDE CUSTOMERS' GRIDS IN THE UNITED STATES. COMBINE OUR EXISTING CUSTOMER BASE, OUR LOCAL WAREHOUSE, OUR SUPERIOR LEAD TIMES, AND THAT'S WHAT'S GOING TO SELL US.

ALEXIS DENNIS
Ensto President for North America



Underground cable accessories, particularly hot- and cold shrink technology (called splice kits in the US) also suffer from long lead times. Dennis says there are non-IAAA/ANSI standard products that US customers are interested in because they don't want to wait 40 weeks. She has made the business case for IEEE arresters on the American market, made by Ensto in Europe with final assembly by Ensto in the US. “These should be available on the US market by the first quarter of 2024.”

“My primary focus,” she says, “is going to be our established install base. Ensto is already inside customers' grids in the United States. Combine our existing customer base, our local warehouse, our superior lead times, the fact that we own our own lab, testing, and manufacturing facilities which enable us to hold ourselves to the highest quality standard – all that is what's going to sell us.”

BUDGETED GROWTH

Ensto already has millions of dollars in annual sales in the US, but this, in Dennis's opinion, is only scratching the surface. Forecasts for next year call for a 43-percent increase in sales. For 2025, the plan calls for an increase of over 500 percent.

This is not small change, and to support it Ensto has hired a team in the US to fully support its business and customers, including a sales manager, a technology product manager and support staff, a customer service manager, and warehouse manager. Ensto has also invested in a 20,000 square-foot (2,000 square-meter) warehouse and office in McKinney, Texas, near Dallas.

Texas offers good tax incentives to businesses, and it is also centrally located, equidistant from the coasts and situated on two major highways, one to the Houston port and the other to Dallas Fort Worth International Airport, the port and airport constituting a major transportation hub for North America.

DON'T MESS WITH TEXAS

Another thing Texas offers is Alexis Dennis herself. Dennis, a native Texan, comes from an engineering and sales background. She has worked for Eltek, GE, and ABB, where she designed and developed products for the US market from the ground up.

Dennis recently discovered that her great grandmother is from Kankaanpää, Finland. That may be where she gets part of her *sisu*, that famous Finnish attribute sometimes

translated as grit, a quality that's served her well as a woman in the utility business, which is traditionally a heavily male-dominated industry.

Her personality and values also seem to fit well with Ensto. “I like the feel of Ensto. There isn't the traditional hierarchy and people don't make a big deal over titles, and that suits me just fine. Also, I'm not interested in the used car salesman approach of telling someone whatever it takes to make the sale. I'm interested in finding out how to build a relationship, and help our customers solve problems they're facing.” ♦



Ensto team in Texas.



From left: Nha Phan, Yechan Kim, Alexis Dennis, Mika Haikola, Jonathan Buckley, Amelia Smith, and Kristiene Gong.

POWER COUPLE

Ensto and UCLA join forces to examine market opportunities for the California grid.

📷 Scott Diel 📷 Courtesy UCLA

Ensto has already taken its first step into the US market. Its business generates millions of dollars in sales of wildfire-fighting technology to California customers. Its early research also indicated that all systems were go for the US market.

But because long-term success in the US market is hard won, a second opinion is never a bad thing, especially when it comes from people at a highly-ranked graduate business school like the UCLA Anderson School of Management.

Thanks to a project partially sponsored by Finland's government, Ensto was able to participate in UCLA's Global Access Program, a capstone project for students and the culmination of the fully-employed MBA program.

Five students, all with prestigious work experience, expressed preference for working with Ensto: **Amelia Smith** (Northrop Grumman), **Nha Phan** (Apple), **Kristiene Gong** (San Diego County Water Authority), **Jonathan Buckley** (Adobe), and **Yechan Kim** (US Navy). Their mission: to assess Ensto's entry into California with its solutions to reduce wildfire risk in electricity distribution and to develop a market entry strategy and business plan.

HUNDREDS OF INTERVIEWS

The five began their project in mid-July 2022, meeting weekly with each other and biweekly with Ensto's **Mika Haikola**, SVP, Underground Networks Business and Demand Creation. **Alexis Dennis**, President of Ensto North America, also made herself available.

"Ensto gave us full access," says Jonathan Buckley, speaking on behalf of the UCLA team, "letting us talk to anyone we wanted, from finance to product development. Because of the technical aspect, this was a harder lift compared to many of our colleagues' projects."

The team also spoke with people outside of Ensto, conducting over 100 interviews among California utilities, as well as in states that monitor California closely, like Washington, Oregon, Colorado, and Utah. The team spoke to existing Ensto customers, and also conducted a survey with electrical engineers from the utility business.

"The people they spoke to were EVPs and C-level people," says Haikola. "It would have been impossible for me to reach these people, but when someone from UCLA calls they were available. It's something we could never have accomplished as Ensto alone."

CONCLUSIONS

The team presented its findings to Ensto on the UCLA campus in early December. Their conclusions?

"California utilities have big budgets because of the state's inverse condemnation law, which puts the utility on the hook for billions of dollars if it causes even a single percent of a wildfire," says UCLA's Jonathan Buckley. "But they're in a difficult position to evaluate product offerings against all the other solutions on the market."

So the UCLA team recommended that Ensto focus heavily on communicating effectiveness data about its

products and building relationships. "A big barrier in California is bureaucracy. The industry there is relationship heavy. But once you have those you can sell. Thanks to Ensto products already in use in California, Ensto has some real cachet."

"The team's work served to validate a lot of the work we'd done, as well as confirm some of our instincts," says Alexis Dennis.

Haikola adds that the team's work also demonstrated that the market may be wider than Ensto had originally anticipated. "We understood that there are a number of other players that are potential customers, or smaller customers that plan differently for the future. They really described the business environment and its dynamics in great detail."

NOT EVERYTHING ROSES

Not all of the 50 companies, including 14 from Finland, who participated in the capstone project received good news. In some cases, the UCLA teams concluded that the cost it would take to establish a market presence in the US wasn't worth the investment. Or they discovered the US market was already saturated with similar products.

"I was extremely happy," says Haikola. "I was probably the happiest of those from the 14 Finnish companies." He was not only pleased with the conclusion; he was thrilled with the quality of the work. "I said 'Holy Moly' when I saw their CVs. And then the level of competence and interest on their part was just amazing."

Haikola was so happy that at the closing dinner he told them to give him a call if they were looking for a job. For the near future, however, the team members have decided to stick with their current occupations. But even though they won't be employees, it's clear the world has five new Ensto ambassadors.

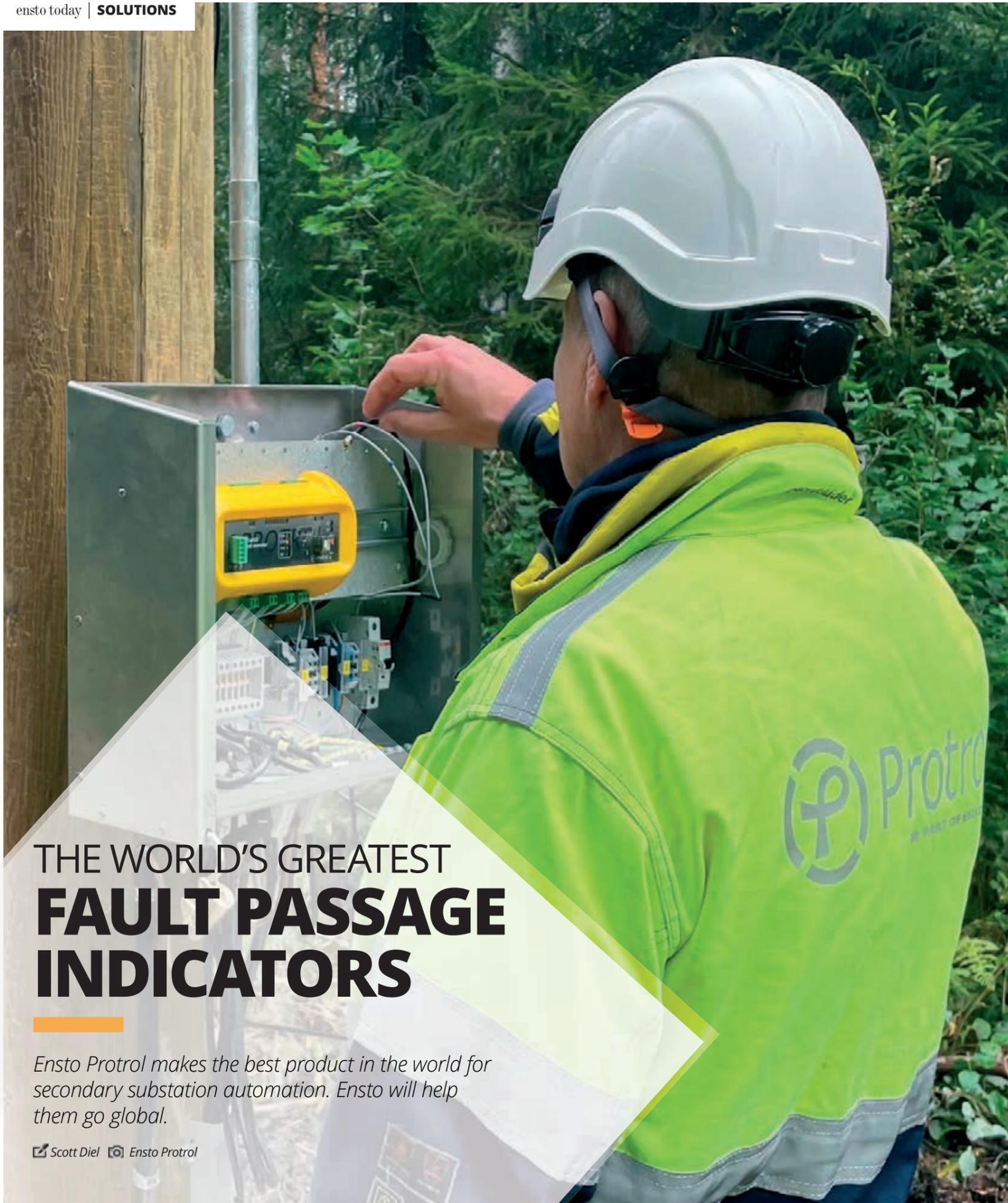
"Our relationship with Ensto was very transparent and the access was incredible," says Buckley. "We were also impressed by how it operates as a family business and how the third generation works together. Most family companies aren't able to say that." ♦



OUR RELATIONSHIP WITH ENSTO WAS VERY TRANSPARENT AND THE ACCESS WAS INCREDIBLE. WE WERE ALSO IMPRESSED BY HOW IT OPERATES AS A FAMILY BUSINESS AND HOW THE THIRD GENERATION WORKS TOGETHER.

JONATHAN BUCKLEY
Technical Account Manager at Adobe





THE WORLD'S GREATEST FAULT PASSAGE INDICATORS

Ensto Protrol makes the best product in the world for secondary substation automation. Ensto will help them go global.

✍️ Scott Diel 📷 Ensto Protrol

In the early 2000s, there was much discussion in utility companies all over Sweden, and a hard look was given to how secondary substations might look in the future, with special concentration on what kind of equipment would be necessary to gain a more flexible electricity distribution network. An industry work group defined the specs, and engineers went to work.

Two of those engineers were **Bo Almér** and **Torbjörn Karlsson**, who had recently created a company called Protrol, a portmanteau combining “protection” and “control.” (Sorry, fans of northern legends, the name has nothing to do with trolls.)

ENTER GUDRUN

Then Gudrun came along and gave underground cable its push. The cyclone that hit Scandinavia in January of 2005, with winds gusting up to 165 kilometers per hour, was equal to a Category One hurricane. In Sweden alone, Gudrun destroyed 75 million cubic meters of forest and caused 415,000 homes to lose power, some for several weeks. It was one of the biggest environmental disasters in Swedish history, and it caused rural areas in Sweden to lay cable underground with a new sense of urgency.

“The real challenge with putting utility lines underground is finding the fault,” says Karlsson, Managing Director of Ensto Protrol. “With overhead lines you knew from experience that it’s probably the trees on the hill that need cutting back again.” But underground was anybody’s guess. “The line might be 20 kilometers long. Where’s the fault? It could take 12 to 24 hours to find it by testing.”

SMART TECH FOR UNDERGROUND

So the Protrol engineers created smart technology to identify and isolate the faulty section and feed power back to customers within minutes. “Our novel idea was to measure three-phase currents to detect the earth fault current,” says Karlsson. “The real benefit is that you don’t need to measure voltage, and that makes the secondary substation much more cost effective.” Protrol patented their technology in Sweden and Europe.

Protrol’s fault passage indicators (FPIs), its IPC402x devices, are of two types. The more basic application communicates with a control center, which takes the next step to isolate the faulty section. In the more advanced application, detectors communicate with their closest neighbor to take immediate action, isolating the fault and minimizing the outage time. Protrol’s FPI technology includes overcurrent, Protrol’s earth fault, non-directional earth fault and phase break detection functions. This technology is applicable not only in underground cable, but for overhead lines, as well.

If this tech talk has lost you, then take it from Ensto’s Harri Tuononen, Ensto Finland’s Sales Manager, Network Automation: “It’s the only fault indicator of its kind I’ve seen that works flawlessly. It’s everything you need outside the primary substation.”

A FAMILY COMPANY, NOT A HOLDING COMPANY

Of course, a lot of companies were interested in buying Protrol. “We were contacted by many potential buyers,” says Karlsson, “but they were usually venture capitalists who wanted to buy companies because they understood that the electricity business is good business. But we’d built the company, and we wanted to see that there was potential for growth.”

When Ensto came along in 2021 things made sense: Ensto



THE LINE MIGHT BE 20 KILOMETERS LONG. WHERE’S THE FAULT? IT COULD TAKE 12 TO 24 HOURS TO FIND IT BY TESTING.

TORBJÖRN KARLSSON
Managing Director of Ensto Protrol

was a family company, not a holding company. And Protrol fit into Ensto’s vision to become a leading expert for DSOs. “With Ensto there really is no overlap in our businesses. We offer a smart technology that makes sense for their business, and they’re able to offer us access to the rest of the world.” In December 2021, Ensto concluded the purchase of 70 percent of Protrol.

CHALLENGES

Ensto Protrol is based in Mölndal, Sweden, outside Gothenburg, and has 10 employees. It’s the market leader in Sweden, and now their products have been well received in other Ensto markets, especially in Asia. The key to success, says Karlsson, is to stay ahead of the competition and protect your IP.

Karlsson says our greatest challenge right now is preparing to export. “You’ve got to understand the requirements of each market. There are no standard solutions, and you can even have different specs within a single country.” And as it expands, Ensto Protrol must stay focused on its business in Sweden where it’s the market leader in the automation of secondary substations.

But all of these are problems of the “good” variety, the very reason it partnered with Ensto, a company that could share the burden and accelerate taking Protrol products to the world. ♦



Torbjörn Karlsson, Ensto Protrol

EXTREMELY ACCURATE FAULT DETECTION

How does the world's most accurate fault indicator work in practice? Can it really help detect overcurrent and earth faults faster, more efficiently, and more economically?

KSS Oscar Lindell

Overcurrent detection is a common way to locate faults in medium voltage electricity distribution networks. A new addition to the Ensto family, Ensto Protrol, has tackled the problem of earth fault detection, which has so far been a challenge, and launched its fault indicator, which detects earth faults only by measuring phase currents. The device has a patented, highly accurate algorithm.

TESTING PROVES IT

The electricity distribution company KSS Verkko Oy was the first company in Finland to pilot Protrol's fault indicator, which detects overcurrent and earth faults of overhead line and underground cable networks with unprecedented accuracy and correctness. The product has already been tested in Sweden, but now it was time to test it also in Finland. The earth fault tests ordered by KSS Verkko were carried out with LOFA current sensors intended for overhead lines and they were carried out by **Jesse Lehtonen** from the electricity distribution service company, Maviko Oy.

DELIGHTFUL RESULTS

Harri Tuononen, Sales Manager of Ensto's network automation products, says, "Finland's first Protrol fault indicator was installed at KSS Verkko's Kouvola site. The goal of the earth fault tests was to be able to prove that the device really works as promised."

The sensitivity of the device to detect an earth fault was tested with several resistors simulating faults of different sizes. The indicator measured up to 0.6A fault current accurately and Protrol's algorithm also correctly deduced the direction of the failure. The indicator detected a fault of 16,000 ohms in the network, which is even more accurate than the faults detected at the substation.

"The test results were in line with expectations and very promising," says Tuononen. "They proved that the device may well be the most accurate on the market! We left the settings of the fault indicator such that they are close in time and current to the settings of the substation protection. In this way, the current sensor only indicates those faults that are detected at the substation."

SHORTER INTERRUPTIONS EXPECTED

Kai Kuvaja, Technical Service Director at KSS Verkko Oy, thanks Ensto's Tuononen for introducing a new kind of fault indicator and confirms the good news: "The test results were impressive, and it is great to have new good products on the market! The more information we get from the field, the faster faults can be repaired, and the supply interruptions experienced by customers become even shorter. This will be emphasized when there are more fault sensors in the network than at present."

Kuvaja says that he was immediately excited when Tuononen described the accuracy of the new product in detecting earth faults. "We visited Ensto to familiarize ourselves with the device in more detail and, after the visit, decided to pilot the fault indicator in Finland. Now

ENSTO'S PRODUCT IS CLEARLY MORE ACCURATE THAN OTHER PRODUCTS WE HAVE TESTED. THIS GIVES US IMMEDIATE ACCESS TO THE RIGHT AREA TO FIX THE FAULT.

KAI KUVAJA
Technical Service Director at KSS Verkko Oy



we know that it really delivers on all promises. The great thing is that fault locating in Ensto's product is clearly more accurate than with other products we have tested. This gives us immediate access to the right area to fix the fault, which naturally shortens the duration of the distribution outage."

CONTINUATION OF COOPERATION

The fault indicator cooperation between Ensto and KSS Verkko Oy will continue, and the products are planned to be installed elsewhere in the overhead line network. According to Kuvaja, the long-term cooperation between the companies is strongly linked to trust capital: when there is trust, it is easier to try new solutions. An effective fault indicator is planned to be installed in the underground cable network in late summer, this time to a secondary substation in a new construction. There, Protrol's solution is used not only for fault indication but also to control motor-controlled disconnectors.

SUITABLE FOR FINLAND AND OTHER MARKETS

Distribution system owners have a constant need to detect faults causing distribution outages and restore the power as quickly and efficiently as possible. The extremely accurate fault indicator brings much-needed efficiency, speed and cost-effectiveness, and the best part of course, satisfied customers—electricity users. Ensto Protrol's products are well known in the Swedish market for 20 years already and are now increasingly attracting international interest. ◆

Harri Tuononen and Kai Kuvaja checking Finland's first Protrol fault indicator at KSS Verkko's Kouvola site.



ENSTO'S AUSTRIAN FAMILY

Georg Kastenberger was the owner of Röhrbacher Technik, a supplier of infrastructure systems along the process chain for the generation, transmission, distribution, and use of energy to Austrian distribution system operators (DSOs). He was content and not in the market for a second shareholder or business partner.

It was a family business, one he'd acquired in 2013. Kastenberger's wife, **Stephanie**, also worked in the business, running the backroom operations, and serving as CFO. The family had a good thing going and Kastenberger wasn't interested in taking on another shareholder.

NEVER SAY NEVER

In the midst of the pandemic, Kastenberger was contacted by a party representing a family company in Finland, one which was interested in entering the Austrian market. The market had changed, so Kastenberger decided to hear them out.

The Ensto family expands to Austria, bringing growth and establishing a foothold in German-speaking lands.

✍️ Scott Diel 📷 Georg Kastenberger, Stefan Priesching

Austria's Kölnbrein Dam, part of a complex with an installed capacity of 1,028.5 MW and an annual generation of 1,216 gigawatt-hours.

Although Röhrbacher was highly respected in Austria (its founder, Friedrich Röhrbacher, was a legend among DSOs), it mainly served smaller operators. The top ten DSOs preferred to deal directly with manufacturers and have a direct impact on the product. Röhrbacher was not a manufacturer.

Austria's largest DSOs had been dramatically affected by the pandemic. Delivery times for products were so long that sometimes sellers refused to quote lead times. Prices fluctuated wildly, usually in the upward direction.

What Ensto offered was manufacturer status, plus the ability to supply made-in-Europe products with what seemed like lightning-fast lead times. What Ensto needed was a local partner, a way to enter the very tight-knit Austrian market. And Ensto was also a family company with values similar to Röhrbacher's. Kastenberger gave the idea serious consideration.

REMARKABLE TRUST

In June 2021, Ensto acquired majority of Röhrbacher, and the company became Ensto Röhrbacher Technik GmbH.

And, characteristic of the times, the deal took place without the two parties ever meeting in person due to pandemic restrictions. "There was really an incredible level of trust by both parties," says **Mika Haikola**, Ensto's Senior Vice President, Underground Networks Business and Demand Creation.

With the papers signed, Ensto now had family in Austria.

NOBODY KNEW

What happened next no one could have predicted. "I didn't know," says Kastenberger, "and Ensto didn't know. Nobody knew what would come out of Corona." The top Austrian DSOs were now ready to receive Ensto Röhrbacher.

"Given supply and pricing problems, the market was very dissatisfied and open to a new manufacturer," he says. "In normal years, when big manufacturers could offer stable supply and prices, it would have been difficult to enter the market. The DSOs would have said, 'That's interesting but let's see.'"

But under post-pandemic conditions, DSOs invited Kastenberger's team to their facilities to do test installations. Wiener Netze, a top Austrian DSO, commissioned full type testing of Ensto Röhrbacher's cold shrink and screw products.

"We are now invited to big tenders, and we are winning them," says Kastenberger. Recently, Ensto Röhrbacher won a large underground tender for all-in-one joints worth 400,000 euros per year for four years." Of course, both Ensto and Röhrbacher knew they were a good fit. But nobody knew how good.

THE FUTURE

At the very end of the supply chain is the consumer, whose appetite for electricity continues to grow. To support this, the Austrian grid is undergoing a massive upgrade. "DSOs were previously building about 200 new substations per year, but now they'll have to build 800 per year to meet new demand," says Kastenberger. "They are massively investing in new cables, new substations, new everything."

That kind of expansion can't happen if DSOs don't have the right partners. And Ensto Röhrbacher has found itself



WITH A FAMILY COMPANY LIKE OURS, THE PATH TO SOLUTIONS IS SHORT. THINGS AREN'T COMPLICATED. WE ARE FAST, AGILE, AND ACTIVE. AND THIS IS A VERY BIG KEY VALUE.

GEORG KASTENBERGER
Ensto Röhrbacher Technik GmbH

with the right solutions at the right place at the right time. And Kastenberger is finding out that Ensto Röhrbacher is just the right size, too. "With a family company like ours, the path to solutions is short. Things aren't complicated. We are fast, agile, and active. And this is a very big key value."

NOT GOING ANYWHERE

When Kastenberger sold his shares to Ensto, there was speculation in Austria that he and his wife might be retiring. Although that was never part of the plan, some still refused to believe him. By now, it's become evident to all that they're going nowhere.

Röhrbacher's turnover last year was 1.8 million euros, and the five-year plan calls for reaching five or six million and adding new salespeople in the market to establish and stabilize sales of the classic Ensto product line.

"We're one big family and we act like one," says Kastenberger. "And we're only now getting started." ♦



Ensto Röhrbacher's Georg and Stephanie Kastenberger.

MODERN TECHNOLOGY AND OLD-FASHIONED LISTENING

Since the need to modernize the grid vastly overwhelms available resources, DSOs are challenged with selecting the best solutions for the most pressing problems to make the greatest overall impact. In order to create network automation products and smart solutions they need most, Ensto's mission is to listen carefully.

📷 Scott Diel 📷 Oscar Lindell, Marion Jimenez



Auguste switch disconnecters isolate automatically a faulty part of a network and thus allows to re-energize all the remaining healthy network.

Distribution system operators (DSOs) find themselves between a rock and a hard place. Their utility networks are confronted with challenges never before seen in history: in the face of global warming, there is pressure to reduce our carbon footprint and to increase grid resilience yet, at the same time, consumers are using more energy than ever before.

Each year, regulatory bodies impose stricter requirements on DSOs for quality of electricity, measured by the SAIDI and SAIFI indices, and each year DSOs must lower the duration and frequency of interruptions and reduce the number of customers impacted. Given limited resources, they must choose their battles carefully, implementing the right solutions, those which can deliver the greatest impact. Those unable to reach the SAIDI/SAIFI levels agreed with regulators risk high financial penalties and the dissatisfaction of end-users.

HELPING UTILITIES CARRY THE LOAD

Network automation and smart technologies are available which can solve these problems for DSOs. But to modernize an entire network is cost prohibitive, and so DSOs must make sure their investments in technology, as well as their linemen in the field, are in the right places.

“Our ultimate role at Ensto is to help DSOs move from fault-driven maintenance to where they can predict the faults and optimize the costs and resources needed for daily operation,” says **Roman Jaloza**, Ensto’s R&D Manager of the Smart Technology Team.

“Personnel costs are growing and you can’t afford to have teams roaming around checking equipment conditions and looking for faults. DSOs can’t do all the maintenance themselves. Over the past 65 years Ensto has gained experience and expert knowledge to help DSOs reduce costs with smart solutions.”

NETWORK AUTOMATION AND SMART SOLUTIONS

In a “dumb” network, a tree falls on a line in a medium-voltage network, and the DSO’s linemen must drive around the countryside looking for the fault. In this situation, the average outage duration is several hours.

But in a smart network, a tree falls on a line causing a fault, a sensor recognizes this, a load breaking switch and recloser isolate

the faulty section and almost simultaneously send a report to the DSO’s SCADA where the FLISR (Fault Location, Isolation, and Service Restoration) system protects the wider part of the network. The area without electricity is reduced to a minimum, the network is reconfigured in tens of seconds, the linemen know where to go, and the duration of complete outage is significantly shortened.

“Think of network automation as a group of devices which bring the possibility to manage network behavior,” explains Ensto’s **Pascal Pedrinelli**, Director, Product Management, Network Automation. “In this group of devices you’ll find sensors to collect measurements, RTUs, and central energy monitoring systems which analyze collected data and transmit it to SCADA so the DSO knows what’s wrong or what’s at risk and where.” Ultimately, he says, a smart network can self-adjust based on data, reconfigure itself, and even auto-repair. “Network automation and smart solutions are the natural solutions, of course, but they require long-term investments and integrations.”

SMART SOLUTIONS FROM FRANCE

“The historic precursor of some of Ensto’s solutions is a simple air switch disconnecter with no smart functions,” says Pedrinelli. “From this we developed products with more capacity and all-weather capabilities.” One product which came from this is Auguste, which ensures a network is open so repairs can be made with full safety. Produced by Ensto in Bagnères-de-Bigorre, France, Auguste is the only load-break switch on the market with the safe advantage of an embedded voltage transformer. Auguste can operate with 630 amps and is a very popular export product all over the world, especially in UK, Europe, Africa, and Latin America.

Auguste works perfectly with a recloser, which is a circuit breaker that’s smart. It automatically determines where the fault is and tries to reinstall the network itself. “If a tree branch brushes the line or there’s a bird on the line, the recloser can reinstall the network alone,” says Pedrinelli. “It’s robust in capacity to break power – up to 12,500 amps, 20 times more than Auguste.”

Another advancement that Pedrinelli’s team has made is in cybersecurity. “We have highly accurate sensors installed around the switch that collect data. At the bottom of poles we have control cabinets that manage data collected. These E-RTU cabinets observe the network and use amperometric and directional techniques to determine fault. We have a cybersecurity system in place for transferring the data to the SCADA system, making sure our



THINK OF NETWORK AUTOMATION AS A GROUP OF DEVICES WHICH BRING THE POSSIBILITY TO MANAGE NETWORK BEHAVIOR.

PASCAL PEDRINELLI

Director, Product Management, Network Automation



clients aren’t subject to a cyberattack. Our products today are protected and we follow the IEC 62351 standard.”

SOLUTIONS FROM THE NORDIC MARKETS

Farther north, Ensto in Finland also has a whole arsenal of products to make networks smart. On the safety side, Ensto Protrol, a Sweden-based company that Ensto acquired in 2021, produces fault detectors for over current and earth fault, with integrated remote terminal unit functionality.

“Protrol has a patented algorithm that is very accurate,” says **Harri Tuononen**, Sales Manager, Network Automation, Ensto Finland. “It uses only phase current measurements by affordable split core current transformers to detect earth faults directionally and selectively. It has many other functions and features, such as automatic fault isolation and transient fault recorder. It’s the only fault indicator of its kind I’ve seen that works flawlessly. It’s everything you need outside the primary substation.”

Arcteq Relays, a part of Ensto Group, is a Finnish company that makes protection relay products for global markets. “For decades Finland has been at the top when it comes protection relay,” says Tuononen. “I worked 10 years in primary substation and network automation commissioning and programming, and Arcteq is one of the simplest and easiest products to use. It is very accurate. Its arc protection is great.”

The latest technologies used in Arcteq’s relays give engineers a completely new range of solutions for any protection and control application, from utilities and power plants to wind power and heavy industry applications (offshore, marine), as well as industrial and institutional electrical systems.

Ensto in Finland also excels in the development of power quality, which make low-voltage grid power quality improvements. A Phase Balancer mitigates voltage unbalance in low-voltage distribution networks and improves safety at the same time. It’s an easy

and cost-effective way to enjoy safe and balanced electricity without worrying about light flicker or overloaded networks. A communication interface enables remote device and power quality condition monitoring and improves low-voltage network observability.

LISTENING MATTERS MOST

Despite this impressive array of products, the main challenge is keeping things simple for the customer, says Roman Jaloza, Ensto’s Smart Technology Team’s R&D chief. “Many smart devices that are currently on the market are too complicated. A good smart product has to be easy to use for end users. Logic and analysis need to be used more locally, in places where issues are present. It’s got to support the users with as much useful data as possible without requiring them to be IT experts.”

“One of Ensto’s goals is customer centricity. Ensto is on the customer’s side. We listen at the local level. We have connections with line workers. We get their opinions about our products, but we most want to hear about the challenges they face. Keep in mind it’s the line worker who installs and maintains the product. Overall, the added value of really smart products is seen across the DSO’s entire daily operations.”

It is possible to imagine a sci-fi future for smart networks. Ensto has already begun to investigate possible applications for artificial intelligence and machine learning in its products. And Ensto also is interested in the cloud. “But everybody puts it in cloud and uses big computation power to make analysis,” says Jaloza. “And this is useful in some applications. But that is only one side of the coin. To really be experts we need local analysis based on long-term experience. DSO customers expect a fast response. We make the analysis locally, bring intelligence to end devices and groups of devices, and then we have the fastest response.” ♦



WE MAKE THE ANALYSIS LOCALLY, BRING INTELLIGENCE TO END DEVICES AND GROUPS OF DEVICES, AND THEN WE HAVE THE FASTEST RESPONSE.

ROMAN JALOZA

R&D Manager, Ensto’s Smart Technology Team



Jenna Aarnio, Senior Laboratory Engineer, and a pair of cold shrink terminations tested in Ensto's laboratory.

PLAYING OFFENSE IN UNDERGROUND

To grow its underground business, Ensto is being selective about choosing markets and then coming in strong.

✍️ Scott Diel 📷 Oscar Lindell

“
ENSTO IS PLAYING OFFENSE. WE'VE GOT GREAT DEVELOPMENT PRODUCTS, WE USE TARGETED GROWTH, CHOOSING A MARKET AND GOING IN AGGRESSIVELY.

MIKA HAIKOLA

Ensto's Senior Vice President, Underground Networks Business and Demand Creation



Ensto has always been known for its expertise in overhead line accessories. Over the years it quietly acquired silicone molding expertise which was integrated into Ensto's Keila factory. Still, no one would have likely identified Ensto as a major player in underground accessories. But all that has changed.

Over the past three years, Ensto has invested over five million euros to be an underground player. The result: underground accessories is now Ensto's fastest growing business, and within the next few years it will be the biggest business line within the company.

INVESTING IN THE RIGHT PLACES

The underground accessories business is characterized by slow entry into new markets, says **Mika Haikola**, Ensto's Senior Vice President, Underground Networks Business and Demand Creation. "Expansion in the underground business requires small steps, because DSOs will be putting hundreds of thousands of kilometers of line underground. They have to be convinced it works properly. Period."

What this means is that virtually every larger scale DSO will want to do its own testing. (As Austria's largest DSO, Wiener Netze, recently did, before ordering Ensto connectors – see that story on page 23.) Luckily, Ensto has invested close to two million euros to create a state-of-the-art, internationally-accredited laboratory in Porvoo. "This gives us the advantage," says Haikola, "since no outsider can now tell us 'Testing will take 12 months and cost 100,000 euros.' We have full control of the process."

A lot of Ensto's investment was spent in Keila in order to have world-class silicone molding technology and capacity. The other critical components of Ensto's screened

separable connectors, for example, are also manufactured in Europe by Ensto factories, meaning short lead times, but also making Ensto almost impervious to the supply chain problems that have impacted competitors who use suppliers in Asia.

Haikola says that Ensto has also made product development a priority so that it can supply entire product lines which are required for tenders in new markets.

TRANSFERRING GOODWILL

Haikola says that Ensto underground products will be finding homes with DSOs in Southern Europe as well as in Southeast Asia. "We're becoming a recognized expert quickly. A large part of that is because Ensto overhead products have always had a quality image." That goodwill, backed by some underground products that are truly exceptional in the marketplace, is now paying off.

"Ensto is playing offense," says Haikola. "The products we have under development are all new innovations – none of them are me-too products. We use targeted growth, choosing a market and going in aggressively."

The market is noticing. Not only is Ensto growing in double digits while the market grows in single digits, but professional organizations and competitors are also giving recognition. "We've been a member of the Europacable Accessories Group for years now," says Haikola. "But our competitors have now seen what we can do, and they turn to **Kenneth Väkeväinen** [Ensto's Europacable representative] asking our opinion about safety, installation, and quality in general. We truly are recognized as a serious player." ♦



ENSTO AND HANTOM: CONNECTING SWITZERLAND

Ensto is gaining a foothold in Central Europe with its offering for electricity distribution systems. Switzerland's Hantom AG was looking for a new supplier and the company representatives were impressed by Ensto – its products, their quality, and the business.

Kaisa Kaikkonen Pexels, Hantom

Hantom AG specializes in cabling solutions for infrastructure projects. **Thomas Hanimann**, owner and Managing Director says, “We offer a wide range of high-quality cables and accessories. Thanks to our expertise, and a large warehouse in Frauenfeld, we can provide competent advice and swift deliveries across Switzerland. Additionally, we offer services such as partial discharge measurements, project support, and product-specific training for our customers.”

While search for a silicone connector solution, Hantom’s team came across a distributor of Ensto’s medium-voltage connectors in Switzerland. Hanimann says that after several meetings with Ensto, “We became familiar with its entire product portfolio of overhead line and underground cable accessories and recognized that it ideally complements our existing range. Therefore, in spring 2023, we took over the representation of Ensto in Switzerland.”

WIN-WIN PARTNERSHIP

Ensto’s **Sami Muranen**, Manager, Export Sales, says that when Hantom contacted Ensto, it quite soon became evident that the company was a perfect match. Everything seemed to be in good order, numbers excellent, and the willingness to grow tangible.

“It clearly was a win-win case,” he says. “We want to be present on the Swiss market, and Hantom has good operations, premises and warehouses, wide expertise, and know-how, as well as comprehensive services for the distribution system owners. The company represents very well the kind of suppliers we pursue.”

Muranen praises Hantom’s way and spirit of doing things: “Hantom is an expert in its field. The company has, from the very beginning, invested in localizing marketing materials as well as its social media presence, and the cooperation truly seems to function very well.”



From left: Marco Eymann (Hantom), Steven Richner (Hantom), Sami Muranen (Ensto), Gyula Hegedus (Ensto), Fabian Kohlbrenner (Hantom), Thomas Hanimann (Hantom).

CONFIDENCE IN MAKING THE CORRECT CHOICE

In April 2023, Ensto’s sales management visited Hantom AG in Frauenfeld, and a collaboration agreement was signed. To convince themselves of Ensto’s capabilities and to seal the agreement, a delegation of three traveled to Finland and Estonia just a month later. Hanimann says they were eager to see what awaited them: “The state-of-the-art facilities, cleanliness, high production density, and the friendliness of the personnel pleasantly surprised us. The employees’ pride in working for this well-established family-run company was evident.”

“We are confident that we made the right choice selecting Ensto as our partner. The sales of Ensto products have already begun and, even though we are still in the process of integrating the entire product portfolio into our ERP system and warehouse, the ordering procedures are functioning smoothly, and step by step, routines are forming.”

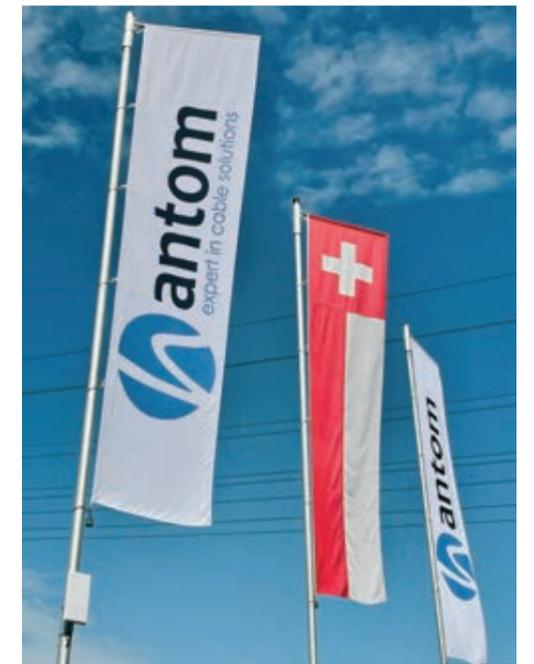
POSITIVE FEEDBACK FROM CUSTOMERS

Hantom has been efficient and diligently translated the sales materials, adapting them to meet the needs of the Swiss market. The widened product range will be presented to a broader audience for the first time at a local trade fair in August. Ensto’s representatives will be attending the exhibition and look forward to seeing Hantom’s way of presenting the product assortment at the outdoor exhibition.

In addition, the new products are being introduced in the technicians’ courses and put to rigorous testing by practitioners. “The initial feedback has been positive,” says Hanimann, “and we look forward with confidence to establishing Ensto products successfully on the Swiss market.”

EXPECTING TO GROW TOGETHER

Ensto is well present in Central Europe with its own sales companies. The market shares are traditionally big there because of a decades-long presence and close cooperation with local customers. To gain further growth, Ensto is aiming to establish cooperation partnerships that benefit both parties. “Expectations for growing together with Hantom in Switzerland are high,” says Muranen, “and we are very happy about the partnership. The sales of heat shrink products, screened separable connectors, and other overhead line accessories are ongoing.” ♦



Hantom AG

- Founded in 2015 by Thomas Hanimann
- Located in Morgenstern, Frauenfeld, Switzerland
- Employees: 10 (and growing)
- Mission: to be problem solvers and offer expert guidance to customers
- Ensto representation: overhead line and underground cable accessories.

SCREENED SEPARABLE CONNECTORS THAT DON'T KEEP YOU WAITING

Bringing manufacturing in house for the core parts of Ensto's screened separable connector is a big win for both Ensto and its customers.

✍️ Scott Diel 📷 Oscar Lindell

A screened separable connector is an extremely important product but not a glamorous one. It is a package of 15 to 20 parts inside a cardboard box, to be assembled on site and used at the end of a medium-voltage line. But depending on how and where those parts are manufactured and depending on which supply crisis is hitting the world at a given time, the lead time to get one can seem to last forever. But Ensto has changed all that. All the key parts for Ensto's 630 A T-connector, the 630 A Back-connector, and surge arrester are now manufactured in Ensto factories.

SOLVING THE SUPPLY CHAIN

By taking full control of this underground connector, Ensto can deliver smoothly, regardless of what's happening elsewhere in the world.

"Full control means we solve the whole supply chain," says **Kenneth Väkeväinen**, Head of Product Management, Underground Networks. "We improve the lead time and delivery accuracy. We also improve product quality. This is of huge significance."

Now, all main components are manufactured at Ensto plants. The silicone elements, produced in Estonia, are also now made more elastic for easier installation. The lugs, made in Finland, have stepless screw shearing, which allow wide cross-section ranges and facilitate easy installation. The surge arresters, with the cores manufactured in France and overmolding, assembly, and testing in Estonia, are compact. And assembly instructions are textless, simplifying both installation and expansion to new markets.

MADE AT HOME MEANS POTENTIAL TO GROW

Control of the process means that Ensto can expand its market share in current markets, but it also offers potential for growth. "Urbanization is creating opportunities for us," says Väkeväinen. "The bigger a city gets, the more cables go underground." And space is always limited in cities. Screened separable connectors are needed for cable connections in gas-insulated switchgear and, since they require less space than traditional air-insulated equipment, the demand for screened connectors is growing.

"Full control also brings production advantages that allow us to be price competitive in a greater number of markets," adds Väkeväinen.

UNDERGROUND IN THE LIMELIGHT

Changes in the world over the past three years have been dramatic, and while the pandemic and war could not have been anticipated, Ensto did foresee megatrends and invest in its factories accordingly. Climate change has caused storms of a nature that accelerate countries' decisions to move lines underground and governments have decided to penalize utility networks for outages.

These changes, combined with Ensto's decision to become a leading expert for DSOs, have made underground products the fastest growing area within Ensto. "The ability to deliver a high-quality product at the right price at the right time," says Väkeväinen, "is key in making Ensto a real player in the electricity distribution business." ♦



*Kenneth Väkeväinen,
Head of Product Management, Underground Networks.*

A safe, reliable and easy way to connect medium voltage cables

Screened separable connectors are suitable for connecting 12–24 kV cables to transformers and switchgears with bushings. The nominal current is 630 A. The connectors are suitable for both copper and aluminum conductors.

- Comprehensive selection of screened separable T-connectors, back-connectors, and surge arresters
- High-quality Ensto design
- Durable components are Ensto's own production, such as silicone parts, cable lugs and surge arresters
- All components for installation in one package
- Elastic silicone in connectors guarantees wide areas of use
- There is no need for hot work and no special tools are needed
- Install correctly – clear illustrated installation instructions included in the package



THE LABORATORY ADVANTAGE

Ensto's own laboratory not only gives it a market advantage – it's also a point of pride.

📷 Scott Diel 📷 Oscar Lindell

“WHEN WE CHANGE SUPPLIERS FOR SOMETHING, WE CAN ENSURE THE FINAL PACKAGE IS HIGH QUALITY.”

JANNE LAPPALAINEN
Laboratory Manager



Janne Lappalainen and Jenna Aarnio ham it up in the lab.

It's not normal at all for a company the size of Ensto to have its own laboratory. That's why it's a huge market advantage.

It's not a small lab, either. It's almost 2,000 square meters and staffed by 14 electrical engineers and testing professionals, all of this in Porvoo, Finland. It serves Ensto's product development and does product and materials testing. The lab holds the ISO 17025 accreditation granted by FINAS (Finland) and it is within scope of ILAC-MRA (international) agreement, meaning tests done in this lab are valid anywhere in the world.

NERDING OUT

If you want to nerd out, the lab offers full type testing for underground medium-voltage products, including heat cycle tests (five testing areas that can handle at least two tests at the same time for a total of ten), robustness tests, salt and humidity fog tests, AC and DC voltage tests, and partial discharge measurements in addition to lightning impulse tests. And, on its premises, Ensto also has testing facilities for overhead line network products. You name it, Ensto can probably test it.

Over the years, Ensto has made significant investments in the lab, with close to two million euros committed over the last four years, not to mention the salaries of 14 lab professionals with the qualifications to test, plus the overhead to keep it all going.

But why? What does Ensto get? What does Ensto's customer get?

CONTROL

For starters, your own lab gives you control. Before, when Ensto had a product in development that needed testing, it was not unusual for an external lab to say there was a 12-month queue and a testing price of 100,000 euros.

“With our own lab we accelerate testing processes and product development cycles,” says **Janne Lappalainen**, Laboratory Manager, who has, over 20 years, grown the lab from a staff of two to its current top technological state. “It means we control time to market. It gives us independence in test scheduling and develops our competences in house.”

What the customer gets is a great product, one Ensto can confidently stand behind. “We're not just designing products,” says Lappalainen. “It means we know the product limits so we can push them. Not just standard limits, but true limits.

When we change suppliers for something, we can ensure the final package is high quality. Sometimes the customer wants to test with a specific cable or has special request. We can do all that, too.”

HUMAN DEVELOPMENT

The lab has also played a key role in helping Ensto recruit and develop talent. **Jenna Aarnio**, Senior Laboratory Engineer, is one example. “I came to Ensto in 2010 as an electrical engineering student to help with material testing during Christmas holidays,” she says. “Now, almost 13 years later, I'm working with underground products and have taken responsibility for organizing underground product testing.”

Aarnio says that learning to be laboratory engineer isn't something that's taught in school. “It's a great platform for whatever your career. Some who started in the lab have moved on to other jobs inside Ensto – like product development and product management – and some of us have had long careers in the laboratory.”

ONE OF THE BEST IN EUROPE

Ensto has always been known for quality, and this lab is one way to guarantee it, especially as Ensto steps into new business areas like accessories for underground lines. A top lab, as Ensto sees it, is just part of doing business as an expert and top supplier to DSOs.

It's not within the Finnish character to brag, but Ensto's lab is one of the best in Europe, and most certainly the best in Finland, if not the Nordic region. And in addition to all the practical advantages, there's an intangible benefit, too.

“There's a real sense of pride to have this lab,” says Lappalainen, who adds that a lab means learning possibilities for Ensto's own experts and is a good selling point to attract new talent. And of course the very nature of testing in a lab means that a lot of things fail – so there's also real pride when a product succeeds. “It's motivating to know that if a product passes the tests, then it's got a chance in the market.” ♦



Great Place to Work

Here at Ensto, the spirit is very humane, and working is fun! In a medium-sized company everyone knows one another, hierarchy is low, and transparency high. I appreciate the fact that there is a clear vision about the direction the company is heading. My colleagues are great. They're professional and enthusiastic, and they made my onboarding easy and comfortable. It is interesting that the Miettinen family is so actively involved in the company – not only as owners but also in operative roles.



Jean-Louis Alcazar
Supply Chain Manager in France

Quality is King

This is the moment I've been waiting for: finally (and bit by bit) it has started to seem that the high product quality is getting the attention it deserves. For years we've been struggling with the fact that only the price matters in decision making when selecting the products for the electricity grid. Now there is an increasing understanding about the total cost of line building – how important it is that the products truly last for decades in the grid. And that is something we can offer: long-lasting high-quality products and solutions that contribute to excellent quality of electricity.



Björn Gustafsson
Sales Director in Sweden

Always Developing

At Ensto, I like the fact that people are constantly encouraged to develop our skills. Ensto really invests in this. A special thanks goes to our superiors for the soft push. I'm always studying something: being stationary and doing routine tasks only isn't for me.



Minna Baarman
R&D Engineer Materials Specialist in Finland

Excellent Partnership as The Mission

We have done a huge job in earning our customers' trust – and that work never ends. It's about keeping promises every single day. Ensto's values which are woven into everything we do. Our aim is to be a good supplier for the distribution system owners and even though there are 3,000 suppliers on the market, we have become one of the trusted and best for our customers.



Michal Kostal

Freedom of Expression

There are many things I like about working at Ensto: low hierarchy, open atmosphere, and good spirit with colleagues. I am allowed to express myself and my opinions freely – and so is everyone else. Here, diversity and equality are valued, and it feels good to be part of the community as yourself.



Dat Trinh
Senior Product Development Engineer in Smart Tech team in Finland

MEET SOME OF ENSTO'S ELECTRICITY EXPERTS

Ensto employees from around the world describe life at Ensto.

Ensto, Vectorstock

A Tactful Problem Solver

In our team, we respect everyone's opinions, cherish open discussion, and handle disagreements in a professional and tactful way. Teamwork is about learning from disagreements and using them for the common good. I think the key to that is listening and taking time to understand others' points of view. Key to putting the team's capital to use is harnessing the power that comes from our differences: our cultures, energy levels, and the experiences we bring.



Ramakant Vyas
Product Development Manager in India

Values and Well-being

Ensto's values nicely align with my own. The company is aware of what's happening in the world, and it's conscious of its own moral and ethical responsibilities. Ensto's well-being program is supported by regular team building days for our entire Ensto Renley team — five or six days spent each year to build team spirit and cohesion, as well as develop our social relationships in an external environment. Getting to know our colleagues on a different level also enhances business performance.



Tony Hart
Manager, Supply Chain, Procurement and Operations in Ireland

A Culture of Sustainability

When a company lives and breathes responsibility, it's easier to get suppliers to embrace similar values. For me it's critical that Ensto's values have remained the same throughout the years, and it's especially important that Ensto is still a family business. This year, the United Nations launched a Business and Human Rights training program in which Ensto is participating. It's an opportunity to build a network and learn from other companies, because only working together can we influence human rights.



Kristy Valgma
Group-level Supplier Quality Manager in Estonia

Circularity and Sustainability

Ensto products are part of a technical cycle of materials, and we recognize that a large amount of fossil greenhouse gases is being released during the manufacture of raw materials used in our products. What's most important is the performance of Ensto products and their role in enabling the green energy transition, which requires building more energy distribution systems. Ensto's collaboration with stakeholders is crucial since sustainability is an omnivalent value, and like quality and costs, it's formed everywhere. Our operations already remind me of system thinking, and I feel positive about the possibilities we have with our smart solutions in circularity.



Marjo Ketonen
Senior Sustainability Specialist in Finland

Aiming at a Better Life

Why did I get interested in the electrification industry? Well, that is directly related to my origin: even today Lebanon suffers from the lack of electricity. That is something not everyone thinks about, as most of us are so used to having electricity all the time and everywhere. In my childhood and youth, the absence of electricity was part of our life. Therefore, the need for improving things was very tangible and I wanted to make life better for all of us. Today, electricity is my passion.



Bassam Dhaiby
Head of Sales, Network automation, based in France

Creativity in Problem Solving

It is always interesting to listen to the challenges our customers have – they are often different from what we think. I try to come up with simple creative solutions that can solve a problem for the customer. Sometimes it is easy, but sometimes it requires more time and resources. Studying standards and regulations, for example, is often time-consuming, but we at Ensto want to give the customer the correct information and the best products.



Frode Foss
Product Manager, Underground Cable Accessories in Norway

OLD DOG, NEW TRICKS: ENSTO BRINGS INNOVATION TO OVERHEAD LINES

While underground lines may be trendier, the overhead line business is thriving – with Ensto making noteworthy innovations.

📷 Scott Diel 📷 Roman Jaloza, Oscar Lindell

Underground lines are all the rage. They're trendy and talked about everywhere. But they're not suitable for all situations and environments. Overhead lines are still the backbone of any electricity distribution infrastructure, and while they may be less fashionable, thanks to Ensto they are definitely not less innovative.

A GROWING BUSINESS

In Europe, the OHL business is quite stagnant with only moderate room for growth. But look beyond it – to Southeast Asia, Africa, the United States – and the business has much more growth potential.

"Africa, volume wise, is as big as our sales to Finland, even though we don't have our own presence in Africa," says **Harri Vaara**, Head of Sales, Overhead Lines. "Since it's just too expensive to go underground in rural areas, OHL will be the business of the future."

"SMALL, TECHNICAL DETAILS

For Ensto to remain a key player in the OHL business, its products must grow along with the market. But just because OHL is a legacy technology, doesn't mean that it should be low-tech.

"Ensto's OHL trump card is FCCS – fully covered conductor solutions – accessories that contain a lot of small, technical details that add up to something greater than the sum of its parts," says **Petteri Pulkkinen**, Head of OHL Product Management at Ensto. "We've developed a new insulator with a plastic

insulator top clamp. Our materials are robust enough to last a half century. Our products are fully type-tested. We offer lots of complete structures, a handbook to help line designers, plus YouTube videos for installers. We have customer training to support customers in implementing their own specifications of a fully covered conductor solution."

What Pulkkinen describes as a lot of small, technical details done right, is complemented by one of Ensto's highly innovative advances in OHL, line condition monitoring technology that was designed to solve problems the product management team saw while working with customers.

SMART SENSORS FOR FCCS

"Petteri and his team had noticed issues with fallen lines while in the field with customers," says **Roman Jaloza**, Ensto's R&D Manager of the Smart Technology Team. "If the covered medium-voltage lines fall, even with no breakage, it's still dangerous. We saw this problem and decided to investigate."

Downed lines aren't always easy to detect. If a tree falls or touches the line there isn't always a highly visible arc or sparks, thanks to the covered conductor. Current safety guidelines call for crews to patrol thousands of kilometers looking for problems after heavy storms have passed. These crews operate via helicopter, drone, snowmobiles, or skis – expensive or time-consuming methods.

continued ▶

Ensto's investigation led to the creation of the first Ensto smart sensor for FCCS using the internet of things (IoT) technology. "We are developing a family of sensors that use IoT mesh technology," says Jaloza. "The sensors communicate among themselves, then send data to the cloud where we have smart analytics and data crunching. If there's a problem, the customer's user interface – in PC or mobile, whatever they like – alerts them that there's something wrong. The IoT mesh self-defines the structure, increases the solutions' robustness and scalability. Ensto Line Condition Monitoring System helps with daily maintenance, network capacity optimization, predictive maintenance and even fault detection. It's a revolution in the DSO business and it's the only solution of its kind in our target markets." Jaloza says the ultimate goal is a full range of sensors for both overhead and underground lines and accessories, secondary substations and transformers.

"On the system level we want to have digital twins of the lines so the end customer can do condition monitoring and network capacity optimization — we're bringing IoT technology to the DSO business."

Thanks to a high density of sensors, faulty locations can be identified by the customer within 100 meters. This translates to improved reliability, fewer interruptions in service, and lower wildfire risk in dry areas. "It's far more cost effective than underground," adds Pulkkinen. "And FCCS pays for itself in the form of reduced faults, lower maintenance costs, and higher quality electricity."

But Ensto's FCCS product offerings and smart sensors have implications beyond just the customer. "This is a technology that could allow the industry guidelines to be changed," says Jaloza.

THE PORVOO PILOT

Ensto's smart sensors are not yet on the market, but they have been undergoing tests on a 200-meter, medium-voltage pilot line built in the forest next to the Porvoo factory in Finland. The R&D team has put the line through the rigors, even dropping trees on the line to test the sensors. What is more, we use the capabilities of our accredited Ensto Laboratory to verify the sensor operation in the most demanding conditions.

"We are fully committed to providing cutting-edge solutions and products that will revolutionize distribution network maintenance in the coming year," says Jaloza. "We currently have two proof-of-concept installations underway, one in southern Finland and another in the north. The northern location was chosen to prove the robustness of the technology in the tough Nordic winters, and also gain knowledge about conditions of snow and ice." It is clear that extreme weather has become a real and global challenge nowadays. "Our solutions are designed for whatever conditions come their way," says Jaloza.

Harri Vaara says Ensto's R&D work is a real differentiator when it comes to the competition. "We have fantastic testing facilities and an accredited lab to support our OHL business. It's a real asset we should be proud of."

KNOWN AND TRUSTED

The smart FCCS technology makes sense for any market where there is snow or storms, a natural for the Nordic region. But Vaara says it makes sense for "anywhere you find trees, wind, or snow" – markets like Australia, California, Africa, Malaysia, and Indonesia, where extreme conditions threaten lines. Ensto's work has already been recognized in California, where local DSOs are using Ensto drawings when they specify installation regulations.

"Ensto has been known for decades in overhead lines," says Vaara. "Enso Miettinen's first factory was to produce for the OHL market, so we have 65 years of knowledge, experience, and solutions driven by customer needs that make us a globally known and trusted player." ♦



Ensto's R&D team has put the line through the rigors, even dropping trees on the line to test the sensors.



Ensto's acquisition of Maviko Oy strengthens its expertise in electricity distribution and smart secondary substations.

In June 2023, Ensto acquired Maviko Oy, a Finnish, privately-owned company serving electricity generation and distribution companies. Maviko specializes in electricity distribution services and smart secondary substations, with its main services relating to primary substation contracting, including construction of entirely new substations, and overhauling existing ones. Maviko also provides earth fault current and reactive power compensation solutions, both in centralized and distributed configurations. Products include smart compact secondary substations and equipment shelters.

Maviko has an operating history of 17 years, employs 25, and its headquarters and manufacturing are located in Vaasa, Finland, and is known for its technical competence in building turnkey solutions.

"I am very happy to welcome Maviko's dedicated personnel and great know-how and technology to our company. Through Maviko, we gain expertise in the needs of DSOs, requirements of the electricity distribution network, and specifically in the design, protection, and reliability of compensated distribution networks. This enables us to better understand the daily challenges and needs of DSOs, allowing us to deliver customized solutions and drive future product and solution development," says **Markku Moilanen**, President and CEO of Ensto Group.

Kimmo Autio, Managing Director and one of the Maviko owners, looks forward to the growth Ensto will bring. "We are very pleased to join our forces with Ensto, whose active and consistent strategy to focus on the electricity distribution perfectly aligns with Maviko's business objectives. With Ensto's international markets, sales force, and support functions, we are able to accelerate our growth and international expansion, especially in nearby countries. By combining our expertise and products, we can deliver more comprehensive offerings to our customers." ♦



Kimmo Autio and Markku Moilanen at the signing of the deal ceremony.

THE FOCUSED GENERATION

'Sustainability' isn't just a buzzword to Ensto's third generation of owners. They're building the company around it.

✍️ Scott Diel 📷 Oscar Lindell

“WHEN GRANDFATHER FOUNDED THE COMPANY, WE WERE MAKING RELIABLE AND LONG-LIFECYCLE PRODUCTS. TODAY, IT'S EVEN MORE SO.”

IIDA MIETTINEN
Member of Ensto's Board of Directors



In 2018, the majority of Ensto's ownership was transferred to the third generation of the family. In 2022, the new owners hammered out a clear strategy to focus on the electricity distribution business that would guide the organization through the decade to come.

“Ensto's journey started 65 years ago,” says **Iida Miettinen**, an Ensto owner, member of Ensto's Board of Directors, as well as a granddaughter of **Ensio Miettinen**. “Our first products were for DSOs. In a way, we're getting back to our roots. In our family office, the focus is to support Ensto's growth.”

SUSTAINABLE IN MORE THAN NAME

While the new owners are committed to achieving Ensto's mission of making life better with electricity, they insist on doing that sustainably. For them, “sustainable” is more than just a corporate buzzword: they have attached it to business targets, incentive systems, and ESG practices.

“More and more of our products are sustainable in their production and lifecycles,” says Miettinen. “We have a target for sustainable products and CO2 reduction as they relate to total sales. We measure the recyclability of our products and seek more sustainable materials for them. New products are developed through the lens of a circular economy.”

Another dimension to Ensto's definition of sustainability is equality. “We understand that Ensto people are the core of what we do,” she says, “and for that reason we are committed to diversity, equity, and inclusion.”

GLOBALLY GREEN

Ensto's ambition is to grow the business globally, taking products to countries where they're needed. “Places such as California, where extreme weather requires products that perform under difficult conditions,” says Miettinen.

Ensto Invest is the Miettinen family office, and Iida Miettinen says it is committed to offering support so Ensto can grow globally. Examples are recent investments like those in Arcteq, Röhrbacher, Protrol, silicone technology, and the lab expansion in Porvoo, all done in the name of reliable and long-lasting products for infrastructure.

In order to focus, the owners have had to make tough decisions. In July 2021, Ensto Group sold Ensto Building Systems (EBS) to Legrand France. “I'd be lying if I said the divestment was easy,” says Miettinen. “We had a long and successful history with EBS and I had a personal background there. My first summer job was in production in the Porvoo factory on mostly EBS products. During my studies, I was on the EBS marketing team. I had personal involvement in that business and have been passionate about it.”

But this is part of what's required to be a leading expert for DSOs. “The green transition is happening, and we want to play a role by offering our long-lasting solutions to DSOs. These solutions are one reason we're growing. This gets me excited because Ensto is actually able to help build critical and robust infrastructures globally, which drives the green transition. When grandfather founded the company, we were making reliable and long-lifecycle products. Today, it's even more so.” ♦

LEADING US TO A CLEANER WORLD

Jukka Ruusunen, President and CEO of Fingrid, and a member of Ensto's Board of Directors, offers a big-picture perspective on the importance of Ensto's role in the world's green transition.

✍️ Scott Diel 📷 Fingrid



“KNOW WHERE YOU'RE GOOD. BUILD YOUR REPUTATION ON THAT, AND YOU'LL BE RECOGNIZED GLOBALLY.”

JUKKA RUUSUNEN
President and CEO of Fingrid

The energy crisis has passed, electricity prices have returned to normal, and now Europe is once again focusing on its goals to cut greenhouse gas emissions by at least 55 percent by 2030 and become fully carbon neutral by 2050.

The green transition is complex, multifaceted, and involves making technological advancements, changing societal values, and creating political will. But **Jukka Ruusunen**, President and CEO of Fingrid, and a member of Ensto's Board of Directors, simplifies things: "From Ensto's point of view, it's all about electrification. It's the cleaning of industry, heating, and traffic – removing emissions from those. We electrify societies all over the world and help them use clean, cheap, and reliable electricity."

PROFITABLE GROWTH

With consumers requiring more and cleaner energy, huge investments are being made by both private enterprises and governments. With so much money in the market at the moment, growth isn't the most difficult challenge — but profitable growth is.

"There's always a risk if governments push too much money into the market in the form of subsidies," says Ruusunen. "I'm a market economy person. Too much money pushed into the market can create imbalances and make companies lazy." Ruusunen says that to lead the way to a cleaner world, Ensto must offer products customers want, yet remain profitable during growth. "Ensto is in a great position to grow, but managing that growth is never easy."

Ruusunen says the market needs the innovative ideas that Ensto can provide when it comes to the distribution of electricity, in an era when reliability is more important than ever. "Ensto needs to continue in this brave way to use intelligent technology in distribution, concentrating on its core competences and moving ahead with smart devices. There's a huge demand for Ensto solutions all over the world. Reliable electricity will be even more important when we electrify societies and Ensto can play a big role in helping distribution companies here."

With demand so robust, business can sound as easy as picking money up off the ground. But for intelligent growth and profitability, Ruusunen says, Ensto will have to pick its niches carefully. "Ensto isn't a huge player, but we can be a challenger to big global companies if we pick our niches right."

RECOGNIZED GLOBALLY

So how can Ensto fulfil its mission to become a leading expert for distribution system operators? In many ways, it already has. It has prioritized, made strategic investments, and is establishing leadership positions in new market segments.

"It's critical to make your own definition of what being a leading expert means," says Ruusunen. "Ensto's current portfolio is very good, but if the portfolio gets spread too thin then we can't lead. A small company with a large portfolio is never the leader."

Ruusunen's counsel as a board member: "Know where you're good. Build your reputation on that, and you'll be recognized globally." ♦

SUSTAINABLE IN THOUGHT & DEED

Ensto can't save the world alone, but it can make a positive impact. To that end, the company has made clear sustainability commitments that it expects itself, as well as its suppliers, to live up to.

✍️ Scott Diel 📷 Anastasia Aldrik

“**T**here are many definitions of sustainability, usually complicated and often with something missing,” says **Jenni Raitavuo**, Head of HSE & Sustainability at Ensto, as well as one of the company’s owners. “Our approach is to integrate it into the company culture, so that it defines how we do business as a whole and becomes the way we think and act.”

But because sustainability at Ensto holds broad meaning, the company has laid out its goals along three pillars of sustainability.

PILLAR ONE: CLIMATE AND CIRCULARITY

To be a leading expert for DSOs requires smart products with long lifecycles manufactured with an underlying commitment to cut CO² emissions at every level, in accordance with the Greenhouse Gas Protocol. In the world of sustainability, the positive impact of solutions is called the handprint.

Scope 1 emissions are direct emissions within Ensto's control, such as emissions from operating factories, driving vehicles, or heating buildings. Scope 2 emissions are indirect, created by the production of the energy that Ensto buys. “Last year we reduced our Scope 1 and Scope 2 emissions by 68 percent,” says Raitavuo. “We did it by using renewables, including solar, and through low-emission electricity in our factories that are heavy consumers of electricity.”

“We also learned to just be very efficient about how we use energy,” she says. “Costs increased a lot during the energy crisis, and even low-emission energy cost more.”

The most complex emissions category, which accounts for most of Ensto's emissions, is what is called Scope 3. These are emissions as the result of assets or activities not owned or controlled by Ensto, but those that directly come from its value chain. At this level, Ensto is working toward an open, transparent value chain that will enable it to source and produce even more responsibly. (“Stay tuned!” says Raitavuo.)

PILLAR TWO: A SAFE AND INCLUSIVE WORKPLACE

Ensto is actively investing in creating a safe and inclusive workplace for employees. This means physical- and mental safety, but also a workplace where people feel free to be who they are.

Raitavuo believes zero accidents, which some companies hold up as an unattainable goal, to be a realistic achievement for Ensto. “Keep in mind that people and their safety is a huge priority for both employees and customers who use Ensto products,” says Raitavuo. “They’re working with electricity, and accidents can be fatal.” That same care, when applied to Ensto factories, should translate to zero accidents.

To make the workplace more inclusive, Ensto has a target to have women and other genders in a full third of its senior positions by 2025. The current number is 19 percent. Raitavuo says that women are not the only underrepresented group, but recognizing one minority group also can help others. “It’s not moving as fast as we’d like,” says Raitavuo. “It’s an industry wide issue and difficult everywhere to find diverse candidates for high-tech roles. But we’re working to make systemic changes, which will able us to reach our goal.”

PILLAR THREE: HIGH ETHICAL STANDARDS

Since Ensto wants to ensure high ethical standards and compliance across its value chain, it requires its employees to undergo training to understand the employee Code of Conduct, and suppliers to do the same.

“All of our employees have completed training in ethics and sustainability, and 93 percent of our suppliers have signed the Supplier Code of Conduct,” says Raitavuo. “We do the training so that people understand the code of conduct instead of just reading it. We discuss human rights, labor rights, talk about treating each other with respect, and cover quality, environmental care, privacy, transparency, avoiding conflicts of interest, and saying no to bribery or corruption.”

Sample question: If a supplier invites an Ensto employee to the Olympics, should they go? If you’re not sure, this course is for you.

WALKING THE TALK

Just as Ensto suppliers are asked to buy in to Ensto’s Code of Conduct, Ensto is held to the same standard with its customers. “Our customers have a variety of different degrees of checking how sustainable we are,” says Raitavuo. “Some use questionnaires or partners to see what boxes we check, and there are others who come and physically audit us to make sure we walk the talk. It’s all about working together with stakeholders to find solutions that work.”

Two times annually Ensto conducts an engagement survey with its employees. In the December 2022 survey, employees awarded Ensto’s safety culture the highest possible ranking. Raitavuo says plans are in place for other areas of sustainability to follow suit. “There’s systematic work and development to get there. Culture never changes quickly, and so we’re actively engaging everyone.” ♦



OUR APPROACH IS TO INTEGRATE SUSTAINABILITY INTO THE COMPANY CULTURE, SO THAT IT DEFINES HOW WE DO BUSINESS AS A WHOLE AND BECOMES THE WAY WE THINK AND ACT.

JENNI RAITAVUO
Head of HSE & Sustainability at Ensto

ENSTO IN FRANCE ADDS 60,000 WORKERS

It's one small part of Ensto's efforts in sustainability.

📷 Scott Diel 📷 Marion Jimenez

Most corporations and governments these days have some focus on climate and circularity. Ensto in France is embracing it at every level.

"In France, there are a whole lot of factors that push us to consider the impact of our activity on the environment," says **Christophe Doury**, Ensto Novexia's Quality and Environment Manager, and a key person in Ensto's CSR program in France. One motivator is that companies in France that are not stewards of the environment simply cannot win tenders. "For many of our customers we know sustainability will become a major issue in the selection of their suppliers."

But there are many more factors, Doury says, including Ensto Group's own corporate social responsibility policy. "Then we have ISO 14001. We have our customers' CSR policies. We have a national decree in France that requires us to reduce our footprint. And, of course, our own employees want to feel that they're involved in making products that are environmentally responsible. There are so many different things that motivate us."

continued ▶



At left: Electric bicycles and their sheltered charging station. At right: Five hundred solar panels occupy 2,000 square meters, covering roughly 30 percent of the factory's needs for electricity.

FOR THE PLANET, FOR OURSELVES

"We're a relatively small company when compared to major French enterprises," says Doury. "We don't generate a lot of waste and don't leave a huge footprint. But one area where we can act is in energy consumption." With electricity prices increasing everywhere, Doury says actions taken at the factory level not only benefit the planet, but also lower operating expenses.

With two factories in France, Ensto pilots its ideas at the factory in Villefranche-sur-Saône, not far from Lyon. Once an idea proves itself, the plan is to take it to the factory Bagnères de Bigorre, located in the Hautes-Pyrénées Department in Southwestern France.

VISIBLE AND LESS VISIBLE CHANGES

The most visible change in Villefranche is the installation of 500 solar panels that take up almost 2,000 square meters of space next to the factory. Doury has an app that allows him to monitor generation and consumption, and he knows that on a particularly sunny day solar energy can cover more than 50 percent of the factory's needs. However, despite what French tourism officials might like you to believe, not every day is sunny in France, and Doury estimates that, on average, solar power will cover 30 percent of the factory and office's electricity needs.

A less-visible change is in lighting at the Villefranche factory. In 2022, they replaced 508 neon luminaires with 250 LEDs. "The technology is superior enough that one LED can replace two neon lights," says Doury. "Our estimate is that from this alone we'll consume 17 percent less electricity every year."

Villefranche has also installed a new automatic heating and cooling control system which they estimate will reduce their consumption of gas by 38 percent.

ENSTO'S LARGEST WORKFORCE

One sustainable action that visitors may not immediately notice at Villefranche is the addition of 60,000 workers. Worker bees, that is. **Marion Jimenez**, Marketing Communications Specialist, who proposed the project for Ensto's family day, did not have to retrain as a beekeeper to make it happen.

"I researched it to make sure it was doable and then proposed it to the management team. We have three hives, each with around 20,000 bees, and a professional beekeeper comes once or twice a month." She says the bees make enough honey for every employee to receive a jar (with a personalized label), and there's enough left over for customers to get one, too.

But it was primarily done for family day, she says, where kids are always the focus. Jimenez has two children, ages seven and three. "There are some beehives near my house where I walk with my children, and I see how their eyes light up. It's such a natural, sustainable thing, and it teaches kids about biodiversity."

**A VOS MARQUES, PRÊTS, PÉDALEZ!
(ON YOUR MARK, GET SET, PEDAL!)**

Another effort Ensto has made is to attempt to reduce the number of employees commuting by car. The company offers a bonus for people who don't use automobiles, or who are willing to carpool to work. And there are, of course, EV chargers for those who commute electrically.

In addition, they are experimenting with ten electric bicycles five at each location. "An employee committee did an analysis of where we live, with the idea of getting people to consider alternatives to automobiles. We contracted with a bike rental company, and we offer three different sizes of bicycles that charge when they're not in use."

Most of the bikes get used at lunchtime. "We don't have enough employees to justify a cafeteria," says Jimenez, so employees bring their own food or run to the grocery store. The bikes are a great way to take a picnic in nice weather."

JUST GETTING STARTED

Ensto in France is well ahead of Ensto Group's goal to reduce electricity consumption by seven percent by 2030, though it is yet to roll out these projects to both its factories.

"We're only now at the beginning of this energy saving process," says Christophe Doury. "We'll measure, analyze and, once we're certain of a positive impact, we'll execute on a larger scale." ♦



WE'RE ONLY NOW AT THE BEGINNING OF THIS ENERGY SAVING PROCESS. WE'LL MEASURE, ANALYZE, AND ONCE WE'RE CERTAIN OF A POSITIVE IMPACT, WE'LL EXECUTE ON A LARGER SCALE.

CHRISTOPHE DOURY
Ensto Novexia's Quality and Environment Manager



DIVERSITY: A KEY TO SOLVING BIG PROBLEMS

As a leading expert for distribution systems operators, Ensto aims to help solve some of the world's big problems. To do that it needs to grow, and that growth demands diversity, equity, and inclusion.

✍️ Scott Diel 📷 Oscar Lindell

Want to solve the world's big problems? You need people to do it. And the more technically-savvy people you need, the harder they are to find.

Case in point: There is a product management position at Ensto in France which has remained unfilled for two years. The position is highly specialized, and even modifying the job requirements produced no results. The position is still open, but we are now expanding the search outside of Europe to include francophone African countries.

"Two years is an extreme example," says **Kirsi-Marja Ura**, Ensto's SVP, HR, Brand & Communications, Marketing, Sustainability. "But it demonstrates the critical importance of people in a business that is a leading technical expert. It also shows us the future, how we'll have to think about things differently and do things in a new way."

DIVERSITY FOR GROWTH

"You can't have big growth without diversity, equity, and inclusion," says Ura, and a good diversity and inclusion (D&I) program is the key to recruitment. "We want to attract talented people of different ages, genders, races, religions, ethnicities, physical abilities, and sexualities. This improves innovative collaboration across teams and functions. D&I means you can recruit new talent and retain current stars."

Ensto has always been diverse. "Over 20 years ago, **Ensio Miettinen**, the founder of Ensto, said that Ensto wants to solve the world's big problems, and that requires diversity and inclusion," says Ura. "Ensio used those exact words. D&I is nothing new for Ensto, and we're not bad at it. But we need to do more."

With employees in 18 different countries and even more than 18 nationalities employed, Ensto is already fairly diverse. All age groups are represented. The male-female balance is good. "But in director, manager and senior specialist roles there are too few women, about 20 percent of total," says Ura. "That we need to improve. There's an industry barrier in tempting young females to study tech, which is a global issue that takes years to change. Still, our target is one-third by 2025."

DOING MORE

Ensto's first step has been to train all of its leaders in inclusion, diversity, and unconscious biases. There is a mandatory three-hour online training program for all leaders, from shop foremen to the CEO. "It includes teamwork and small group discussions," says Ura. "D&I really can't be taught; it's got to be understood. That's why the subject demands time for discussion and joint reflection."

Another change has been to improve Ensto's recruitment ads. It uses an AI tool called Develop Diverse, which finds discriminatory or unequal wording in ads. "It might tell us that a certain usage suggests a preference for males," says Ura. "I think we were pretty good before, but this tool helps us find any hidden messages we weren't aware of."

Ensto has also begun using anonymous recruitment during the first phase of the process. Similar to the blind audition process used by some symphony orchestras, the name, gender, and race of an applicant is hidden from the recruiter's view and only the skills are on display. "Since we all have unconscious biases which cause us to choose a familiar or safe option, this is a tool to keep us focused on what's most important," says Ura.

LOCAL ROADMAPS

Ura says what's important to realize is that D&I principles are not things that can be cut and paste across cultures. "We can bring more cultures, different sexualities, different ways of thinking, physical differences. We can define the target of what we want to be and provide the training. But in the end, local leaders have to do it in their own countries. What does diversity mean in France or India? Local leaders will build the local roadmap."

"In some countries they say we're not allowed to touch people's private life," says Ura. "In our view, your private life is separate from your work life and what you choose to share is your decision. But, if a workplace is inclusive, then it's a place where you're not afraid to share. You don't feel you need to hide anything."

In India, recruiting female employees is more difficult than in Europe. "If we have to double our efforts in Europe," says Ura, "then we have to do 100 times more in India. That's why leaders at every level in the organization must run this process."

PRIDE WORLDWIDE

Pride month, which began in 1969 in the United States, has now spread worldwide and today is an occasion to celebrate the equal rights of LGBTQIA+ communities. In the Nordics, corporations compete to sponsor Pride events. This practice is less common elsewhere in Europe and the world, though the celebration of Pride is growing everywhere.

For Ensto's part, many Ensto offices and factories will fly the Pride flag for the entire month. "The flag is only one small gesture that we can make," says Ura. "But it's an important one." Ura says she believes all Ensto leaders share the same understanding of diversity. "Diversity makes us more innovative. A heterogenous team is always more innovative than a homogenous team. We all agree on that." ♦



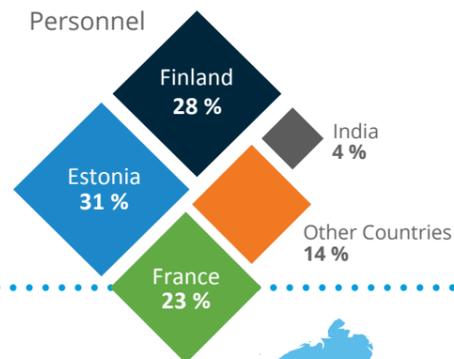
**DIVERSITY MAKES US
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KIRSI-MARJA URA

Ensto's SVP, HR, Brand & Communications,
Marketing, Sustainability

> WHO WE ARE

Ensto is an international, growth-oriented family business and technology company **POWERED BY PEOPLE** since 1958.

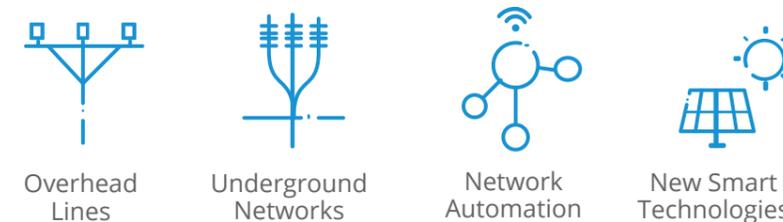


> WHERE WE ARE



> WHAT WE DO

We design and provide reliable and smart electrical solutions and expertise for electricity distribution.



Turnover in 2022

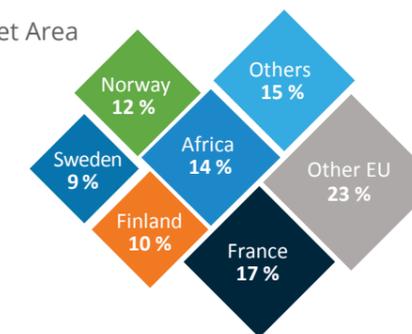


Electricity Distribution Business

100 %

Strategic decision in 2021 to focus on electricity distribution business and divest Ensto Building Systems business to Legrand Group.

Market Area



Better life.
With electricity.

We believe in a better life with electricity and a more sustainable tomorrow.

ensto.com

SUNIYE AND ENSTO:
LISTENING TOGETHER

Ensto sponsors organizations to better the societies where it operates.

Pia Hänninen Suniye, Pia Hänninen

Hearing disability is among the most common disabilities experienced by the Indian population.

The Non-Governmental Organization, Suniye ("Listen please" in Hindi), works to rehabilitate hearing-impaired children. Suniye offers a range of services, including hearing tests, speech therapy, and educational support to help children overcome their hearing impairments and reach their full potential. With the increasing number of children being born with hearing disabilities in India, Suniye's work is more important than ever.

Ensto is a proud sponsor of Suniye, an organization that reflects Ensto's own values of responsibility, people centricity, innovativeness, and collaboration. Ensto places considerable emphasis on the physical well-being of young people in communities where Ensto has its plants.

Suniye's efforts have benefited over 1,000 hearing-impaired children, and it is the only NGO in India to teach spoken language to hearing-impaired children. Every year Suniye teaches over 60 students, most of them from low-income backgrounds. The goal: Prepare the children for study in mainstream schools and to take full part in society.

"All of us are very grateful to you for Ensto's kind contribution to Suniye Support School for Hearing Impaired Children. You are helping us get closer to our dream of ensuring every hearing-impaired child can learn to listen, speak, read, write, and become part of mainstream society," says **Rashmi Agarwal**, President of Suniye.

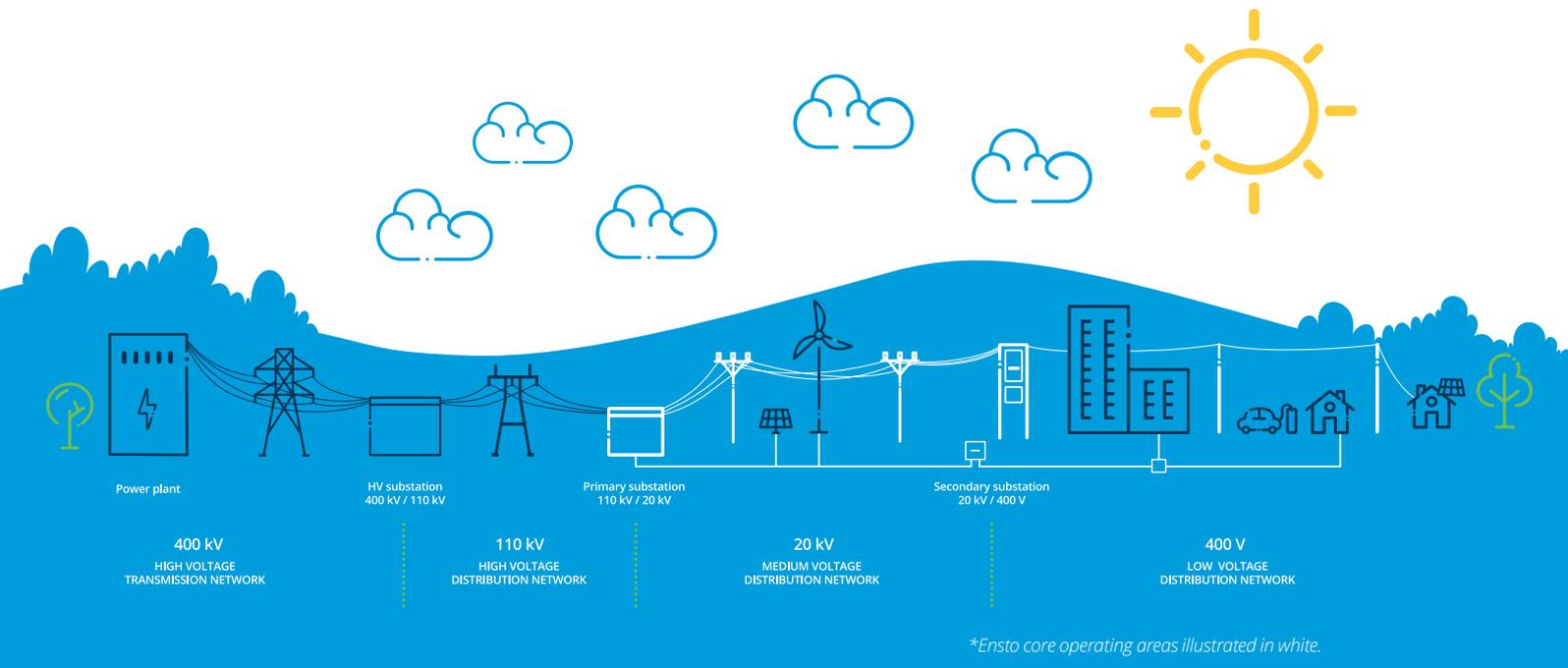
"We believe it's our responsibility to give back to the communities where we operate and make a positive impact in the world. By supporting organizations like Suniye, we are helping to improve the lives of young children with disabilities and providing them with a brighter future," says **Kirsi-Marja Ura**, SVP, HR, Marketing and Communications, Sustainability.

Ashok Kaushik, Managing Director of Ensto India, says, "Not only do we fulfil our social and moral responsibility, but we also help in making society more inclusive by supporting such organizations." ♦

Ensto visited the Suniye center in Delhi, India, to meet the children and personnel.



Our contribution to reliable and smart electricity distribution networks



Full Power

Ensto is fully focused on electricity distribution and its functional future. We design and manufacture products and solutions for overhead lines and underground networks, as well as offer network automation and new smart technology solutions for distribution system operators. Our own R&D, manufacturing, and laboratories give us the expertise to continually innovate and serve our customers on an individual level.

Our mission is to combat climate change and mitigate its impact by creating innovative, reliable, and long lasting solutions for electricity distribution networks.

Better life.
With electricity.