

Driving efficiency: how customer partnerships accelerate innovation in solar farm implementation





With renewable energy surging by an unprecedented 87% in 2023, and new solar capacity making up 75% of this growth,¹ the global energy grid is changing fast. This rapid expansion has been accompanied by a wave of customer-driven technological innovations, and TE Connectivity is at the forefront of this transformation, developing products that address current industry demands and anticipate future needs.

TE has found that partnering with its customers provides fresh impetus for this engine of innovation. The philosophy is simple: the customer is the best guide. Solar developers demand EBOS implementations that are easier to install, perform smarter, and last beyond the expected duration. By listening to their needs, experience, and feedback, TE seeks to deliver solutions that address real-world problems.

'We're by their side at every stage, from planning and design through installation and even after the project is fully operational,' says Michael Kazimierczuk, Director Sales Americas, Renewables and Industrial, of the Energy Business Unit at TE Connectivity.

Trouble-shooting design approach supports seamless installation

From the initial consultation to after-sales support, the goal is to find practical solutions tailored to customer needs. Whether they are a large-scale solar farm developer or a commercial installer, their requirements vary significantly based on factors such as geographic location, local regulations, and project scale.

During the planning phase, TE's engineers partner with solar developers and EPCs to design the most effective layout for their solar projects. This includes detailed analysis of cable routing, voltage drop calculations, and load balancing to ensure optimal system performance. The rationale behind this approach is to not only maximize return on investment but also uphold the highest standards of safety and reliability.

Working so closely together brings clarity on all aspects of the design and helps ensure the installation is as straightforward, efficient and cost-effective as possible. Designs can be reconfigured to minimize the number of products used, enhancing value, delivering savings, in one case, \$12.8 million, and improving supply chain resilience.

Once the planning is complete, the company goes on-site to train installation teams, ensuring they have the knowledge and skills



Michael Kazimierczuk

needed to get it right first time. Rather than simply handing over an engineering plan, TE engages with on-site teams at every stage, from consultation and design to training and testing.

This ensures proper installation and optimized performance. Field service technicians provide real-time support during installation, addressing challenges as they arise. They discuss product development and materials to build a solid understanding, starting with classroom training and then moving to field installations. 'We stay with the teams until they're confident and can produce a 'golden row,' ensuring they master every installation going forward,' explains Michael.

Safety is a fundamental priority. Post-installation quality assurance checks are conducted regularly to ensure the system is operating reliably and safely. When further time on-site is needed, TE's specialists are there, side-by-side with installers and customer teams in the field.

'We feel a personal commitment to every project, and passion is what we bring to the customer,' Mike explained. 'These relationships extend well beyond the design and installation phases.'



Solar IPCs and Disconnect Box

Customer collaboration spurs engineering innovation

This approach has yielded impressive results and helped develop innovations such as the company's latest insulation piercing connector.

'When we spoke to customers, we learned that one of their biggest challenges during

installation was around the insulation piercing connector, especially the tap wire' says Mike. 'Misalignment was a key worry. Some people felt there was too much room for error at the install.'

TE developed Solar IPC Assemblies (SIPC) with a flexible plug-and-play setup and pre-positioned, fixed multi-tap harness.

By pre-integrating the tap wire, it is now almost impossible to either damage or misalign it, significantly minimizing the possibility of installation errors and their associated costs. It also reduces the number of field-installed components, speeding up installation times.

TE's Customizable Trunk Solution (CTS) is another case in point directly inspired by customer feedback. TE understood the pressure to deliver large-scale projects at pace, and so developed the CTS to offer greater flexibility. Experience shows that, compared to the traditional EBOS, the CTS can reduce installation time by up to 50% and can cut material and labor costs by as much as 40%.

Adopting CTS can improve operational efficiency on-site too, due to its design flexibility. The solar IPC assemblies can be installed in the field where and when they are needed, making it possible to easily adapt to changing site conditions.

An example of this flexibility in action came during the recent construction of a utility-scale solar farm in New Mexico, USA. TE was involved early in the process to help with design recommendations. However, as the land was being readied, a sacred ancient burial site with important archaeological artifacts was uncovered. This meant the team suddenly had to reconfigure the entire solar farm layout to protect the area.



CTS is easy to install. TE's onsite installation training session

Thinking green is an integral part of TE's broader mission to support the global transition to renewable energy.

The project team adapted the original cabling design to meet the new solar array drawings, something that would not have been possible with a prefabricated EBOS. The protected area turned out to be even larger than expected, demanding more modifications. Thanks to the plug-and-play flexibility of the CTS architecture, the EPC was able to use the same number of materials, so the project was still completed within the original budget and timeframe.

Tested for resilience, longevity

The development of the CTS and the solar IPC assemblies highlights how customers have become active participants in the product development process. This approach results in products that better meet the needs of the market and build a lasting connection.

'The industry is sometimes wary of a new product because they want to be sure it's going to last,' says Mike. 'That's

understandable, so the first thing we assure customers of is that we do a lot of testing. We push our products to the limit because we want high in quality that it sets a new standard.'

The average life cycle of a solar farm is estimated at 25 years. TE's products and solutions are all engineered, and tested to last longer than that, thereby reducing the need for replacements and minimizing waste, a growing priority for everybody in this market.

Sustainability in action

TE's focus on sustainability and waste management extends to its product packaging and logistics practices. The company has made significant efforts to reduce packaging waste with its eco-friendly G-packs, by using sustainable materials and optimizing its supply chain to lower its carbon footprint.

'A real focus of ours, from design to close-out, is how to minimize the amount of equipment and materials on-site,' says Mike. 'Eliminating a lot of boxes and packaging up smaller products where we can schedule them by block.'

Thinking green is an integral part of a broader mission to support the global transition to renewable energy. This, combined with core values of safety, innovation, and installation ease drive the company to stay ahead of the curve. In a dynamic landscape of continuing technological evolution, success depends on being able to predict, adapt, and move fast. This is where decades of experience in guiding customers to optimal solutions that meet their needs, prove so valuable.

TE Connectivity's stated mission is to create a safer, more sustainable, productive, and connected future. It is determined to continue to play a crucial role in meeting the growing demand for EBOS solutions that support the accelerated deployment of solar farms. And it recognizes that achieving this future will require strong partnerships with its customers, empowering them to succeed.

🔗 Learn more at www.te.com/cts

¹Solar Power Europe - Global Market Outlook for Solar Power 2024-2028

