

ASK THE EXPERT

ABB's Puneet Jaiswal
the current state of
Renewable and Solar Energy



The future of renewable energy is incredibly bright, and there are several areas where innovation can make a big difference. As technology continues to evolve, I think we'll see significant advancements in storage solutions—particularly in energy storage systems that help manage the intermittency of solar and wind power.

These advancements could help make renewable energy even more reliable and efficient.

1. As the renewable energy sector continues to grow, particularly wind and solar power, what would you say are the key challenges facing developers in the industry right now?

Thank you for having me! The renewable energy sector faces several significant challenges today. First, the demand for energy is growing rapidly, which places additional pressure on industry to provide clean energy from renewable sources. While wind and solar farms are incredibly promising, they encounter obstacles such as being spread over large areas, often in remote or harsh environments.

We also face the complexities of varying weather conditions, ever-changing government and industry standards, and the need to maintain reliable operations despite the harsh environments in which these systems function. For example, wind turbines can endure prolonged vibrations, while solar panels must perform effectively in extreme temperatures.

2. **That sounds like a tough balance to strike. So, how does ABB support the renewable energy sector in overcoming these hurdles?**

At ABB, we are deeply committed to supporting wind and solar developers with solutions that reduce project costs, enhance reliability, and ensure continuous operation. We engage in every phase of a project's lifecycle—from concept and design to installation. This includes a wide range of activities, including compliance with codes and standards, and conducting Factory Acceptance Testing (FAT) to ensure quality and the timely delivery of equipment. Additionally, we have established a Rapid Reaction Team in place to resolve any issues, helping our clients stay on schedule and achieve their performance objectives.

We understand that safety is a top priority; therefore, we offer essential electrical system protection products, including solid-dielectric switchgear, heat-shrink tubing, and fault indicators. These products are designed to safeguard against electrical shocks, arc flashes, and fires, thereby minimizing costly downtime and ensuring safe operation.

3. **What measures do you take to protect renewable energy systems from hazards like electrical shock and fire?**

Safety is paramount, especially in renewable energy systems where the infrastructure is often in remote locations. We offer a wide range of products designed to prevent common electrical hazards, such as arc flashes and electrical shocks. For example, we use advanced tools like E-Z-Ground® grounding systems, ergonomic compression tools, and high-quality compression lugs and splices, which help minimize the risk of short circuits or equipment failure.

In addition, our Hi-Tech® current-limiting fuses are particularly effective in reducing energy let-through, which mitigates the potential for catastrophic failures. This is essential for ensuring the long-term reliability of systems operating in extreme conditions.

4. **With the focus on continuous operation, especially in harsh weather or remote areas, how does ABB ensure that wind and solar farms minimize downtime and maintain performance?**

Minimizing downtime is critical in renewable energy. The remote nature of wind and solar farms means that response times to failures can be costly, both financially and in terms of energy output. We provide products and services that ensure these facilities remain operational, even under challenging conditions.

For example, we use T&B® liquidtight flexible conduits and fittings that can withstand continuous flexing and vibration, while also being resistant to harsh environmental conditions. Our products, like the Elastimold® molded vacuum interrupters, are designed to be compact and maintenance-free, making them ideal for places that are hard to reach.

We also train the owner and operators to ensure they're fully prepared to manage any system interruptions, and our support services are always on standby to help resolve issues quickly.

5. How do you address the specific environmental challenges like extreme temperatures or corrosive conditions?

Extreme temperatures and corrosive environments are an inherent challenge in the wind and solar industry, given that these farms are often exposed to the elements. To combat this, we use specialized products that provide superior corrosion resistance and high-temperature performance.

For instance, our Ocal® PVC-coated conduit is particularly effective in providing long-lasting protection in harsh conditions. It's UL® Listed for superior corrosion resistance and can withstand the elements much better than standard conduits. We also have Blue-Kote® conduit bodies, which offer multi-layer protection and ensure that electrical components remain functional even in corrosive environments.

6. With ABB is being deeply committed to addressing the unique needs of renewable energy projects. Looking ahead, where do you see the biggest opportunities for growth and innovation within the wind and solar sectors?

The future of renewable energy is incredibly bright, and there are several areas where innovation can make a big difference. As technology continues to evolve, I think we'll see significant advancements in storage solutions—particularly in energy storage systems that help manage the intermittency of solar and wind power. These advancements could help make renewable energy even more reliable and efficient.

There are also opportunities to enhance the efficiency of wind and solar farms through more advanced engineering and manufacturing techniques, thereby improving efficiency even at the component level and enabling greater power flow. At ABB, we are dedicated to staying ahead of these trends by continually advancing our products and services to meet the evolving needs of the industry.

Ultimately, the most exciting part is that we're all working together to create a cleaner, safer, and more sustainable energy future.
