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ABB lowers barriers to Spanish solar power investment

Digital transformation in power management is delivering more competitive solar power for 500 MW of new facilities, enough electricity to power 250,000 households

ABB is supporting the transition from fossil fuels to renewables in Europe, supplying smart power systems to one of Spain's largest new solar power plants. The company's digitization of power management is lowering barriers to adoption for renewables, a key element in ABB Electrification's Mission to Zero.

ABB is supplying low-voltage solutions to manage the clean energy produced at new, large-scale solar farms under construction by Solarcentury in Extremadura and Andalusia, Spain.

ABB technology will be monitoring and controlling the energy flowing from more than a million solar panels at the sites. With a combined 500 MW of solar power, the plants will be able to produce enough electricity to power 250,000 households, reducing CO2 emissions by around 285,000 tonnes per year.

ABB's global product manager for ABB Ability Ekip UP, Fabio Monachesi, said: "ABB enables companies and communities around the world to access cleaner, smarter power, aiding the adoption of renewables. ABB's solution for the new generation of 800V AC photovoltaic systems reduces hardware costs, increasing the viability of solar projects."

At the heart of the solution is ABB's Ekip UP smart power unit. The device makes facilities smart and connected, while improving the cost-effectiveness of these long-term assets. The highly replicable solution reduces the need for additional circuit breakers, wiring and assembly work, reducing capital investment costs by up to 70 percent.

Spain is a leader in the deployment of photovoltaic plants. The country has installed more than 7,000 MW of solar power and continues to invest in photovoltaic facilities. Solarcentury is leading the development of a new generation of solar power plants built without public subsidies – and has installed more than 1.6 GW of solar power globally.

Steven Taylor, Solarcentury's Chief Operating Officer, said: "Solarcentury is committed to making solar power more accessible. Working with ABB on the low-voltage systems that control solar farms gives us a more innovative, efficient solution that costs less to install and operate. And, by sourcing the complete solution from ABB, we have a trusted global partner committed to improving the reliability of the plants for their entire lifetime."

ABB's comprehensive low-voltage solution for new-generation 800V AC solar plants provides true energy management at a higher operating voltage than traditional solutions. These higher operating voltages reduce power losses during energy transmission, improving energy efficiency. This also enables the use of smaller cables and conduits, significantly reducing wiring and assembly work, making installation faster and build costs lower.

"We worked closely as one global team to create a replicable architecture," explained Atif Saleri, ABB Ability UK market developer. "ABB's Customer Experience Center in Italy, Solarcentury's UK headquarters, and project execution teams in Spain worked collaboratively on a solution for the global market that could also meet local standards and requirements. Together we identified several optimization opportunities leveraging the use of around 200 Ekip UP digital units.

"Adopting this digital device as a feeder relay with protections integrated, for example, removed the need for additional low-voltage circuit breakers where the local standards allowed. The unit's built-in protocols also enabled the provision of real-time power quality data to the supervision system without other network analyzers."

The Ekip UP solution also reduced the number of low-voltage auxiliary panels planned for the installation by 50 percent. The device's unique embedded Automatic Transfer Switching (ATS) logic enables contactors to manage the supply of low-voltage auxiliary loads such as for lighting, CCTV, HVAC and servers. Ekip UP can also directly connect new and existing systems to the ABB Ability™ cloud, enabling remote monitoring of assets and supporting predictive maintenance strategies. The extended servicing intervals cut maintenance costs by up to 30 percent.

David Minnis, Solarcentury's Head of Application Engineering, said: "The Ekip UP allowed us to remove many individual protection and control devices and converged these into one device allowing a faster build time and simplifying set up, monitoring and ongoing maintenance and operation of the plant. This provides a much cleaner and better technical solution."

The complete 800V AC solution also includes more than 2,300 ABB InLine II fuse switch disconnectors, as well as a host of AF contactors, CP-D power supplies and OT_C manual change-over switches. ABB also supplied OVR type I and II surge protection devices (SPDs), auxiliary panels, energy meters, miniature circuit breakers (MCBs) and residual current circuit breakers (RCDs). "ABB's electrification solutions make management systems for solar farms simpler. Our advances are reducing the hardware investment and making assets more productive, reliable and cost-effective to operate", added Monachesi.

ABB (ABBN: SIX Swiss Ex) is a technology leader that is driving the digital transformation of industries. With a history of innovation spanning more than 130 years, ABB has four, customer-focused, globally leading businesses: Electrification, Industrial Automation, Motion, and Robotics & Discrete Automation, supported by the ABB Ability™ digital platform. ABB's Power Grids business will be divested to Hitachi in 2020. ABB operates in more than 100 countries with about 144,000 employees. www.abb.com

ABB's Electrification business is a global leader in electrical solutions, operating in more than 100 countries, with over 200 manufacturing sites. Approximately 53,000 employees are dedicated to delivering the future of safe, smart and sustainable electrification, for industries, public services and communities. With advanced ABB Ability™ enabled digital solutions at its core, our portfolio protects, connects and optimizes electrical energy supply. This includes the powering of industry, infrastructure and transportation, from data centers to smart buildings and e-mobility solutions; the integration of renewables; and the delivery of intelligent distribution and energy storage. For more information visit https://go.abb/electrification

About Solarcentury

Established in 1998, Solarcentury is a leading global solar power company that develops, constructs, owns and operates utility-scale solar and smart technology across Europe, Latin America and Africa. Independent and headquartered in the UK, Solarcentury is known internationally for developing and building some of the largest utility-scale solar projects in the UK, the Netherlands, Spain, Kenya and Mexico, including pioneering projects such as the world's first solar bridge at Blackfriars Station in Central London. Solarcentury's mission is to make a meaningful difference in the fight against climate chaos by making solar power the dominant energy source worldwide. During Solarcentury's 22-year history the business has helped solar power become mainstream, and its projects have generated 6 billion kWh of clean electricity, saving over 1.7 million tonnes of CO2 emissions. Read more at solarcentury.com

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