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PRESS RELEASE

The EU PVSEC 2025 Concludes with Groundbreaking Innovations in PV and Sets the Stage for Rotterdam 2026

The European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC) successfully concluded at the BEC Bilbao Exhibition Centre, hosting over 1,600 participants from 61 countries between 22 and 26 September 2025. The event showcased more than 1,000 scientific presentations on the latest innovations, reinforcing its status as the premier platform for photovoltaic research and collaboration.

Jon de Gregorio, Conference Director and Scientific Coordinator of the EU PVSEC at WIP Renewable Energies, stated: “The EU PVSEC is the meeting point where innovation joins application, and where research and policy converge to accelerate the global energy transition. The engagement from researchers, industry leaders, and policymakers throughout this year’s conference confirms its importance in shaping the future of solar energy.”

Key Advances in Solar Energy Technology

This year’s scientific programme once again demonstrated the breadth and depth of innovation driving the photovoltaic sector forward. Covering every link of the PV value chain, sessions explored both fundamental research and system-level solutions, underscoring the central role of solar in Europe’s and the world’s energy transition. Carlos del Cañizo, EU PVSEC 2025 General Chair, summarised: "The photovoltaic community is continuously advancing cell and module efficiency, not only in laboratories but also in production, expanding PV solutions into new application fields. Research is increasingly addressing critical challenges such as stability, reliability, productivity, and sustainability. However, further progress is needed, particularly in the area of PV and storage, which remains key to a fully decarbonised energy system."

Cross-cutting themes emerged throughout the programme, showcasing how solar technologies can be applied everywhere, from traditional to emerging fields. As the global PV market grows, rapid advancements in materials, designs, and manufacturing are evident. Sustainability and circularity remain central, with research focused on reducing material use, such as replacing silver with copper, and advancing end-of-life management of modules. Ensuring long-term stability and predictable energy yield is equally essential, with studies carried out on degradation mechanisms such as UV-Induced Degradation (UVID). Lastly, the role of AI across the PV value chain is rapidly expanding, from design to operations and maintenance, including drone applications.

Perovskite solar cells continue to stand out as the leading complementary technology to silicon, with significant work dedicated to ensuring their future viability. Rapid innovation in cell and module designs and manufacturing requires

faster and improved testing and qualification approaches. The options for module manufacturing in Europe were also highlighted, with several studies outlining long-term policy recommendations.

Agrivoltaics is gaining momentum as a promising approach to dual land use, offering economic benefits for farmers and also greater resilience to climate change. Flexibility solutions, principally through battery storage, were noted in many presentations as essential to enable the next phase of PV penetration and reduce curtailment, alongside the need for stronger grids and improved grid management.

Finally, this year's event emphasised the importance of inclusiveness, diversity, and social engagement within the PV sector, with ongoing efforts to address these aspects and integrate them into the sector's future development.

Session Recordings Available for Three Months

Recordings of the scientific sessions, Parallel Events, and the Industry Summit will be available online for three months following the event. This allows participants and the wider solar community worldwide to revisit presentations, catch up on sessions they may have missed, and access the wealth of insights shared at the EU PVSEC 2025.

Next Chapter in PV Innovation in Rotterdam

The 43rd EU PVSEC will be held from 14 to 18 September 2026 in Rotterdam. As a leader in renewable energy, the city will provide the perfect setting for the global PV community to gather and build on the successes of Bilbao, driving innovation, collaboration, and sustainability in photovoltaics**.**

Banners for the press release can be found here:
EU PVSEC 2026

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ANNEX

Technical Highlights of the EU PVSEC 2025

- ANU Solar shows how pumped hydro could dramatically reduce the need for batteries in a 100% renewable energy scenario.
- Plenary presentation from UNSW on “Understanding the Root Cause of UV-Induced Degradation in TOPCon and PERC Solar Cells.”
- Keynote plenary on heterojunction solar cells by Trina Solar: “Silicon Surface and Interface Study for >27% Efficient SHJ Solar Cell”, which provides a deep insight into technological aspects. Longi and Fraunhofer ISE respectively provided additional results on Interdigitated Back Contact Silicon Solar Cells and Perovskite-Silicon Tandem Devices.
- Many companies (e.g. Hanwha Q Cells, Oxford PV, Microquanta Semiconductor, Jinko Solar, Longi) presented impressive results on industrial-size single-junction perovskite modules and perovskite-based tandem modules. Hanwha Q Cells showed a record-breaking large-area (M10) pilot-scale Perovskite/Si tandem cell with 28.6% efficiency.
- In the field of Pk/Si tandems, there is increasing focus on improving stability, with many contributions presenting in-depth investigations into the different degradation mechanisms that can occur. ISC Konstanz presented a consensus statement on reliability testing of perovskite-based tandems, endorsed by specialists worldwide from both industry and research.
- A big theme in module research is optimising module materials and packaging for a long lifetime and a predictable energy yield from high-efficiency cells. The industry and research community are moving quickly to assess and improve reliability in the rapidly developing PV sector.
- Reducing silver content and metallisation temperatures requires additional research into the reliability of low-temperature and low-silver metallisation.
- We see advances in O&M of PV systems. The poster session “Advances in Operation, Performance and Maintenance of PV Systems” focused on fault detection, cleaning optimisation, soiling, the use of UAVs (drones) for autonomous monitoring, and digital twins. The session also featured data-driven and AI-based O&M, including an autonomous multi-AI agent system for health monitoring: a fully automated O&M pipeline with field robotics from Eurac Research.
- PV can be deployed everywhere: from space to agricultural applications such as integration in vineyards to mitigate climate change (“Agrivoltaic System Potential to Mitigate Effects of Climate Change in Viticulture”), and many other integrated options showcased throughout the week, such as the sessions “Agrivoltaic Technologies” and “Agrivoltaics, PV

Noise Barriers and Floating PV", which addressed agrivoltaics, noise barriers, floating integrated systems, and BIPV.

- There is currently a mismatch between PV module installation rates worldwide and PV module production rates, leading to increasing inventories and drastically reduced prices.
- Societal challenges such as citizens' participation and awareness are increasingly being addressed, with new data and analysis emerging on gender aspects in the PV sector, as well as innovation in the critically important area of education.