Perovskite photovoltaic panels are now in production

Overview

Current Status: Pilot-scale commercial production has begun. Oxford PV (Germany) and Hanwha Qcells (Korea/USA) are leading, with modules achieving 24-28% efficiency now shipping to select customers. Full bankability for utility projects is expected by 2027-2029. Perovskites can be used as the main materials for photovoltaic solar cells, or combined with silicon to increase energy extraction. Credit: Thom Leach/ Science Photo Library/ Getty Images The world is enjoying a solar power revolution. Credit: Microquanta Semiconductor Recurring stories and special news packages from C&EN. China is the world leader in silicon-based solar panels, and it is becoming . Oxford PV announces world-first commercial sale of next-generation perovskite tandem solar panels set to transform the energy industry and accelerate progress towards clean energy goals. LONGi holds the NREL-certified world record at 34. 85% efficiency (April 2025), while Oxford PV shipped its first 24. The first 1 MW . As a thin-film technology, PV perovskites are now being developed in research labs and by both startups and established manufacturers - an effort that could significantly reshape the future of solar manufacturing. In the United States, momentum is building fast with more than 15 companies actively .

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[Perovskite Solar Panels Now Commercial, Boosting Energy Output]

The commercial launch of perovskite-on-silicon tandem solar panels significantly boosts solar energy output and reduces costs, accelerating the global energy transition. Oxford PV has

Perovskites move into production

Large perovskite silicon tandem cells, or even entire modules, are still hard to find. Anglo-German company Oxford PV has a clear lead, having set up the world's first series production

Perovskite: The 'wonder material' that could transform

Some argue advances in perovskite solar cells mean we are on the brink of the next solar energy revolution. But it all depends on how they hold up in the real world.

Why China is leading perovskite solar commercialization

It already dominates silicon-based solar panel manufacturing, and now it's leading the world in bringing much-hyped perovskite solar technology into mass production (PDF).

Perovskite photovoltaics prepare for their time in the sun

During the first half of 2025, solar panels

generated 8.8% of global electricity, more than doubling their contribution since 2021, according to the energy think tank Ember. More than 95% of

[Commercialization of perovskite photovoltaics: Recent progress and]

Perovskite-based photovoltaic technology is rapidly advancing toward becoming a commercially viable product.

[The race to the next generation in solar manufacturing - perovskites]

As a thin-film technology, PV perovskites are now being developed in research labs and by both startups and established manufacturers - an effort that could significantly reshape the future

[Perovskite solar cells: Progress continues in efficiency, durability]

Numerous significant advancements in perovskite solar technology took place in 2023, as reported on CTT. Here, we report on some of the latest developments since then. Since 2023, more

[Perovskite Solar Cells 2026: 35% Efficiency-Is It Ready to Buy?]

As of January 2026: Perovskite-silicon tandem technology has entered pilot commercial production. Oxford PV shipped its first 24.5% efficiency modules to U.S. utility customers in September 2024 and

Oxford PV

The first Oxford PV panels available on the market have a 24.5% module efficiency, offering performance significantly above traditional silicon technology. The panels are powered by

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