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German PV research funding under pressure: Industry and research warn of impact on global competitiveness

ISC Konstanz supports VDMA and FVEE call to maintain Germany's applied energy research funding – EMMVEE in India, Suniva in the United States and a new German Turnkey Alliance demonstrate how publicly funded R&D creates international business opportunities

Konstanz, Germany, 13 October 2026 – Germany's photovoltaic research community and equipment industry are concerned about planned reductions in the country's applied energy research funding. Germany's draft federal budget for 2027 foresees a reduction in commitment appropriations for applied energy research from approximately EUR 577 million to EUR 386 million – a cut of around one third in the funding commitments that enable new multi-year research and technology transfer projects to be launched.

VDMA Photovoltaics Equipment and the German Renewable Energy Research Association FVEE have therefore called on policymakers to reverse the planned reduction during the ongoing parliamentary budget process.

ISC Konstanz strongly supports this initiative. The idea for the joint position paper originated at ISC Konstanz and was subsequently developed together with VDMA, FVEE and partners from research and industry.

The debate comes at a critical time for Germany's photovoltaic research and equipment ecosystem. While large-scale solar manufacturing has increasingly shifted outside Europe, Germany continues to hold strong positions in production technology, automation, metrology, process know-how and industrial R&D. Applied research provides an important link between these capabilities and international manufacturing markets.

According to VDMA, cumulative global investment in photovoltaic production equipment is expected to reach USD 250–300 billion by 2035, with annual investment increasing from around USD 16.6 billion today to USD 43.8 billion.

“The concern in Germany is not simply about research institutes receiving less funding,” says Dr Radovan Kopecek of ISC Konstanz. “The real issue is whether we maintain the innovation ecosystem that connects research institutes with our machinery and equipment industry. Germany may no longer manufacture the majority of the world’s solar cells, but we still have outstanding technology and production know-how. Applied research helps turn this know-how into international business.”

India: German research and equipment in a 2.9 GW TOPCon factory

A recent example is EMMVEE’s new 2.9 GW TOPCon solar cell manufacturing facility in Bengaluru, India.

ISC Konstanz supported the successful production ramp-up together with German equipment manufacturers centrotherm and RENA Technologies. The production line uses equipment from leading German suppliers. centrotherm coordinated the production setup, RENA Technologies supplied wet-chemical equipment, while ISC supported the project partners with technology transfer, process integration and the on-site production ramp-up.

The line has achieved TOPCon cell efficiencies of up to 25.4%.

The project demonstrates how German research and process expertise can support the deployment of German production technology in one of the world’s fastest-growing photovoltaic manufacturing markets – and how international PV expansion can become an export opportunity for German technology suppliers.

United States: Supporting Suniva’s 1 GW cell production

A second example is ISC Konstanz’s cooperation with U.S. solar cell manufacturer Suniva.

ISC supports Suniva’s 1 GW PERC solar cell production in Georgia. The teams work together on increasing cell efficiency, production yield and throughput and on evaluating potential technology and equipment upgrades.

The cooperation demonstrates another aspect of technology transfer: German photovoltaic expertise can support not only the ramp-up of new factories but also the continuous optimisation and technological development of existing industrial production.

“India and the United States are very different markets, but the underlying principle is the same,” Kopecek says. “Research creates process know-how. This know-how helps manufacturers build and optimise competitive production – while creating opportunities for German equipment, automation, measurement and technology suppliers.”

From publicly funded research to a German Turnkey Alliance

ISC Konstanz sees an even greater opportunity in moving from individual equipment and technology exports towards complete European production solutions.

This approach has emerged directly from Germany’s publicly funded PV research and technology-transfer activities. In the PV PILOT project, leading German research institutes, RCT Solutions and VDMA developed concepts to accelerate the transfer of innovations into industrial production. One of the project’s three central recommendations was to strengthen German turnkey consortia and develop instruments that enable them to compete for international factory projects.

This work is being continued in PV ACTION, where German research institutes are linking their pilot facilities and expertise while international production lines in markets such as the United States and India are being developed as demonstration platforms for German machinery manufacturers and technology providers.

Building on these activities, ISC Konstanz and its industrial partners have formed a German Turnkey Alliance covering key crystalline-silicon technologies including PERC, TOPCon and back-contact solar cells. The objective is to combine German process know-how, equipment and factory integration capabilities into complete manufacturing solutions that can compete for international PV factory projects.

“This is exactly why research funding and industrial policy cannot be separated,” says Kopecek. “Publicly funded research does not end at the laboratory door. It can lead from a new process to a pilot line, from a pilot line to German equipment, and ultimately to a complete factory offer for the global market.”

Concern over Germany’s future project pipeline

The planned reduction in Germany’s 2027 budget does not represent a one-third cut in current annual energy research expenditure. The concern focuses on commitment appropriations: these enable new multi-year research projects to start in 2027 and secure their financing in subsequent years.

Reducing these commitments from approximately EUR 577 million to EUR 386 million would therefore significantly restrict the scope for launching new applied research and technology transfer projects.

For Germany’s research institutes and industrial partners, continuity is particularly important. Production technologies take years to develop, validate and transfer into industrial manufacturing. Interruptions in this pipeline risk weakening competencies and industrial networks that have been built over many years.

VDMA Photovoltaics Equipment and FVEE therefore recommend maintaining commitment appropriations for applied energy research at least at their previous level.

“With a global PV equipment market of up to USD 300 billion ahead of us, this is not the time for Germany to weaken the link between research and industrial implementation,” Kopecek concludes. “Research funding is not an end in itself. It is a comparatively small lever that helps turn German technology into competitive products, export business and highly qualified jobs.”

Further information

VDMA/FVEE press release:

https://www.vdma.eu/documents/d/group-34568/en-pr-pv-machinery-r-d-funding

Joint VDMA Photovoltaics Equipment/FVEE position paper:

https://www.vdma.eu/documents/d/group-34568/2026-10-05-positionspapier-vdma-pv-produktionsmittel-fvee

ISC Konstanz technology transfer at EMMVEE, India:

https://isc-konstanz.de/en/successful-technology-transfer-isc-konstanz-supports-ramp-up-of-a-2-9-gw-topcon-solar-cell-factory-in-india/

ISC Konstanz cooperation with Suniva, USA:

https://isc-konstanz.de/en/isc-konstanz-and-suniva-extend-cooperation-on-u-s-solar-cell-production/

PV PILOT – research infrastructure and turnkey concepts:

https://isc-konstanz.de/en/pv-pilot-final-report/

About ISC Konstanz

Founded in 2005, ISC Konstanz has contributed to photovoltaic manufacturing lines across Europe, Asia, and North America. With its upgraded infrastructure, the institute is strengthening its role as a key partner for industrial photovoltaic innovation and the development of next-generation high-efficiency solar technologies.

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