

Press Release

International Energy Agency Photovoltaic Power System Programme New reports PV sustainability and Built-integrated Photovoltaics (BIPV).

International Energy Agency PVPS programme (IEA PVPS) is proud to announce the publication of three new reports focusing on PV sustainability Activities (Task 12) and on the Enabling Framework for the Acceleration of BIPV (Task 15), November 2019

Human Health assessment methods for PV | Part 2: Breakage risks (Task 12)



Having analysed the fire risks in the previous report (Part 1), Researchers from Task 15 focused this time on another topic: Breakage risks. Photovoltaic (PV) modules are designed and tested for long-term durability in harsh outdoor environments, but a small percentage may break during installation or operation. Some industry stakeholders have expressed concerns regarding potential human exposure to hazardous materials should a PV module break in the field. To evaluate these concerns, screening-level risk assessment methods are presented that can estimate emissions that may occur when broken PV modules are exposed to rainwater, estimate the associated chemical concentrations in soil, groundwater and air, and finally compare these exposure-point concentrations to health-protective screening levels based on 1×10^{-6} cancer risk and hazard quotient of 1. The screening-level methods can be used to decide whether further evaluation of potential health risks is warranted. A few example scenarios demonstrate application of the methods.

[Download the full report](#)

Analysis of requirements, specifications and regulation of BIPV (Task 15)



This report focuses on the requirements, specifications and regulations relevant to the development of BIPV performance and safety standards. After presenting a comprehensive list of possible requirement items and analysing specifications and regulations related to BIPV, this report provides information and proposals to support the development of international BIPV standards, one of the key elements that can contribute to accelerate the market uptake of BIPV.

Based on the categories, the identified technical BIPV requirements were categorised, providing a clear recommendation of topics that should be addressed by international standards on BIPV. These outcomes have been and will continue to be provided to the bodies such as IEC and ISO to support the development of international BIPV standards.

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BIPV Design and Performance Modelling: Tools and Modelling (Task 15)

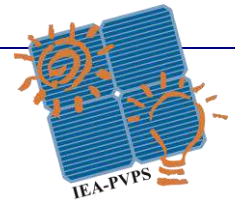


The given state-of-the-art review of BIPV design and management tools presents recent developments in BIPV modelling concerning design and management processes with different levels of detail, targeting various stakeholders and their requirements in the BIPV value chain in relation to geophysical, technical, economic and environmental aspects. It goes beyond focusing only on PV modelling and gives an overview of the BIPV tools from the perspective of BIPV integration in design and multi-performance modelling and planning.

The findings of this review showed none of the examined software and apps can cater to all the factors pertaining to PV project design and management. Results have shown that majority of tools used in BIPV modelling come from PV domain and consequently still lack important features regarding BIPV integration, especially for vertical or externally mounted BIPV.

Therefore, this study proposes a decision support system which will address stakeholders' practical difficulties by providing the main features: (1) a localised data repository which will include weather information, building regulations, energy consumptions in different building sectors, utility prices, construction and maintenance costs, contract types, financial modes, carbon prices and government incentive schemes; (2) efficient 3D model creation of the physical environment; (3) Hourly comparison of energy input and output; (4) PV layout design optimisation; (5) Simulated installation process and impact analysis; (6) Monitoring and inspection modules with auto diagnosing function; (7) PV system performance recording; and (8) sensitivity analysis and scenario-based decision making support.

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PHOTOVOLTAIC POWER SYSTEMS TECHNOLOGY COLLABORATION PROGRAMME

About the IEA PVPS Task 12

Task 12 was established in 2010 within the IEA PVPS Programme in order to foster international collaboration in the areas of safety and sustainability which are crucial for allowing PV to grow to levels enabling a major contribution in the needs of the member countries and the world. The Task is co-managed by National Renewable Energy Laboratory and the Solar Power Europe. The first part published in 2018 is available: [Human Health Risk Assessment Methods for PV | Part 1: Fire Risks](#).

About the IEA PVPS Task 15

Task 15 was established in 2010 within the IEA PVPS Programme in order to create an enabling framework to accelerate the penetration of BIPV products in the global market of renewables, resulting in an equal playing field for BIPV products, BAPV products and regular building envelope components, respecting mandatory issues, aesthetic issues, reliability and financial issues. The Task is managed by Zuyd University in Applied Sciences. More reports published in 2019 are available: [Coloured BIPV: Markets, Research and Development](#), [Compilation and Analysis of User Needs for BIPV and its Functions](#), [BIPV research teams & BIPV R&D facilities An international mapping, second version](#).

About IEA PVPS

The IEA Photovoltaic Power Systems Programme (IEA PVPS) is one of the collaborative R&D Agreements established within the IEA and, since its establishment in 1993, the PVPS participants have been conducting a variety of joint projects in the application of photovoltaic conversion of solar energy into electricity. The 32 PVPS members are: Australia, Austria, Belgium, Canada, Chile, China, Denmark, European Union, Finland, France, Germany, International Copper Alliance, Israel, Italy, Japan, Korea, Malaysia, Mexico, Morocco, Netherlands, Norway, Portugal, SEIA, SEPA, SolarPower Europe, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, and the United States.

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