

Media release

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Improving the circular economy in the solar industry

Swiss PV Circle lays the foundation for the reuse of PV modules in Switzerland

After one and a half years of intensive collaboration between research and industry, the Swiss PV Circle project has reached a successful conclusion. The project aimed to create a solid foundation and tools for reusing photovoltaic modules in Switzerland – to help conserve resources and consolidate the circular economy in the solar sector.



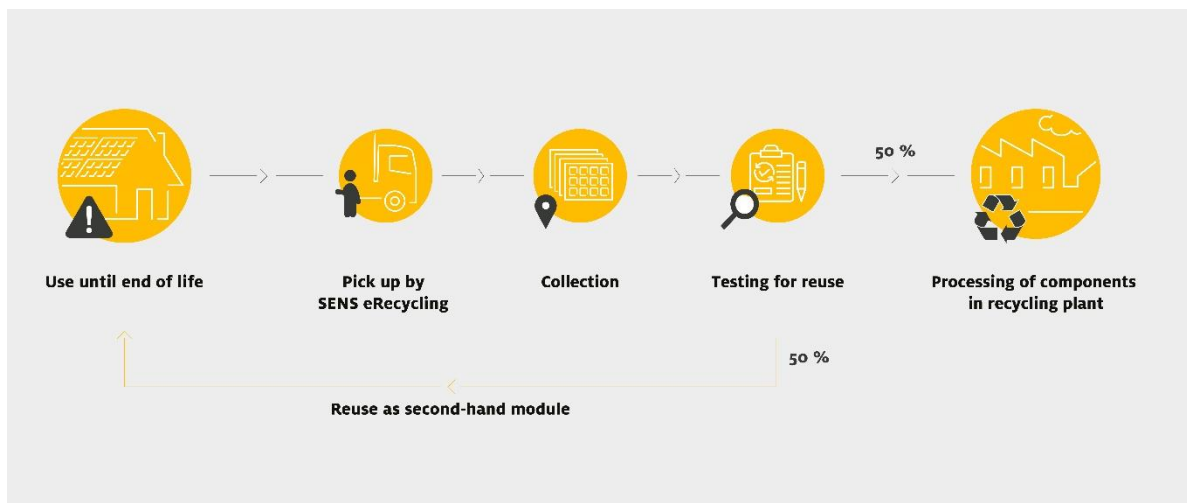
Image: The Swiss PV Circle project showed that financial incentives and systematic data collection are key levers for increasing the reuse of PV modules.

The Swiss solar market is growing – and with it the challenge of finding effective ways to reuse old photovoltaic modules. Around half the modules that end up in the waste stream today may still be functional in principle. This is precisely where the Swiss PV Circle project came into play. SENS eRecycling, Swissolar and the Bern University of Applied Sciences, together with other partners from the solar and energy sector, investigated how the service life of photovoltaic modules could be extended.

The central question was: How can the reuse of PV modules be facilitated and promoted in Switzerland? To answer this, the project partners developed practical tools and technical principles, conducted market studies, and formulated specific policy recommendations to ensure long-term reuse.

Recommendations for policymakers

The key project outcomes are policy recommendations aimed at creating better framework conditions for effective reuse. These include financial incentives, such as an advance reuse contribution similar to the existing recycling contribution, or a reuse bonus in the existing subsidy system. In addition, the introduction of a nationwide labelling and certification system is proposed to build trust and make certified quality visible. Systematic data collection during the installation and dismantling of PV systems is also recommended to support traceability and circular strategies. A harmonised approval approach for the handling of used modules throughout Switzerland as well as greater transparency in exports are intended to diminish further hurdles. Over the longer term, a digital product passport for PV modules could also become a major tool for the circular economy.



Graphic: The aim of Swiss PV Circle is to move from linear to circular use of photovoltaic modules.

Practical solutions

In addition to political recommendations, Swiss PV Circle also carried out pioneering technical and practical work. It developed a platform prototype based on a data model that enables an early assessment of the right circular strategy for end-of-life modules. A new forecast model calculates a reduction of between 23,000 and 90,000 tonnes of PV modules by 2050.

A step-by-step guide for installers describes how used modules can be technically tested, assessed and recommissioned as appropriate. It serves as an important instrument for the safe and sustainable second-hand use of PV modules.

Market study shows potential and challenges

Swiss PV Circle also examined the economic and ecological potential of reusing old PV modules.

Environmentally, reuse offers clear advantages as it conserves resources and reduces waste. In economic terms, profitability is often limited at present, primarily due to the low price of new modules.

The market study shows that old modules are currently used mainly in smaller applications, such as on balconies or in allotment gardens. Certified quality, high residual module performance and attractive prices are crucial for wider acceptance.

From project to realisation

Swiss PV Circle has created an important foundation for enabling the reuse of photovoltaic modules in Switzerland. The combination of policy recommendations, technical solutions and market studies creates a solid base for the expansion of the circular economy in the solar sector.

It is now incumbent upon politicians and industry to implement the proposed measures – so that the reuse of PV modules becomes an integral part of Switzerland's energy and environmental strategy.

More information about the partners and the project can be found here: www.pv-circle.ch/en/

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Swiss PV Circle

To further improve the circular economy in the solar industry and minimise future waste by increasing the second life of PV modules, SENS eRecycling and Swissolar have teamed up with the Bern University of Applied Sciences and other partners from the Swiss PV industry. Together, they aim to complement the current process for picking up, gathering together and recycling PV modules with an additional test procedure designed to promote reuse.

The project aimed to extend the life of PV modules by developing business models for their reuse. To this end, a platform was developed that enables the relevant circular strategy to be identified at an early stage by way of comprehensive data management. This data-based calculation is to be supported by a standardised test procedure which determines the reuse potential of photovoltaic modules. In this way, tested second-hand modules can be offered on the market at a lower price, with only the modules that are no longer working being recycled.