Swiss PV Circle

Work package 6 - Political recommendations for action

Policy Brief of the Swiss PV Circle project for the attention of politicians

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Executive Summary

The following table provides an overview of the recommended measures and strategies to promote the circular economy in the Swiss solar industry. These recommendations cover a wide range of initiatives, including financing, data collection and the creation of a harmonised authorisation system. Each measure is described in detail and provides clear action points for the industry players involved.

Recommendation	Description of the	Change artefact / location	Actors	Section / Page
Advance re-use contribution from the solar industry	Financing by the solar industry (manufacturers, importers, dealers and other players) in the form of an advance re-use contribution, similar to the advance recycling contribution.	Swissolar / SENS eRecycling agreement	Solar industry, SENS eRecycling	2.1.1 Page 4
Supplementing the subsidy system with a re-use bonus	Introduction of a reuse bonus per watt peak. The bonus is to serve as a funding instrument for 10 years (5-10Rp/Wp) and establish a reuse ecosystem in Switzerland.	Energy Promotion Ordinance (EnFV)	Solar industry, National policy, SFOE	2.1.2 Page 4
Development and establishment of a labelling and certification system	The Swiss Federal Office of Energy is financing the development of a labelling/certification system as part of a pilot and demonstration project in accordance with the Energy Ordinance[(5)] (Art. 54 EnV)	Pilot and demonstration project in accordance with the Energy Ordinance	Solar industry, SFOE	2.2 Page 6
Comprehensive data collection during installation	Obligation to specify the module type according to the product data sheet when initially registering a PV system with Pronovo.	Energy Promotion Ordinance (EnFV)	Solar industry, National policy, SFOE	2.3 Page 7
Recording of plant shutdowns	Obligation to report a plant shutdown in order to enforce current legislation (Art. 34 EnFV).	Energy Promotion Ordinance (EnFV)	Solar industry, National policy, SFOE	2.3.2 Page 8
Harmonised licensing practice for operating licences under waste legislation	The harmonisation of approval processes for operating licences under waste legislation and the introduction of a uniform documentation obligation with regard to the currents of PV modules	Enforcement group for the Ordinance on the Transport of Waste (VeVA)	Solar industry, Conference of Swiss Environmental Authorities (KVU), FOEN, SFOE	2.4 Page 9
Use of second-hand modules for repairs during heavy weather events	Specification of the replacement value of the mandatory building insurance against fire and natural hazards	Cantonal building insurance	Solar industry, VKG	2.5 Page 9
Transparency when exporting second-hand modules	Distinction between new and used "photovoltaic cells, assembled into modules or packaged in panels" (tariff no. 8541-4300).	Ordinance on the Amendment of the Customs Tariff and Annexes 1 and 2 of the Customs Tariff Act (ZTG)	Solar industry, FOEN, BAZG	2.6 Page 12

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1. Initial situation

The reuse of PV modules and systems has not yet been systematically established or widely implemented in Switzerland. Although there are individual local initiatives that reuse dismantled, still functional PV modules and components to the best of their knowledge, a coordinated, systemic approach is still lacking. In view of the expected significant increase in PV modules that will reach the end of their first life cycle in the coming years and are generally suitable for reuse (see Deliverable 3.1), the topic is becoming increasingly relevant. The revision of the Environmental Protection Act[1] promotes reuse as a key element of a circular economy and gives the solar industry the opportunity to position itself as an innovative and environmentally friendly industry in the area of reuse, similar to its pioneering role in recycling.

Against this background, the industry association Swissolar and the take-back system SENS eRecycling have initiated an in-depth analysis of the reuse of PV modules in Switzerland as part of the Swiss PV Circle project together with the Bern University of Applied Sciences.

The results of the study make it clear that second-hand modules have to assert themselves in a market environment characterised by intense competitive pressure (see Deliverable 5.1). The existing challenges are complex and can be attributed to systemic, economic, technological, cultural and regulatory framework conditions. Under these conditions, the market integration of second-hand modules is currently proving difficult. In addition, the development of a functioning re-use infrastructure in the context of a hitherto largely linear system requires initial system investments that can hardly be borne by individual players alone. This includes the development of standardised testing procedures and building trust in the quality of used modules on the part of those requesting them. In order to create the structural conditions for the successful establishment of reuse - similar to pioneers such as France or the Netherlands - specific political recommendations for action were developed as part of the project, which will be discussed later in this report.

2. Political recommendations for action

2.1 Financial support for reuse

The study shows that used PV modules operate in a highly competitive market in which they have to hold their own against low-cost new modules and highly dynamic technology (see Deliverable 5.1). The very low prices for new modules in combination with rapid technological progress, which leads to the rapid "ageing" of existing modules, are currently proving to be a key inhibiting factor. Under these conditions, the market integration of second-hand modules is currently proving difficult. Swiss PV Circle therefore proposes two basic financing approaches for additional financing to promote second-hand modules.

2.1.1 Advance re-use contribution from the solar industry

The first option for financially promoting reuse is financing by the solar industry, i.e. by manufacturers, importers, dealers and other stakeholders in the form of an advance reuse contribution similar to the advance recycling contribution. Instead of a collective solution, individual solutions are also conceivable, e.g. for individual module types.

Proposal:

[1] "Federal Act on Environmental Protection (EPA)," Pub. L. No. SR 814.01 (1983).

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- Introduction of a re-use contribution and establishment of a re-use fund by Swissolar in cooperation with SENS eRecycling.
- Support for organisations in the area of reuse through the Re-Use Fund, SENS ensures targeted use of funds.

Swiss PV Circle assessment:

- The industry must either fulfil regulatory requirements in this area (e.g. re-use quota) or see a relevant benefit for itself in such efforts.
- The revision of the EPA (coming into force on 1 January 2025) lays the foundations for reuse as a circular economy strategy. The impact of this change at ordinance and enforcement level is not yet fully foreseeable.
- Sustainability in the overall context is fundamentally important to the industry. European manufacturers in particular see a strategic advantage in differentiating themselves in the market with sustainability issues. However, the high level of competition and share of imported products severely limit the room for manoeuvre. On the part of manufacturers, efforts are being made towards high-quality recycling with a high recycling rate rather than the reuse of PV modules. Especially as technological advances in module technology are still foreseeable, which is challenging for reuse. However, Swissolar is endeavouring to conduct a survey among its members in order to take the pulse with regard to a re-use contribution, similar to the recycling contribution.

2.1.2 Supplementing the subsidy system with a re-use bonus

Secondly, additional funding to promote second-hand modules is possible through additional state funding in the existing subsidy system. This could be expanded with a re-use bonus or supplemented with additional payments.

Proposal:

- Addition of a new paragraph to the Energy Promotion Ordinance (EnFV),[2] Art. 38, to introduce a re-use bonus per watt peak,[3] regardless of the type of system.
- The re-use bonus would be intended as a funding instrument for 10 years and should serve as a start-up aid for the establishment of a re-use ecosystem in Switzerland.
- Swiss PV Circle proposes a contribution of 5 to a maximum of 10 centimes per watt peak as the amount of the re-use bonus.

Swiss PV Circle assessment:

- A change in the EnFV must be justified with clear added value for society (e.g. ecology, waste avoidance). The connection between the energy transition and the circular economy must be clearly demonstrated (resource consumption, security of supply, economic innovation). It must also be ensured that corresponding funding can be disbursed in a targeted manner.

[2]" Ordinance on the Promotion of the Production of Electricity from Renewable Energies (Energy Promotion Ordinance, EnFV)),” 730.03 § (2017).

[3] Short Wp, after Standard Test Conditions; STC

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- The launch of a Switzerland-wide "re-use label" would be a key factor for the credibility of reused PV modules. Swissolar or possibly third parties would certify the testing procedure of the actors who prepare PV modules for reuse (see section 2.2 below).
- Initial ecological assessments show that generalised comparisons of the ecological impact of a PV system with reused modules versus one with new modules are difficult (see Deliverable 2.2). In order to ensure targeted funding, it may be necessary to link funding to a case-by-case assessment. However, it is questionable whether the associated costs and effort are justified.
- Similarly, systems with reused modules would have to be tracked during their service life to ensure that the assumptions that allow such systems to be subsidised have actually been met. A similar system already exists in the current subsidy system for new installations (minimum operating period). However, the necessary review of the service life of installations and any repayment before the end of the minimum operating period is not yet implemented consistently and across the board (see section 2.3.2 below).[4]
- The re-use bonus is designed to expire after 10 years and is intended to serve as a start-up aid for establishing a circular economy. Due to scaling effects and innovations, Swiss PV Circle assumes on the basis of the available data that the bonus will no longer be necessary afterwards.

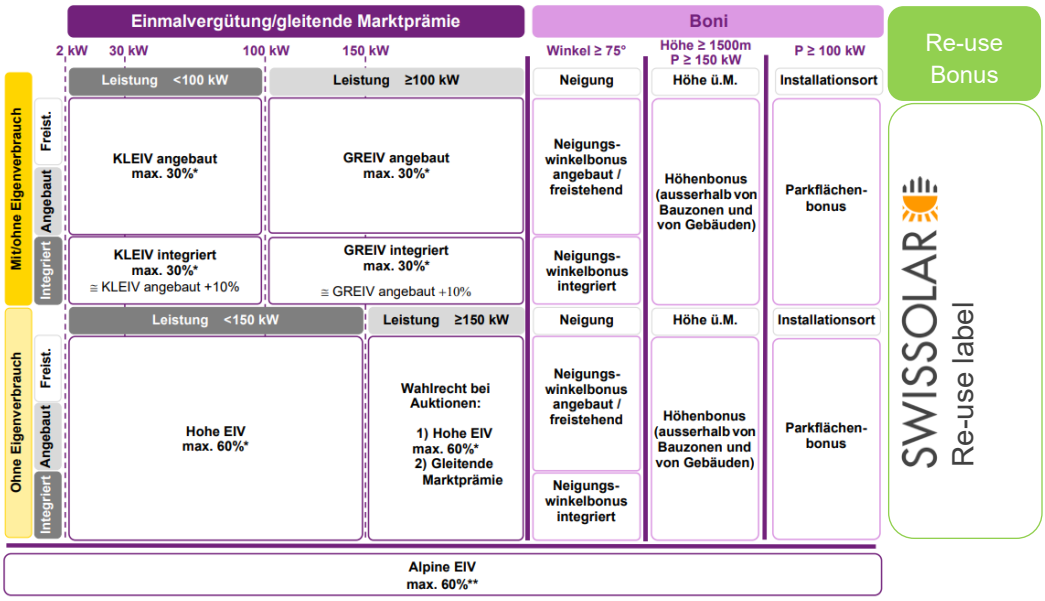

Figure 1: Overview of the subsidy instruments for photovoltaic systems in Switzerland, including the re-use bonus.

2.2 Development and establishment of a labelling and certification system

In addition to direct financial support for reuse, Swiss PV Circle sees a kind of start-up aid for the establishment of a reuse ecosystem as a way of promoting the reuse of PV modules and components in Switzerland. A central component of this would be the development and establishment of a Switzerland-wide labelling/certification system.

Proposal:

- The Swiss Federal Office of Energy is funding the development of a labelling/certification system as part of a pilot and demonstration project in accordance with the Energy Ordinance[5] (Art. 54 EnV).

[4] Based on the data analysis within Swiss PV Circle, as of March 2025

[5] "Energy Ordinance (EnV)," 730.01 § (2017).

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Swiss PV Circle assessment:

- Currently, trust in the quality and functionality of reused PV modules is mainly based on individual experience and expertise. In order to institutionalise and strengthen this trust, the introduction of a federal label/certification system is required. This system should initially be specifically promoted by the federal government and sustainably support the overall system in the long term.
- The main objectives of the labelling/certification system are to build trust and transparency by creating a reliable system that guarantees the quality of second-hand modules and provides security for consumers and investors. It also promotes innovation and scaling in order to reduce the need for financial support in the long term.
- The label/certification system should be monitored and implemented by trustworthy organisations such as Swissolar, SENS eRecycling or, if necessary, third parties. These institutions are responsible for the certification of actors who sell and install PV modules for reuse. One component of the system is the inclusion of established quality labels such as Solarprofi® . This includes the expansion of the existing training system to impart specific knowledge and skills in the area of PV module reuse and the introduction of basic requirements for participation in the certification system, which can be fulfilled by completing additional training. The long-term monitoring of the certified companies ensures that the agreed services are being fulfilled.
- The initial federal funding is aimed at supporting the establishment of the system and incentivising participation. This includes providing funds to cover the initial certification costs and investing in the necessary infrastructure to effectively implement and operate the certification system. Targeted promotion and the establishment of a robust labelling/certification system will increase confidence in the reuse of PV modules in the long term. This leads to a more sustainable use of resources and supports the circular economy in the PV industry. In addition, the need for subsidies for reuse is reduced as market participants can act independently and efficiently thanks to the established system.
- The initial federal funding, the inclusion of quality labels and the expansion of the training system will create a sustainable and trustworthy overall system that offers long-term benefits for society and the environment.

2.3 Creation of a data basis for circular economy strategies

Data collection plays a central role in a successful circular economy, as it forms the basis for informed decisions and efficient processes. Without accurate and comprehensive data, it is almost impossible to fully utilise the potential of second-hand modules in the PV industry. Structured data collection enables the clear identification and tracking of modules, ensuring targeted promotion and optimal utilisation. Swiss PV Circle therefore proposes two approaches in the area of creating a data basis for circular economy strategies.

2.3.1 Comprehensive data collection during installation

The first approach relates to comprehensive data collection during installation, or a specification of the data to be collected.

Proposal:

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- Supplement the Energy Promotion Ordinance (EnFV),[6] Annex 2.1, point 3 by specifying the module type according to the product data sheet.

Swiss PV Circle assessment:

- Specifying the module type is a decisive criterion for assessing the reuse potential. It should be noted that the modules are not entered via a free text field, but the exact type according to the product data sheet.
- At best, the specification is made possible by means of a dropdown with predefined module types (see Deliverable 2.1), whereby the tool is linked to a component database. Existing databases were analysed and compared as part of the work in work package 1 of Swiss PV Circle. It is important to note that there is no Europe-wide standard to date.
- Alternatively, two fields should be added so that the producer of the PV module is recorded first, followed by the module type. This would already represent a considerable improvement.

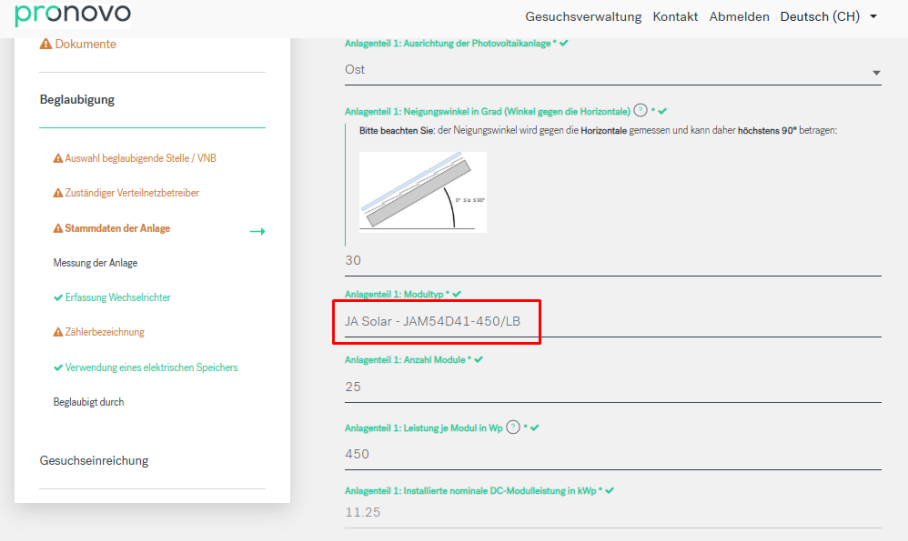

Figure 2: Extract from the Pronovo portal for recording the module type, which is still a free text field today.

2.3.2 Recording of plant shutdowns

The second approach relates to better recording of plant decommissioning. In connection with this project, random samples have shown that Pronovo reports little or no decommissioning of PV systems. In this respect, the minimum term of 15 years defined in Art. 33 para. 1 no. a EnFV cannot be verified.

Proposal:

- Amendment of the Energy Promotion Ordinance (EnFV),[7] Art. 33 by a 4th paragraph on the notification of plant decommissioning.

Swiss PV Circle assessment:

- In future, it will be mandatory to report the decommissioning of installations. This not only enables the enforcement of Art. 34 EnFV, but also allows an adequate overview of all installations in operation. As plant decommissioning will increase in the near future, this circumstance will become more important.

[6] Ordinance on the Promotion of the Production of Electricity from Renewable Energies (Energy Promotion Ordinance, EnFV).
[7] Ordinance on the Promotion of the Production of Electricity from Renewable Energies (Energy Promotion Ordinance, EnFV).

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- From a circular economy perspective, reporting a system decommissioning allows the system service life and the potential of the PV modules for reuse to be analysed. By obliging system owners to report decommissioning, a precise database can be created. This makes it possible to assess the modules in terms of their age and condition and thus make informed decisions about their potential reuse. Forecasts are also made easier.

2.4 Harmonised licensing practice for operating licences under waste legislation

The implementation guide[8] on the disposal of waste electrical and electronic equipment (WEEE) published in 2024 specifies the will to dispose of waste and has a direct impact on the solar industry. Companies in the PV sector now require a cantonal operating licence under waste legislation in order to be able to clean, inspect and, if necessary, repair photovoltaic modules (see Deliverable 5.2). In addition to the current difficult market situation, this can make the reuse of PV modules even more difficult.

Proposal:

- Harmonisation of the approval processes for operating permits under waste legislation for companies in the PV sector in the enforcement group for the Ordinance on the Movement of Waste (VeVA) of the Conference of Environmental Offices of Switzerland (KVU)
- Creation of a standardised documentation obligation for the statistical recording of PV module flows (reuse, recycling, export, etc.)

Assessment Swiss PV Circle:

- Companies that treat waste within the meaning of the Ordinance on the Movement of Waste (VeVA) are obliged to apply for a VeVA establishment number via the DETEC eGovernment portal. In addition, the subsequent authorisation process varies from canton to canton, which makes it difficult to obtain a low-threshold operating permit under waste legislation. A cantonally harmonised authorisation practice would help to unravel the existing "patchwork" and significantly lower the hurdles for the reuse of PV modules.
- The aim must be to establish an authorisation procedure that is as accessible, clearly structured and administratively streamlined as possible, enabling a broad range of players in the solar industry to obtain a corresponding licence. Avoiding excessive bureaucracy and unnecessarily complex procedural steps is key to this.
- A high proportion of authorised players in the solar industry would not only contribute to the professionalisation of the sector, but also increase the quality of PV module reuse. At the same time, improved statistical recording would lead to greater transparency in the system. In view of the current data gaps regarding the reuse and export of PV modules, a reliable data basis is essential for the evidence-based further development of the circular economy in this area.
- The design of the enforcement aid and its coherent implementation in the cantons - taking into account a low-threshold and standardised authorisation procedure - would create a clear regulatory framework for the reuse of PV modules. This could also help to curb the export of non-functional modules.
- At the same time, the export of tested and functional PV modules would remain possible under such conditions - an aspect that is of growing importance in view of the increasing volume of waste in the future.

[8] Isabelle Baudin, "Entsorgung von elektrischen und elektronischen Altgeräten (EAG) - Vollzugshilfe zum Stand der Technik" (Federal Office for the Environment (FOEN), 2024).

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2.5 Use of second-hand modules for repairs during heavy weather events

In connection with the work in work package 6, an initial dialogue has already taken place with the Association of Cantonal Building Insurers (VKG). The possibility of using second-hand modules for the repair or replacement of individual modules in PV systems affected by severe weather events was discussed. It should be noted that the VKG does not cover all Swiss building insurers, but does cover a significant proportion.

Proposal:

- Specification of the replacement value for PV systems in the mandatory building insurance against fire and natural hazards.
- Adjustment of the new value so that second-hand modules that are as good as new (same module type, tested) can also be used as replacements.

Swiss PV Circle assessment:

- The project team has established that the use of re-use modules is currently not possible for claims financing through building insurance. In the event of a claim, new modules must be used. Here we see a need for customisation and potential in the use of re-use modules. Data-driven, intelligent "matching" for suitable modules in the region could also be made possible.

Figure 3: Drone image of a house roof with hail damage, copyright: Energie Netzwerk, Heinz Simmler.

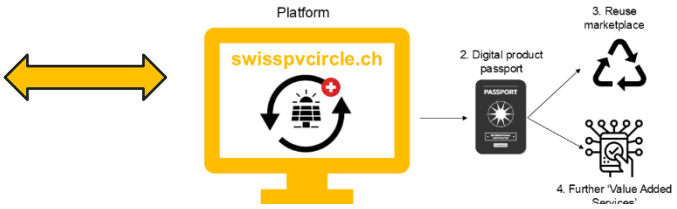

Figure 1 : Sketch of the most important components of the future platform (exemplary designation as 'swisspvcircle.ch').

2.6 Transparency when exporting second-hand modules abroad

Currently, dismantled PV modules cannot be fully tracked. Based on the work within Swiss PV Circle, it can be assumed that a significant proportion of dismantled PV modules are exported (see Deliverable 5.2). In current customs practice, both used PV modules, i.e. second-hand modules, and new modules are recorded under a common tariff number. Until 2021, these modules were recorded under the tariff number 8541.4000; since 2022, they have been recorded under the tariff number 8541.4300. This joint categorisation leads to a lack of transparency in exports, meaning that no clear statement can currently be made about the proportion of new and used modules in exports. Swiss PV Circle has made more detailed considerations in this regard and has determined that there is a high probability that modules are exported that are not functional and are then not disposed of properly abroad and thus pollute the environment (see Deliverable 5.2).

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Proposal:

- Amendment of the Ordinance on the Amendment of the Customs Tariff[9] and Annexes 1 and 2 of the Customs Tariff Act (ZTG)[10] with a distinction between new and used "photovoltaic cells, assembled into modules or packaged in panels" (tariff no. 8541.4300)

Swiss PV Circle assessment:

- Recording an additional export category for second-hand modules can make a major contribution to greater transparency with regard to exports, but also within the SENS eRecycling take-back system. The introduction of separate tariff numbers for new and used modules would lead to an improved overview, which would have a positive impact on circular economy activities, as targeted action can be taken against unwanted outflows abroad.
- It should be noted that the VREG[11] - in conjunction with the new enforcement aid for old electrical and electronic equipment[12] - regulates the intention to discard more strictly (see Deliverable 5.2). It can therefore be assumed that used modules will no longer appear in the customs statistics under tariff number 8541.4300 in future, which in turn means that the exported volumes will fall and certain destination countries will no longer appear. If such an effect is not noticeable, it would be all the more important to differentiate between tariff numbers for new and used modules.

2.7 Outlook: Digital product passport for PV modules and components

In addition to the political recommendations for action mentioned above, we would like to conclude with an outlook. The Ecodesign Directive[13] , which also provides for a digital product passport (DPP), is currently being discussed in the European Union. Sooner or later, this key aspect of the circular economy will also be discussed in Switzerland. There is currently a debate as to whether PV modules also fall under the scope of a digital product passport, with the Solar PV Industry Alliance (ESIA), for example, calling for PV modules to be integrated into the European Union's mandatory DPP system.[14] According to the Federal Council's statement of 26 May 2021 on the interpellation "Circular economy. How is Switzerland preparing for the introduction of product passports or material passports" (21.3196 Thorens Goumaz), the federal government is closely monitoring developments in the European Union and is considering integrating corresponding adjustments into the "Digital Switzerland" strategy.[15] Independent implementation of the EU Ecodesign Directive therefore appears possible in principle.

[9] "Ordinance on the Amendment of the Customs Tariff in Annexes 1 and 2 to the Customs Tariff Act and on the Adaptation of Decrees in Connection with this Amendment," 2021-2307 § (2021).

[10] "Customs Tariff Act (ZTG)," SR 632.10 § (1986).

[11] "Ordinance on the Return, Take-Back and Disposal of Electrical and Electronic Equipment (VREG)," Pub. L. No. SR 814.620 (2021).

[12] Baudin, "Entsorgung von elektrischen und elektronischen Altgeräten (EAG) - Vollzugshilfe zum Stand der Technik."

[13] European Parliament & Council, "Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 Establishing a Framework for the Setting of Ecodesign Requirements for Sustainable Products, Amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and Repealing Directive 2009/125/EC" (Official Journal of the European Union, June 28, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401781.

[14] Solar PV Industry Alliance, "Paving the Way: Recommendation for the Implementation of a Mandatory Digital Product Passport (DPP) for Solar Photovoltaic Modules in the European Union," August 11, 2024.

[15] Federal Council, "Circular Economy. How Is Switzerland Preparing for the Introduction of Product Passports or Material Passports? 21.3196 Interpellation," July 4, 2025.

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Proposal:

- Monitoring and preparation for the adoption of the European Union's ecodesign guidelines for PV modules and components
- Creating the technical foundations as an industry

Swiss PV Circle assessment:

- The introduction of a digital product passport is seen as an opportunity for the PV industry to build more transparency and trust. However, this is subject to the condition that producers also participate in the exchange of information via the digital product passport.
- A digital product passport offers opportunities for the reuse of PV modules in particular.
- The platform envisaged by Swiss PV Circle could be used as a starting point to track the life of PV modules over their various cycles, to store and manage data centrally and to establish comprehensive monitoring of potentially available raw materials.
- A digital product passport makes it possible to create a digital twin for each individual PV module. This digital twin contains all relevant information about the module, such as manufacturing data, installation locations, technical specifications and maintenance history. This ensures seamless tracking of the modules, which is important for both environmental and economic benefits

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3. Conclusion

In Switzerland, there is currently no systematic approach to the reuse of PV modules. In view of legal changes (Environmental Protection Act) and the growing importance of the circular economy, the Swiss PV Circle project, led by Swissolar, SENS eRecycling and Bern University of Applied Sciences, analysed the challenges and opportunities. The reuse of used PV modules faces several hurdles in an intensely competitive environment. On the one hand, new modules are currently very cheap and technologically advanced, which quickly makes used modules appear old and reduces their market opportunities. At the same time, there is a lack of an established system for reuse, which requires high initial investment in infrastructure, testing procedures and quality certification. In addition, unclear legal requirements, a lack of economic incentives, technological uncertainties and an overall linear market system make it difficult to establish a functioning re-use structure. Confidence in used modules has also been low to date, which is also slowing down demand.

In view of these challenges, Swiss PV Circle recommends the following recommendations for action to solar industry players and political decision-makers:

1. Financial support for reuse:
    - Re-use contribution: Internal industry contribution similar to the recycling contribution to finance a re-use fund.
    - Re-use bonus: Government subsidy (5-10 Rp/Wp) to help kick-start a re-use ecosystem.
2. Development and establishment of a labelling and certification system:
    - Establishment of a Switzerland-wide re-use label to create trust in used modules. Certification by Swissolar or third parties, including expansion of existing training formats.
3. Creation of a data basis for circular economy strategies:
    - Mandatory specification of the module type for new installations (drop-down field).
    - Mandatory reporting of plant decommissioning for better tracking and reuse.
4. Harmonised licensing practice for operating licences under waste legislation:
    - Simplification and standardisation of operating licences for PV companies under waste legislation and introduction of clear collection rules for reuse, export and recycling.
5. Use of second-hand modules for repairs during heavy weather events:
    - Adaptation of the insurance guidelines to allow re-use modules in the event of repairs (e.g. after hail).
6. Transparency when exporting second-hand modules abroad:
    - Introduction of separate customs tariff numbers for new and used PV modules to increase transparency and reduce illegal exports.
7. Outlook - Digital product passport for PV modules and components:
    - Monitoring and preparation for the adoption of the EU Ecodesign Directive and introduction of a digital product passport for seamless tracking and promotion of reuse.

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Literature

Baudin, Isabelle. "Disposal of waste electrical and electronic equipment (WEEE) - Enforcement aid on the state of the art." Federal Office for the Environment (FOEN), 2024.

Customs Tariff Act (ZTG), SR 632.10 § (1986).

Federal Act on Environmental Protection (EPA), Pub. L. No. SR 814.01 (1983).

Federal Council. "Circular economy. How Is Switzerland Preparing for the Introduction of Product Passports or Material Passports? 21.3196 Interpellation," July 4, 2025.

Energy Ordinance (EnV), 730.01 § (2017).

European Parliament & Council. "Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 Establishing a Framework for the Setting of Ecodesign Requirements for Sustainable Products, Amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and Repealing Directive 2009/125/EC." Official Journal of the European Union, June 28, 2024. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401781.

Ordinance on the Amendment of the Customs Tariff in Annexes 1 and 2 to the Customs Tariff Act and on the Adaptation of Decrees in Connection with this Amendment, 2021-2307 § (2021).

Ordinance on the Promotion of the Production of Electricity from Renewable Energies (Energy Promotion Ordinance, EnFV), 730.03 § (2017).

Ordinance on the Return, Taking Back and Disposal of Electrical and Electronic Equipment (ORDEE), Pub. L. No. SR 814.620 (2021).

Solar PV Industry Alliance. "Paving the Way: Recommendation for the Implementation of a Mandatory Digital Product Passport (DPP) for Solar Photovoltaic Modules in the European Union," August 11, 2024.

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