ANNUAL REPORT
2025

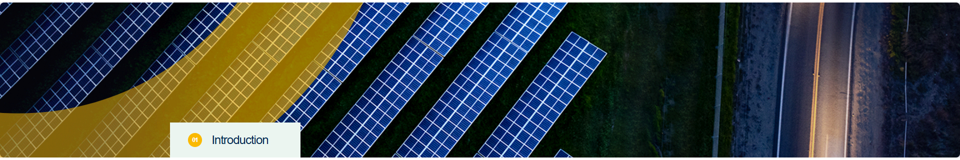
01 Introduction
02 Photovoltaic panels placed on the Italian market in 2025
03 Photovoltaic panels and WEEE collected and managed
04 Sustainability: from recycling to measurable impact
05 Circularity
06 Climate Change: greenhouse gas emissions
07 Life Cycle Assessment confirms net environmental benefits
08 Conclusion

5,000,000
photovoltaic panels declared

2.8
GW total installed capacity

5,273
tonnes of end-of-life photovoltaic panels recycled

504
tonnes of household WEEE recycled



01 Introduction

The 2025 Annual Report tells the story of a year of concrete initiatives, during which PV CYCLE ITALIA expanded its commitment on several fronts: from raising public awareness to regulatory developments, from territorial presence to supply-chain traceability.

One of the most significant initiatives of 2025 was the SIAMOTUTTIRAEE.IT campaign, carried out pursuant to Article 10, paragraph 10.2 of Legislative Decree 49/2014, with the aim of bringing citizens closer to the proper end-of-life management of electrical and electronic equipment. We invite everyone to learn more at www.siamotuttiraee.it

On the regulatory front, Legislative Decree No. 2 of 7 January 2026 introduced significant updates to Legislative Decree 49/2014, redefining the notion of “historical WEEE,” clarifying financing responsibilities for photovoltaic panels, and updating marking requirements. PV CYCLE ITALIA provided its members with the support needed to ensure timely compliance.

2025 was also a year of active presence: together with our parent organization PV CYCLE AISBL, we participated in the main international trade fairs and, for the first time, with a dedicated stand at KEY ENERGY in Rimini, Italy. We also strengthened our collaboration with the Energy & Strategy Observatory of the Politecnico di Milano on Renewable Energy and the Circular Economy.

Regarding labelling, PV CYCLE ITALIA prepared an operational document on the labelling obligations for electrical and electronic equipment (EEE), reaffirming that membership in a collective scheme does not exempt producers from their individual obligations regarding proper marking. In addition, a new environmental reporting platform is currently under development to provide all stakeholders in the supply chain with increasingly clear and reliable communications.

EEE labelling and producer identification (Legislative Decree 49/2014)

We thank our members, partners, and stakeholders: it is thanks

to their trust and daily collaboration that PV CYCLE ITALIA continues to grow, panel by panel, year after year.

Rosa Narcisi – Country Manager Italia

02

Photovoltaic panels placed on the Italian market in 2025

In 2025, companies affiliated with PV CYCLE ITALIA reported the placement on the market of nearly 5 million photovoltaic panels. This figure reflects a decline compared with the peak of 6 million recorded in 2023, in line with the overall trend of the Italian photovoltaic market. However, looking at the progress made over recent years, the overall picture remains encouraging: from fewer than half a million panels in 2016 to figures that have consistently remained at very high levels, demonstrating the maturity reached by the sector and the growing awareness among companies of their environmental obligations.

In this context, Extended Producer Responsibility continues to play a key role, ensuring that every panel placed on the market is accompanied by a concrete commitment to its proper end-of-life management.

PV CYCLE ITALIA supports companies along this path by promoting transparency, traceability, and sustainability throughout the entire supply chain.

The year 2025 ended with an increase in the number of member companies, including not only primary photovoltaic panel manufacturers, but also distributors, installers, and importers of other EEE (electrical and electronic equipment). This result confirms the Consortium's ability to adapt effectively to the evolution of an increasingly competitive market, offering favourable conditions and supporting companies with a long-term vision.

03

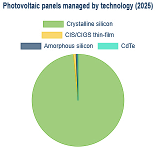
Photovoltaic panels and WEEE collected and managed

In 2025, PV CYCLE ITALIA collected 5,273 tonnes of end-of-life photovoltaic panels and 7,004 tonnes of household WEEE. A further 38 tonnes of other professional WEEE were also managed.

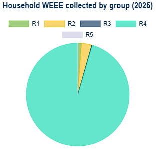
The total amount of waste managed during 2025 reached 12,315 tonnes.

The table below provides a detailed breakdown of the quantities collected, classified by photovoltaic panel technology and WEEE category.

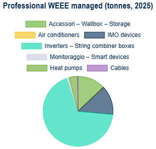
Type of photovoltaic panel	Tonnes managed by PV CYCLE ITALIA in 2025	% of total
Crystalline silicon (mono and polycrystalline)	5.189,31	98.41 %
CIS/CIGS thin-film	47,43	0.90 %
Amorphous silicon	32,00	0.61 %
CdTe	4,22	0.08 %
Total	**5.272,96**	**100 %**


Photovoltaic panels managed by technology (2025)

WEEE group	Tonnes managed by PV CYCLE ITALIA in 2025	% of total
R1: Refrigeration appliances	78,67	1.12 %
R2: Large household appliances	228,96	3.27 %
R3: TVs, monitors and screens	7,19	0.10 %
R4: Small appliances and consumer electronics	6.688,46	95.50 %
R5: Light sources	0,51	0.01 %
Total	**7.003,79**	**100 %**


Household WEEE collected by group (2025)

Type of other professional WEEE	Tonnes managed by PV CYCLE ITALIA in 2025
Accessori – Wallbox – Storage	4,84
Air conditioners	0,08
IMO devices	5,16
Inverters – String combiner boxes	26,11
Monitoraggio – Smart devices	0,36
Heat pumps	1,5
Cables	0,08
Total	**38,13**

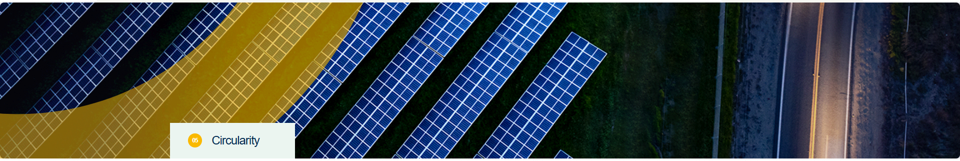

Professional WEEE managed (tonnes, 2025)

04 Sustainability: from recycling to measurable impact

Sustainability is at the core of PV CYCLE ITALIA's mission. Through the proper collection and recycling of end-of-life photovoltaic panels and household WEEE, we enable the recovery of valuable materials, contributing to the reduction of environmental impact.

In 2025, PV CYCLE further strengthened its sustainability approach with the creation of two dedicated roles: a Sustainability & Regulatory Affairs Manager and a Circularity Manager. These positions support greater integration of ESG topics, in response to evolving regulatory requirements and the reinforcement of circular economy practices.

A materiality assessment was also conducted to identify the most relevant topics for the organisation. Circularity and climate change emerged as the top priorities, followed by business ethics, data protection, health and safety, supply chain management, and innovation.



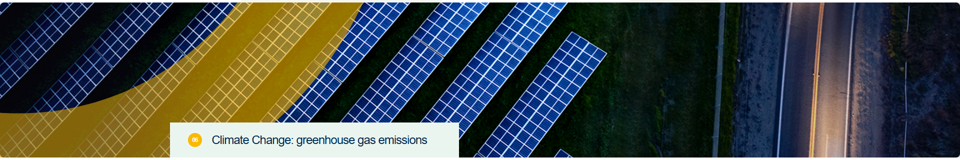
05 Circularity

For PV CYCLE ITALIA, circularity represents the core of its mission. The collection of end-of-life photovoltaic panels and WEEE, together with material recovery activities, constitutes the organisation's core business and the main driver of its environmental impact.

The data collection campaign made it possible to calculate recycling and recovery rates for crystalline silicon (c-Si) panels. In 2025, a recycling rate of 86.6% and a recovery rate of 100% were achieved, confirming the reuse of materials as secondary raw materials or through other recovery pathways. For household WEEE, comparable rates are not reported due to the heterogeneity of waste streams and treatment processes.

86.6%
Recycling rate

100%
Recovery rate



06 Climate Change: greenhouse gas emissions

Given the nature of PV CYCLE ITALIA's activities, climate performance is monitored through Scope 3 emissions, generated by transport activities and contracted treatment and recycling operators. The system boundary covers the entire value chain, from the collection point to the first treatment facility, including recycling processes.

Photovoltaic panels

For crystalline silicon photovoltaic panels, which represent the vast majority of managed volumes, transport operations to the first treatment facilities generated 117.3 t CO_2e in 2025 (0.023 t CO_2e per tonne transported), while treatment activities at these facilities generated 105.5 t CO_2e (0.022 t CO_2e per tonne treated). Overall, operations on crystalline silicon PV panels resulted in total Scope 3 emissions of 222.8 t CO_2e.

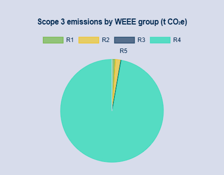
117.3 t CO_2e
0.023 t CO_2e per tonne transported

105.5 t CO_2e
0.022 t CO_2e per tonne treated

Household WEEE

For household WEEE, emissions are reported separately by category, reflecting the different treatment processes involved.

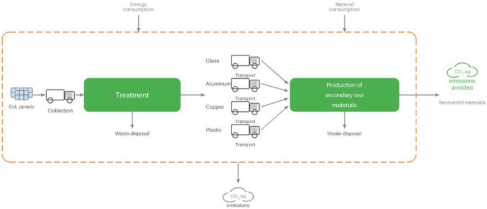
WEEE group	**t CO_2e/t CO_2e transported and treated**	**t CO_2e (absolute)**
R1: Refrigeration appliances	0,937	73,71
R2: Large household appliances	0,549	125,70
R3: TVs, monitors and screens	0,898	6,46
R4: Small appliances and consumer electronics	1,051	7.029,57
R5: Light sources	0,764	0,39



Total Scope 3 emissions across PV panels and all WEEE categories amounted to 7235.83 t CO_2e in 2025.

07 Life Cycle Assessment confirms net environmental benefits

PV CYCLE ITALIA conducted an internal Life Cycle Assessment (LCA) of the end-of-life phase of crystalline silicon photovoltaic panels and the managed categories of household WEEE. The analysis quantifies the environmental impacts associated with collection, transport, and treatment activities, as well as the environmental benefits derived from material recovery, calculated using the avoided burden approach.



Photovoltaic panels

The results of the Life Cycle Assessment (LCA) demonstrate that the end-of-life treatment chain for crystalline silicon photovoltaic (c-

Si) panels generates net environmental benefits across all 16 impact categories defined by the EF 3.1 methodology.

Through the management of 5,189.31 tonnes of crystalline silicon photovoltaic panels, PV CYCLE ITALIA achieved an avoided climate benefit of 7,507.178 tonnes of CO_2 equivalent.

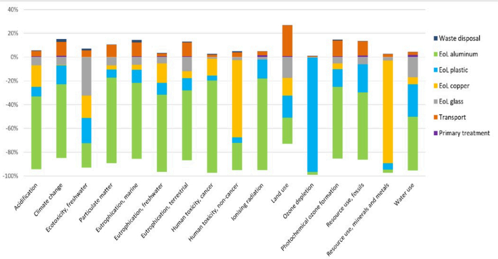
This reduction corresponds to the annual emissions of 1,064 medium-sized Euro 5 gasoline passenger cars, each travelling approximately 30,000 km per year.

The impact assessment, which considers both direct and indirect energy consumption associated with end-of-life management activities for crystalline silicon PV panels, shows energy savings of 106,245.212 GJ thanks to material and energy recovery processes.

In terms of mineral and metal resource conservation, PV CYCLE ITALIA achieved total annual savings of 227.121 kg of antimony equivalent (Sb eq.) through the recycling of crystalline silicon photovoltaic panels.

Recovered fractions of cSi panels

Glass	**69,2%**
Aluminium	**14,2%**
Copper	**16,2%**
Plastic	**0,4%**

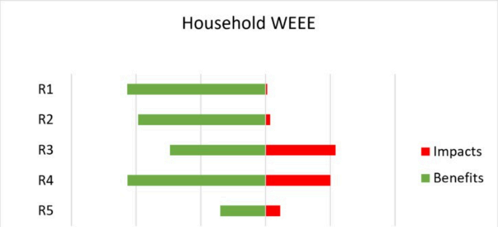


Household WEEE

The Life Cycle Assessment (LCA) of end-of-life household WEEE confirms that, through the management of 7,003.8 tonnes of household WEEE, PV CYCLE ITALIA achieved an avoided climate impact of 4,085.89 tonnes of CO_2 equivalent.

The material and energy recovery processes generated annual savings of 67,856.19 GJ of fossil energy and preserved 639.65 kg of mineral and metal resources, expressed as antimony equivalent (Sb eq.).

WEEE group	Kg managed by PV CYCLE Italy in 2025	% of total	Kg CO2eq saved by recycling	GJ energy saved by recycling	Kg of Sb eq saved by recycling
R1	78672	1.12 %	83172.69	744	3.75
R2	228958	3.27 %	217410.46	1960	8.77
R3	7192	0.10 %	1426.81	47	0.41
R4	6688463	95.50 %	3783,761.86	65103	626
R5	511	0.01 %	121.19	1.11	0.01
Total	7003796	100 %	4,085,893.01	67,856.19	639.65

Climate change impacts from household WEEE end-of-life treatment (per kg waste)