



CEWASTE

Voluntary certification
scheme for waste treatment

VALIDATION METHODOLOGY FOR THE PILOTS

DELIVERABLE 4.1



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ACRONYMS

CRM	Critical Raw Material
EEE	Electrical and Electronic Equipment
ELV	End-of-life Vehicle
LA	Lead auditor
LTP	Linked third party
WEEE	Waste Electrical and Electronic Equipment
WP	Work package

1 SUMMARY

The H2020-project CEWASTE aims to develop, test and validate a certification scheme with requirements enabling the recycling of valuable and critical raw materials - CRMs. In the fourth work package (Validation and Roadmap), the consortium is validating the new voluntary scheme through pilots with stakeholders selected from the pool of project partners, chief among them the members of the European Electronics Recyclers Association (EERA), the WEEE Forum, and the Advisory Board. In addition, interested and qualified external auditors were invited to participate in training and pilots. Objectives of Work Package 4 (WP4) include:

- validate the normative requirements (WP2) and the assurance system (WP3) through targeted pilots,
- analyse the outcome of the pilots and improve the voluntary scheme according to its recommendations,
- develop a roadmap including recommendations for amending existing mechanisms (legislation, guidelines, standards and initiatives) with the new requirements and a plan for the future roll-out of the voluntary scheme.

Task 4.1 focuses on the preparation and planning of the pilots and includes the development of training materials and dedicated training sessions for auditors, following procedures and tools developed in Task 3.3 to ensure consistency in the approach. Training sessions are designed for members of the consortium involved in the piloting (Task 4.2) as well as external auditors selected for the pilot phase. Furthermore, a short training session for companies that will be audited is offered, to inform them on CEWASTE requirements and give the operators guidance for their preparation.

The organisations and companies targeted for audits are selected together with members of EERA and the WEEE Forum, ensuring full coverage of the collection, logistics, pre-treatment and final treatment stages, diversity in size and geography of facilities, and other criteria defined in order to ensure that the applicability of the scheme is as wide as possible.

The audit procedure ensures the real-world testing in the pilot audits during task 4.2 of both the requirements developed in WP2 and procedures and tools developed in WP3. The pilot audits will also provide feedback and relevant data to Task 4.3 and Task 4.4.

2 INTRODUCTION

2.1 THE CEWASTE PROJECT

The CEWASTE project contributes to an improved recycling of valuable and critical raw materials (CRMs)¹ from key types of waste through the auditing and certification of traceable and sustainable treatment processes in the entire supply chain of secondary raw materials. CEWASTE addresses the specific challenge to secure the sustainable access to CRMs for the EU economy as well as objectives set by the EU action plan for the Circular Economy, the issue of illegal trade of wastes within the EU and to non-EU countries, and the need to support the development of environmentally and socially sound recycling systems globally.

Specifically, the project will develop, validate and launch a voluntary certification scheme for collection, transport and treatment facilities of key types of waste containing significant amounts of valuable and critical raw materials. To ensure a comprehensive approach and a robust result, the project will be developed along the following six specific objectives:

- **Objective 1:** Understand existing recovery practice, standards and verification schemes related to valuable and critical raw materials and how these can be leveraged for CEWASTE.
- **Objective 2:** Leverage existing normative requirements to develop technical, sustainability and traceability requirements for the voluntary certification scheme.
- **Objective 3:** Develop an assurance system and related verification procedures that effectively ensure that facilities and raw material streams are compliant with sustainability and traceability requirements.
- **Objective 4:** Validate the new voluntary scheme through pilots with selected and committed stakeholders of the value chain.

¹ For the list of CRMs see https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en - the current version was published in 2017

- **Objective 5:** Ensure long term sustainability of the scheme, reflecting on the needs from existing governance mechanisms, and resulting in a roadmap addressing the amendments of new requirements or mechanisms needed.
- **Objective 6:** Ensure a transparent stakeholder process that allows for broad acceptance and dissemination of the essentials of the scheme.

CEWASTE will deliver tangible results in the form of reports, a set of rules (normative requirements), related administrative and procedural mechanisms to ensure compliance with the rules, practical guidelines, and an implementation plan as outlined in detail in the work plan of project's Grant Agreement. In addition, the project will produce a series of recommendations as part of these results. Face to face events, presentations, webinars, and publications will support project implementation, enabling stakeholder participation, communication, dissemination and the launch of the scheme.

CEWASTE will not develop the new voluntary scheme from scratch nor formally amend existing standards. In view of the two years implementation condition set by the call, the project will focus on developing the scheme based on the current developments in recovery technologies and on the existing normative landscape in the field of waste treatment and responsible sourcing of raw materials, while presenting a clear roadmap for necessary amendments of existing mechanisms and a large-scale roll-out of the scheme. This strategy will ensure that despite the limited resources, the specific objectives as presented above can be achieved in a realistic timeframe.

The CEWASTE consortium shall develop the scheme until 31 October 2020.

2.2 PURPOSE OF THIS DELIVERABLE AND OVERVIEW OF WORK PACKAGE 4

The current Deliverable 4.1 is the first of four deliverables within WP4. In WP4, the consortium is validating the normative requirements (WP2) and the assurance system (WP3) of the new voluntary scheme through targeted pilot audits. The goal is to analyse the outcome of the pilots and improve the voluntary scheme according to its recommendations.

Task 4.1 focuses on the preparation and planning of the pilot audits (D4.1) as well as the preparation of training material (D4.2). Deliverable 4.1 presents the validation methodology for the preparation and planning of the pilot audits, including the following steps as illustrated in Figure 1.



Figure 1: Methodology for the preparation and planning of the pilot audits.

Training material will be developed within deliverable D4.2 - Training Material for the Piloting Team. Task 4.2 includes the actual piloting of the CEWASTE requirements. Results of the pilot audits are the basis for Task 4.3 that consolidates all feedback from pilots and produces D4.3 with a piloting report and a maturity level assessment. Task 4.4. finally assesses the long-term sustainability of the scheme and compiles its results in D4.4 that includes a roadmap for the long-term sustainability of the scheme.

3 SELECTION OF AUDITORS

3.1 SELECTION CRITERIA

The selection criteria for auditors for the pilot audits are both professional and personal qualifications. They are in line with the selection criteria listed in Deliverable 3.1, however, for the pilot audits, the requirements are less demanding.

Professional qualifications include:

- Proven auditing experience or technical/practical background related to electric and electronic equipment (EEE), end-of-life electric vehicles, WEEE and/or CRMs
- Familiar with general waste and/or WEEE/waste batteries treatment technologies
- Knowledge of relevant WEEE treatment standards (particularly EN50625 series)

Personal qualifications include:

- Skilled in technical evaluation and objective assessment
- Able to deliver high-quality results in time
- Good level of judgement
- Ability for assertion
- Good communication skills
- Good command of English (written and oral)

Additional languages are a plus. If possible, it is intended that in each pilot audit, at least one auditor should be present who speaks the local language.

3.2 CALL FOR INTERNAL AUDITORS FROM THE CONSORTIUM

In December 2019, a call for internal auditors from the consortium was launched in order to form the internal core audit team, responsible for leading the pilot audits. In total, the internal audit team consists of five WEEELABEX-certified or EN50625-trained auditors, complemented by an expert in the field of lead acid smelters, and an expert in the field of ISO IWA 19. All pilot audits will be led by a WEEELABEX-certified or EN50625-trained auditor.

3.3 CALL FOR EXTERNAL AUDITORS

To complete the team of internal auditors from the project consortium, a call for external auditors interested in piloting the voluntary CEWASTE scheme was launched in December 2019. The commitment of an external auditor includes:

- Attend 2 half-day training webinars, focusing on CEWASTE-specific requirements as well as key WEEELABEX/EN50625 requirements (February - March 2020)
- Participate in 1-2 pilot audits, together with auditors from the consortium (March-June 2020)

From the CEWASTE project the following will be offered:

- Certificate acknowledging participation
- Opportunity to follow technical training and acquire practical experience in WEEE auditing
- Gain new insights on the latest developments in CRM recycling
- Join an international network of experts
- Close involvement in a H2020 project
- Webinar trainings free of charge.

In a first call, there was no financial support for travel costs offered. This resulted in a very low interest and response from external auditors. After consultation with the project manager and communication with the EC project officer, it was decided, that the budget for the pilots plus some additional budget provided by consortium members can be used to reimburse travel expenses for external auditors. This includes intra-EU traveling for EU auditors, traveling for non-EU auditors based in or close to the country the plant is audited (Colombia, Turkey, Rwanda), food and accommodation.

To date, a total of 18 external auditors have applied to take part in the pilot audits. Thereof, 11 are certified WEEELABEX auditors.

4 SELECTION OF AUDITEES

Relevant and committed companies were selected based on a short-list from the consortium network. These are mainly EERA-member linked third parties (LTP) to the project. Criteria for selection included:

- Handling of key CRM-components
- Experience with implementing CRM recovery measures
- For non-LTP auditees: willingness to participate in training and audits

As depicted in Figure 2, LTP WEEE management companies already cover the pre-treatment and final treatment of a broad range of key CRM-equipment and -components. For lead-acid batteries, a treatment plant still needs to be confirmed. Due to the lack of companies able to recycle Nd-magnets on an industrial scale, no pilot audits are foreseen for final treatment of Nd-magnets within the CEWASTE project.

Through LTP compliance schemes that are members of the WEEE Forum, contacts to collection site and logistics operators, but also additional pre-treatment plants were established. In addition, also based on the consortium network, three companies from Turkey, Rwanda and Colombia were contacted to conduct the non-EU audits.

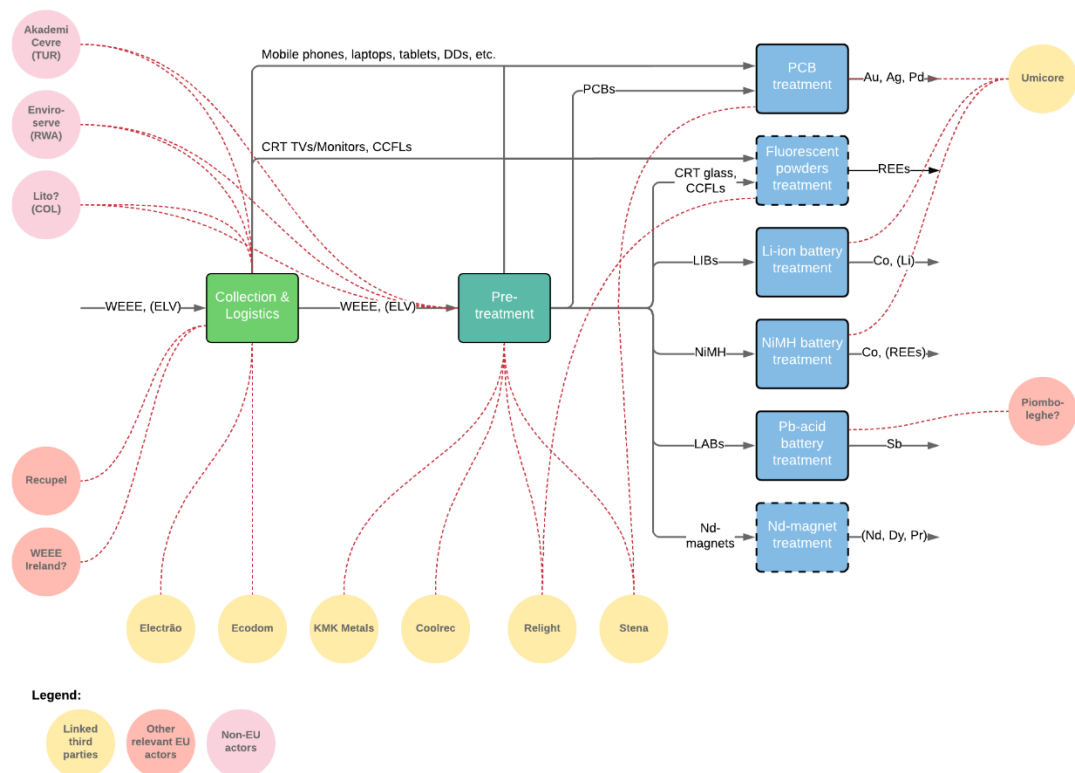


Figure 2: CEWASTE value chain and the selected auditees.

5 PLANNING OF PILOT AUDITS

Pilot audits were planned based on the availability of auditors and auditees. As shown in **Error! Not a valid bookmark self-reference.**, a maximum amount of 25 audits are planned, with a few collection site and logistics operators that still need to be selected and/or confirmed.

The pilot audits will start with a training audit in Switzerland where all lead auditors (LAs) from the consortium will be present. Subsequently, the audits in the other countries will take place, with always at least one LA from the consortium and 1-2 external auditors present. In some cases, the audits are carried out or accompanied by auditors from the LTP compliance schemes.

Table 2: Planning of pilot audits

Country	Treatment operator	WEELABEX / CENELEC certified	LTP	PRO	Activity	Component	Pilot type	Lead auditor	Auditor	External Auditors for training
Switzerland			no	Swico/SENS	Collection		Training audit	Sofies	WEEE Forum	
Switzerland	Solenthaler/Immark	yes	no	Swico/SENS	Logistics		Training audit	Sofies	Ecodom	
Switzerland	Solenthaler/Immark	yes	no	Swico/SENS	Pre-treatment		Training audit	Sofies		
Belgium				Recupel	Collection		Pilot audit EU	Sofies		External Auditor
Belgium	Coolrec	yes	yes	Recupel	Logistics		Pilot audit EU	Sofies		External Auditor
Belgium	Coolrec	yes	yes	Recupel	Pre-treatment		Pilot audit EU	Sofies		External Auditor
Belgium	Umicore PMR	yes	yes	Recupel	Final treatment	PWB	Pilot audit EU	Sofies	Ecodom	External Auditor
Belgium	Umicore BR	yes	yes	Recupel	Final treatment	Batteries	Pilot audit EU	Sofies	Ecodom	External Auditor
Italy	AMSA		no	Ecodom	Collection		Pilot audit EU	Ecodom	Ecodom Team	External Auditor
Italy	Specialtransporti		no	Ecodom	Logistics		Pilot audit EU	Ecodom	Ecodom Team	External Auditor
Italy	Relight	yes	yes	Ecodom	Pre-treatment		Pilot audit EU	Ecodom	Ecodom Team	External Auditor
Italy	Stena	yes	yes	Ecodom	Pre-treatment		Pilot audit EU	Ecodom	Ecodom Team	External Auditor
Italy	Relight	yes	yes	Ecodom	Final treatment	Lamps	Pilot audit EU	Ecodom	Ecodom Team	External Auditor
Italy	Piomboghe		no		Final treatment	Lead	Pilot audit EU	Ecodom	Oeko-Institut	
Ireland				WEEE Ireland	Collection		Pilot audit EU	Sofies		External Auditor
Ireland	KMK Metals	yes	yes	WEEE Ireland	Logistics		Pilot audit EU	Sofies		External Auditor
Ireland	KMK Metals	yes	yes	WEEE Ireland	Pre-treatment		Pilot audit EU	Sofies		External Auditor
Portugal				Electrão	Collection		Pilot audit EU	WEEE Forum	Electrão Team	External Auditor
Portugal				Electrão	Logistics		Pilot audit EU	WEEE Forum	Electrão Team	External Auditor
Portugal	Transucatas, S.A.		no	Electrão	Pre-treatment		Pilot audit EU	WEEE Forum	Electrão Team	External Auditor
Colombia	Lito	no	no	-	Pre-treatment		Pilot audit Non-EU	Empa		
Rwanda		no	no	-	Collection		Pilot audit Non-EU	Sofies		External Auditor
Rwanda	Envirosense	no	no	-	Pre-treatment		Pilot audit Non-EU	Sofies		External Auditor
Turkey		no	no	-	Collection		Pilot audit Non-EU	Sofies	WEEE Forum	
Turkey	Akademi Çevre	no	no	-	Pre-treatment		Pilot audit Non-EU	Sofies	WEEE Forum	
Legend: find operator confirm/clarify					Collection	7				
					Logistics	5				
					Pre-treatment	9				
					Final treatment	4				
					Total Number of audits	25				

6 TRAINING APPROACH

The training approach consists in theoretical training sessions through webinars and practical trainings as part of the pilot audits, both for auditees and auditors.

The theoretical training session covers:

- 1-day webinar focusing on key WEEELABEX/EN50625 requirements for non WEEELABEX- or EN50625-certified auditors and auditees
- 2 half-day webinars for selected auditors, focusing on CEWASTE-specific requirements
- 1 half-day webinar for selected auditees, focusing in CEWASTE-specific requirements

After the theoretical training sessions, all auditors and auditees should have a basic understanding of key WEEELABEX/EN50625 requirements as well as all CEWASTE-specific requirements. Auditors should also be familiar with the audit checklist, audit manual and the general audit procedure.

Auditees should have an understanding of which requirements are relevant for their company and how they could be implemented.

Each CEWASTE pilot audit is also part of the practical training, both for auditees and auditors. Auditors can learn how to audit according to CEWASTE requirements and work in practice with the audit checklist and manual. They can also provide valuable feedback on the development of the requirements and auditing documents. Auditees can learn about the gap for their facility to meet the CEWASTE requirements, and estimate efforts needed to reach compliance. They can provide therefore feedback on the real-world feasibility of CEWASTE requirements.

7 PILOT AUDITS

7.1 GOALS:

The goals of the pilot audits are to:

- Test the real-world feasibility of the CEWASTE requirements
- Carry out a gap assessment for the audited facilities to meet the CEWASTE requirements in various contexts (EU, non-EU)
- Evaluate the efforts needed to reach compliance
- Collect feedback from the auditors and auditees regarding the applicability of both the CEWASTE requirements and assurance documents such as manuals and checklists
- Collect data to and feedbacks/suggestions on the long-term sustainability of the CEWASTE scheme

7.2 PROCEDURE

7.2.1 BEFORE THE AUDIT

The pilot audit will be planned by the LA according to the audit plan developed within WP3 and delivered in D3.2 (Verification and Certification procedures). The LA contacts the operator and requests information to prepare the audit and prefill the audit protocol, also delivered in D3.2, such as:

- The address of the locations to be assessed
- The contact details of key contacts at the operator's site
- Proof of WEEELABEX/EN50625 certification, if available
- Arrangements necessary when the language of the audit team does not match with the language used at the operator
- Ensure safety of the auditors and the other personnel involved immediately upon arrival at the audited sites (ask for HSE guidelines, check whether protective equipment is required / available)

The LA is also responsible for preparing the adequate checklist, depending on the equipment treated and activities carried out in the facility.

7.2.2 DURING THE AUDIT

The audit follows chronologically the checklist, starting with management requirements, followed by technical requirements and de-pollution monitoring. The audit also includes the inspection of all relevant processes within the facility. The auditors record information, statements, observations and findings from the audit in the checklist.

The audit will also include a feedback round to collect feedback from both the auditees and the external auditors regarding the requirements and the assurance procedure.

The tentative lengths of the various types of pilot audits (**not including** preparation/finalisation) are summarized in Table 3. In addition, about same amount of time will be required for preparation and finalisation (travel not incl.). The tentative audit time will be validated through the pilot audits.

Table 3: Tentative audit time for pilot audits

	Collection	Logistics	Pre-treatment	Final treatment
Facility is WX/EN50625 certified	¼ - ½ day	¼ - ½ day	½-1 day	½-1 day
Facility is not WX/EN50625 certified	½ - 1 day	½ - 1 day	1-2 days	1-2 days

7.2.3 AFTER THE AUDIT

The LA is responsible for compiling all findings of the audit and documenting them, based on the CEWASTE audit report developed in WP3 and delivered in D3.2. The audit report documents all observed deviation in the following way:

- no direct effect on conformity: observation, finding or remark
- minor nonconformity
- major nonconformity

The LA will also compile all feedback and data from the pilot in an aggregated, anonymous form that contains all relevant information needed to fulfil tasks 4.3. and 4.4 (see below).

8 FEEDBACK OF PILOT AUDITS

8.1 FEEDBACK TO TASK 4.3

In task 4.3, learnings and feedback of the piloting will be collected and recommendations and feedback to improve the CEWASTE requirements (WP2) and certification scheme (WP3) consolidated. A template for feedback to be collected from each audit will be developed which will be filled-in by each lead-auditor and timely shared with WP2 and WP3. This will allow the timely revision of WP2 and WP3. Feedback along the same line will be collected from the Advisory Board which will be informed of highlights of the pilots during the Advisory Board meetings. Learnings and feedback will be compiled with special focus on pitfalls of existing normative requirements and additionally suggested ones, adjustment of the assurance system, and adjustment of audit procedures.

8.2 FEEDBACK TO TASK 4.4

Despite Task 4.4 is only planned to start in M20, the consortium partners agreed to anticipate the planning and in particular to leverage on the audits also to collect data and feedbacks/suggestions on the long-term sustainability of the CEWASTE scheme. In particular the assessment of economic benefits and implementation potential of the scheme will be evaluated. This will be done via:

- simplified questionnaire to be completed by the companies audited to assess the impact on business for implementation of the scheme;
- collection of quantitative data (as far as possible) on downstream markets for CRM and increase potential;

Early planning of data-requirements from audited companies will minimise the risk of last-minute data collection requests and allow a more consistent evaluation across the entire value chain.