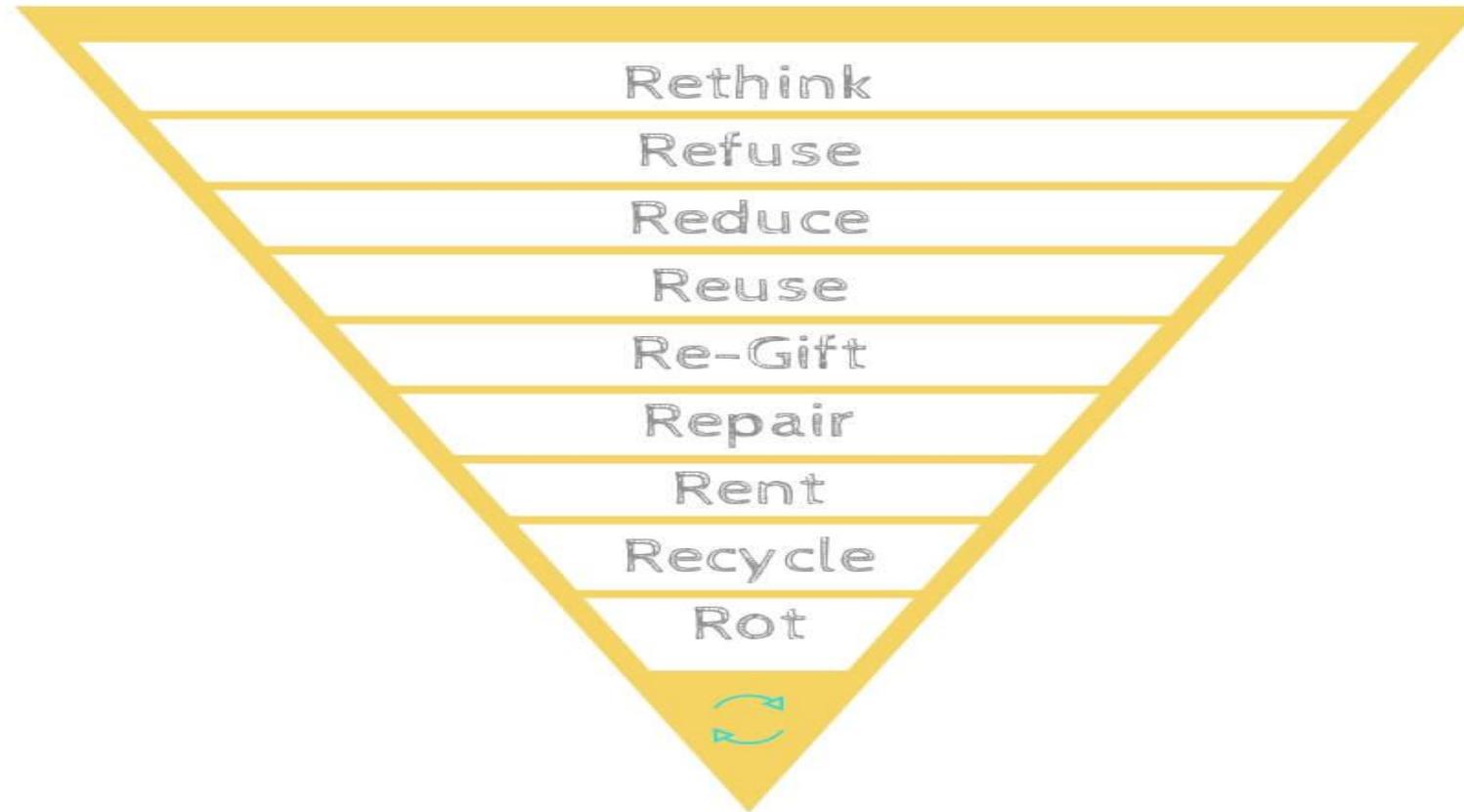




# European/International Standards & Policies around e- Waste/Circular Economy



# Circular economy: Debate and consensus



# Circular electronics & e-waste challenge

- E-waste contains a high number of precious materials most of which are lost after single use
- Of the 83 stable/non-radioactive elements in the periodic table, more than 60 are used to produce complex electronic products such as smartphones, including 16 (of 17) rare earth elements
- E-waste contains substances dangerous to human health and the environment, including mercury, lead and cadmium



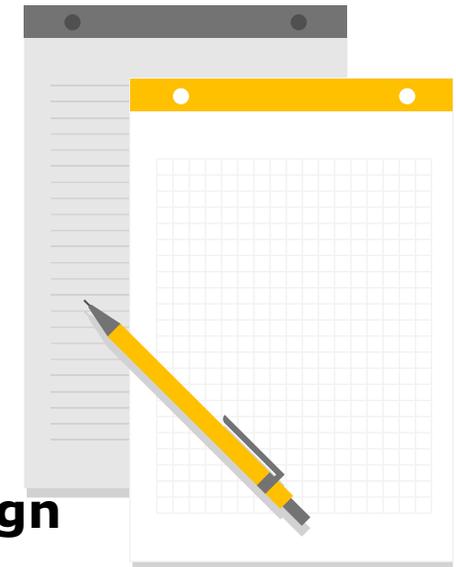
# Latest EU policy initiatives related to CE: 2021 –22

**Adopted** - November 2021

- European Commission adopted proposal for new rules on **waste shipments**

**Planned adoption** of several initiatives under the action plan, including:

- legislative proposal for substantiating green claims made by companies
- legislative proposal **empowering consumers** in the green transition
- EU strategy for **sustainable textiles**
- Sustainable products policy initiative including a **revision of the Ecodesign Directive**
- review of requirements on **packaging and packaging waste** in the EU
- update of EU rules on **industrial emissions**



# Circular Economy - coordination at CEN-CENELEC

## CEN-CENELEC SABE **Circular Economy Topic Group**

- Subgroup of the CEN-CENELEC Strategic Advisory Body on Environment
- Established in 2020

Objective: to better and faster respond to horizontal and cross sectorial standardization needs of recent policy initiatives and particularly related to Circular Economy



# SABE CE-TG horizontal activities

| Group | Scope  |
|-------|--|
| AHG1  | <b>Tracking and Analysis</b> - mapping of ongoing, planned, missing and blocking standardization activities on CE within CEN, CLC and beyond                             |
| AHG2  | <b>CE-TG Working Plan</b> - defining short-, medium- and long-term activities for CE-TG based on CEN and CLC TCs and other stakeholders' needs (survey on TCs awareness) |
| AHG3  | <b>Terminology</b> - make terminology on CE/ME/RE readily available to CEN and CLC TCs. Focus on collect existing / under development terms and definitions              |
| AHG4  | <b>Mainstreaming CE and education</b> - include CE in processes of CEN & CLC (guidance, templates). Promote knowledge sharing and provide basic CE training              |
| AHG5  | <b>Taxonomy</b> - review and analyze the European development on sustainable finance and assess the need for standardization and the best approach (new)                 |

# Reliable waste recycling

Countries can receive wastes from EU only if they are able to ensure that they can manage them sustainably.

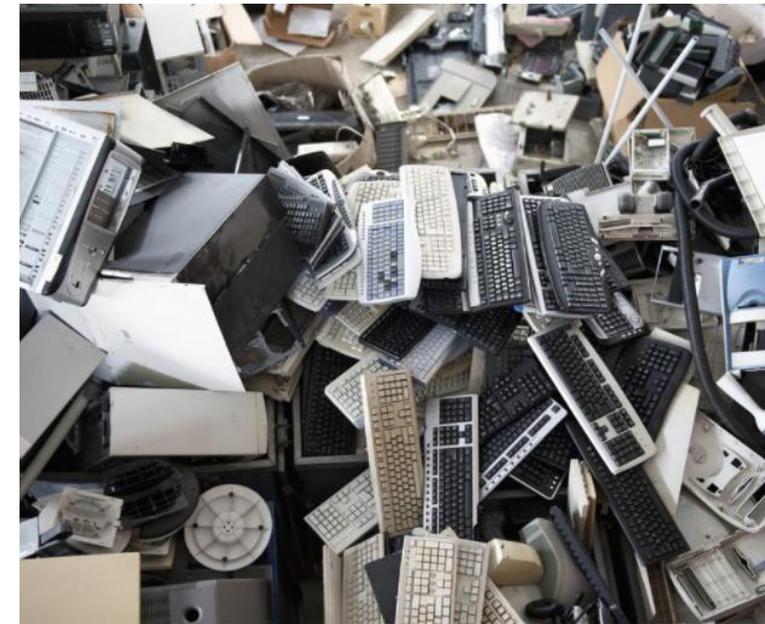
The Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EU - sets **requirements and targets for the collection and treatment of WEEE**

- Producers and importers report on the amount of EEE which was put on the market, and treatment operators on the amount of WEEE treated.
- The reported amounts provide information on how targets were met

European Standards developed in support of the WEEE Directive:

- **Assist** treatment operators in fulfilling the requirements of the WEEE Directive, **give additional guidance**
- Cover the **treatment of waste from all products categories** within the extended scope of the WEEE Directive.
- Cover the **collection and transport** of WEEE to allow proper treatment.
- include **preparation for reuse** of the WEEE

Provide reliable information to legislators and authorities!



# The WEEE standard series

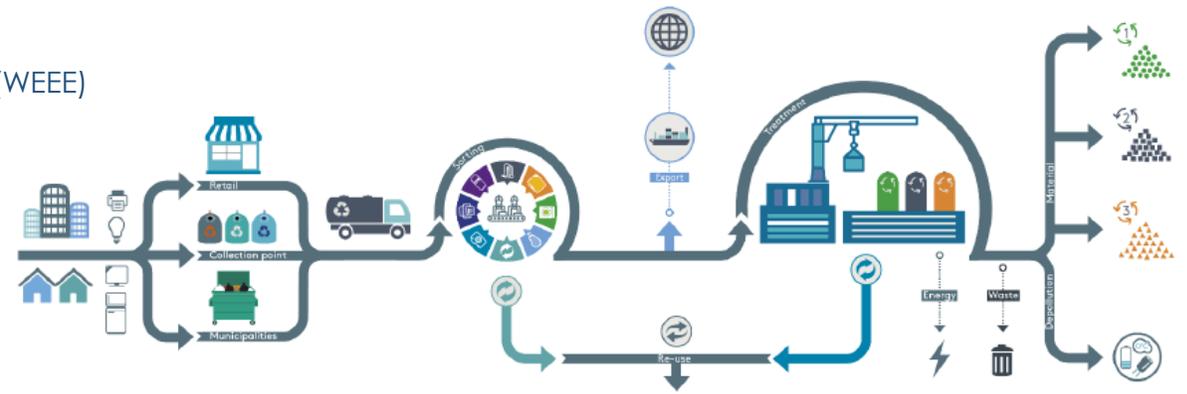
EN 50574 series - **Collection, logistics & treatment requirements** for end-of-life household appliances containing volatile fluorocarbons or volatile hydrocarbons

EN 50625 series on **treatment requirements**

- The WEEE Directive requirements to be fulfilled by treatment operators are not very specific – the general treatment standard EN 50625-1 coupled with its accompanying technical specification on de-pollution TS 50625-3-1 are specific
- Additional specific treatment standards: EN 50625-2-1 (lamps), EN 50625-2-2 (CRTs and FPDs), EN 50625-2-3 (heat-exchange equipment) and EN 50625-2-4 (for photovoltaic panels ) each of which has its own associated technical specification respectively TS 50625-3-2, TS 50625-3-3, TS 50625-3-4 and TS 50625-3-5.
- Another Technical Specification, TS 50625-4, defines requirements for the collection of WEEE and the logistics associated transporting that WEEE to a treatment facility.
- TS 50625-5 provides specification of the end-processing of WEEE fractions – copper and precious metals

EN 50614:2020 - Requirements for the **preparing for re-use** of waste electrical and electronic equipment

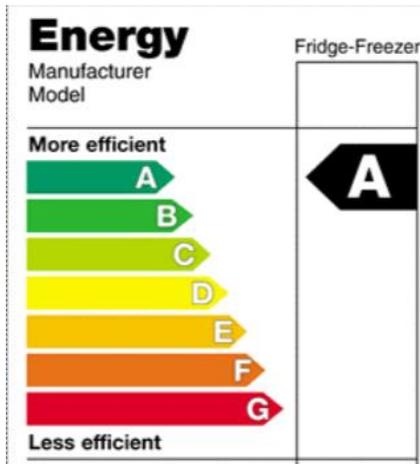
- [Brochure](#) - European Standards for Waste Electrical and Electronic Equipment (WEEE)



# Product design and consumer information

## Ecodesign and Energy Labelling

- Ecodesign **removes** from the market the least energy and resource efficient products
- Energy Labelling **enables** consumers to make a better and more rational use of energy by choosing more efficient products



CEN-CENELEC Coordination Group on Ecodesign (Eco-CG) (since 2012)

25 Technical Committees actively involved (e.g. CLC/TC 59X, CLC/TC 22X, CLC/TC 34, CLC/TC 100X, CLC/TC 2, CLC/TC 14, etc.)

≈ 180 published European standards (ENs) & ≈ 50 under development

Upcoming EU Ecodesign Working Plan 2020-2024 will focus more on circular economy matters!

Products covered by CEN and CENELEC - To be expanded **based on EC's Ecodesign Working Plans**: Vacuum cleaners – External power supplies – Simple set top boxes – Refrigerating appliances – Circulators – Electric motors – Variable speed drives – Televisions – Dishwashers – Washing machines – Lamps – Air conditioners – Power transformers – Electrical lamps – Professional refrigeration – Fans – Water heaters – Space heaters – Ventilation units – Networked standby – Computers and computer servers – Non-household washing machines, dryers and dishwashers – Local space heaters – Solid fuel boilers – Welding equipment – Refrigerated commercial display cabinets – Air heating, cooling and high temperature process chillers – Tumble dryers – etc.

# Product design - Material efficiency aspects

Ecodesign requirements on material efficiency aspects for energy-related products

## CEN-CENELEC/JTC 10 'Energy-related products – Material Efficiency Aspects for Ecodesign' (M/543 standardization request)

- Deliverables had to be “general in nature” and cover the following material efficiency aspects:
  - Extending product lifetime;
  - Ability to re-use components or recycle materials from products at end-of-life;
  - Use of re-used components and/or recycled materials in products.
- The CEN-CLC/JTC 10 documents contain **generic principles** to consider when addressing the material efficiency of energy-related products
- These standards **can be used by product-specific TCs** when developing product-specific or product group standards addressing material efficiency aspects

# Material Efficiency - standards

In response to M/543, the following deliverables have been published by CEN-CLC/JTC 10 in the course of 2019 and 2020

:

- CLC/TC 45550:2020 '**Definitions** related to material efficiency'
- EN 45552:2020 'General method for the assessment of the **durability** of energy-related products';
- EN 45553:2020 'General method for the assessment of the **ability to remanufacture** energy-related products';
- EN 45554:2020 'General methods for the assessment of the **ability to repair, reuse and upgrade** energy-related products';
- EN 45555:2019 'General methods for assessing the **recyclability and recoverability** of energy-related products';
- EN 45556:2019 'General method for assessing the **proportion of reused components** in energy-related products';
- EN 45557:2020 'General method for assessing the **proportion of recycled material content** in energy-related products';
- EN 45558:2019 'General method to **declare the use of critical raw materials** in energy-related products';
- EN 45559:2019 'Methods for providing **information relating to material efficiency** aspects of energy-related products'.



# Packaging

Packaging waste should be reduced, and packaging should be made easier to recycle.

**CEN/TC 261** – in charge of the development of all aspects dealing with the **environmental topic related to packaging:**

- The degradability and organic recovery
- The material recovery
- The reuse
- The recycling
- The management of dangerous substance

CEN/TC 261 developed a series of standards in support of the essential requirements of the Packaging and Packaging Waste Directive (PPWD) - Directive 94/62/EC as amended.

Focus on **plastics:**

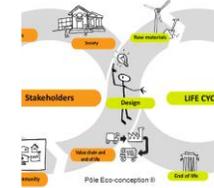
- Draft **EN 17665 in support of the 'Single Use Plastics' Directive (SUP) - Directive (EU) 2019/904** on the reduction of the impact of certain plastic products on the environment (M/596)  
a standard on the test methods and requirements to demonstrate that plastic caps and lids of single-use beverage containers remain attached to the containers during the product's intended use stage
- The participation of the CEN/261 to the Circular Plastic Alliance (CPA) - context of **the future CPA Standardization Request**

# ISO - A new Technical Committee to promote CE

- **ISO Technical Committee 323 SCOPE**

Standardization in the field of **Circular Economy** to develop frameworks, guidance, supporting tools and requirements **for the implementation of activities of all involved organizations**, to maximize the contribution to **Sustainable Development**.

- Created in 2019, **TC323 produces some transversal standards** related to Circular Economy. These standards could be a basis for specific activities.



Integrate life cycle thinking in process

Consider waste as a resource



Cooperate along the value chain, involve all stakeholders, promote value networks



Integrate long term vision





# A package to facilitate CE implementation

**ISO WD 59 004** – Circular Economy – Terminology, principles and framework for implementation



Gives a common understanding of Circular Economy

**ISO WD 59 010** – Circular Economy – Guidance on business models and value networks



Provides a guideline to transform business models from linear to circular

**ISO WD 59 020** – Circular Economy – Measuring circularity

Provides a framework to measure and assess circularity performance



**ISO WD 59 040** – Circular Economy – Products circularity datasheet



Provide further framework and toolbox for reporting circularity performance at product level

**Supporting documents:** Provides experience feedback to make circular economy tangible and concrete

**ISO TR 59 031** – Circular Economy – Performance based approaches



**ISO TR 59 032** – Circular Economy – Review of business model implementation



**Another project: Joint WG ISO TC207 SC5 & ISO TC323 JWG14 - ISO WD 59 014** - Secondary materials – Principles, sustainability and traceability requirements



# Publication dates

A Circular Economy package facilitating implementation, dialogue and communication between stakeholders

| STANDARDS  | PUBLICATION |
|--|-------------|
| ISO WD 59 004 – Circular Economy – Terminology, principles and framework for implementation    | 2023        |
| ISO WD 59 010 – Circular Economy – Guidance on business models and value networks              | 2023        |
| ISO WD 59 020 – Circular Economy – Measuring circularity                                       | 2023        |
| ISO WD 59 040 – Circular Economy – Products circularity datasheet                              | 2023        |
| ISO TR 59 031 – Circular Economy – Performance based approaches                                | 2022        |
| ISO TR 59 032 – Circular Economy – Review of business model implementation                     | 2022        |
| ISO WD 59 014 – Secondary materials – Principles, sustainability and traceability requirements | 2023        |

# EU-India Cooperation Instruments

- [European Union's Resource Efficiency Initiative](#)
  - [The project work towards creating a dialogue on the need for resource efficient approaches in India among key government and non-governmental organisations, businesses, students, media and the general public.](#)
- EU-India Strategic Partnership: [A Roadmap to 2025](#) , [Joint Declaration of May 2021](#)
  - The key focuses of cooperation are around Security, Climate Change, Clean Energy, ICT, Transport, Green Deal, **Resource Efficiency**, **Circular Economy**, Clean Tech, Renewables, Artificial Intelligence, Research & Innovation, RAIL
  - Cooperation around Standardisation and its harmonisation to International Standards and promotion of existing international standards is clearly mentioned around the topics of Security, pharmaceuticals and medical devices, **Environment (Circular Economy)**, Information and communications technology (ICT), Transport (Railways) etc.
- EU-India [Connectivity Partnership](#) aligned with EU's [Global Gateway](#)
  - Support sustainable digital, transport and energy networks, and the flow of people, goods, services, data, and capital centred on equity and inclusivity for the benefit of both the EU and India and assisting in global development efforts, based on Sustainable Development Goals principles.
- Establishment of a [Trade and Technology Council \(TTC\)](#) between the two regions
- [Strategy on Standardisation - Setting global standards in support of a resilient, green and digital EU single market](#)
  - “fostering the adoption of international standards by trading partners and through cooperation between the respective standardising bodies”, “more strategic approach in leveraging trade agreements and partnerships to support shared interests in international standards-setting with key partners”, etc.
- Project SESEI (sesei.eu) – Priority topics include Circular Economy for cooperation around its Standardization with BIS (MoU signed with CEN-CENELEC)



# Conclusion

- ✓ Circular economy is broad, covers the whole economy
  - ✓ Switch to alternative models to decouple the global economy from the consumption of limited resources...
  - ✓ CEN and CENELEC develop standards in support of all areas of the Circular Economy
  - ✓ Circular Economy initiatives created demand for horizontal standards
- 
- **Closer cooperation** is needed among the sectors - e.g., communication between the recycling and the production sector on the design & use of materials, industrial symbiosis
  - **Broader involvement** and exchanges with stakeholders (industry, SMEs, societal stakeholders, policy makers) - helps identify the needs
  - **Project-based work** considering the needs of circularity (industries; TCs contribute to projects and the sector approach may disappear)

Thank you!

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QCI\_23rd Virtual Quality Conclave (VQC) on E-waste Management Quality  
Strategies for driving towards a Circular Economy