



Household WEEE* and lamps

2021 Sustainable Development Report

— NATIONAL EDITION

* Waste Electrical and Electronic Equipment

EDITORIAL



In its sixth report, the IPCC has yet again raised the alarm in regards to climate change. It is urgent to take action collectively and sustainably in order to limit global warming by reducing greenhouse gas emissions. We're are doing our part! In 2021, thanks to the recycling of electrical appliances and lamps the emission of 548,000 tonnes of

CO2 was avoided. Within the next 6 years, we are committed to increasing the volume of avoided CO2 by nearly 50%, via increased collection and through the management of our optimised activities so that environmental impacts are further reduced. Also, in regards to cooling gases we are have set an additional removal target of 15%, i.e. 1.5 million tonnes of CO2 removed by 2027.

Following a "pause" in the economy in 2020 due to the COVID epidemic, household consumption in 2021 was the same, if not more than in 2019. The conservation and saving of natural resources therefore remains a major challenge to which we will continue to contribute. The first lever is the prolonging of the service life of products thanks to the repair and reuse funds, established by the Anti-Waste and Circular Economy Law in 2020, which we worked upon throughout the year. The second lever is the recycling of materials from appliances that can neither be repaired nor reused.

Out of 670 020 tonnes collected in 2021, 77% were recycled. To reuse more materials we aiming at significantly increasing collection within the next 6 years with the help of our partners Our areas of development include the massive mobilisation of consumers, the implementation of new solutions such as home collection in dense urban environments, improving the sorting of construction, metallic and bulky waste and fighting against illegal export and practices. We are, of course, always at the service of our members in order to assist them in using recycled materials within the manufacturing process of their products.

Partners, members, consumers and also service-providers: the success of our sector relies on the mobilisation of the entire collective. Therefore, it is important for me to recall that our sector employs nearly 14,500 people, 2,200 of which are under inclusive contracts, perfectly illustrating the fact that recycling, redeployment and reuse activities also protect jobs.

Lastly, a symbol of our commitment to rise to all these challenges, and even others, it is with pride that we officially became a French "mission-based company" on 24 June 2021. Our reason for existing, now expressed through 5 social and environmental purposes, must guide us in all our undertakings.

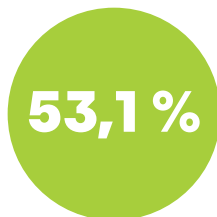
Nathalie Yserd
CEO

2021 NATIONAL FIGURES

Household WEEE



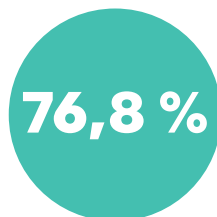
Collected tonnage



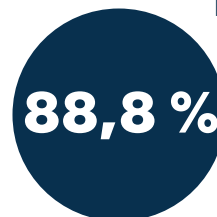
Collection rate



National average collection rate in kg/inhab



Recycling rate



Recovery rate

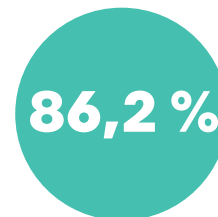
Lamps



Collected tonnage



Collection rate



Recycling rate

2021 NATIONAL COLLECTION RESULTS

664 854

tonnes of household WEEE collected



+ 13,9 %

compared to collection in 2020

5 166

tonnes of lamps collected



+ 6,9 %

compared to collection in 2020

corresponding to:



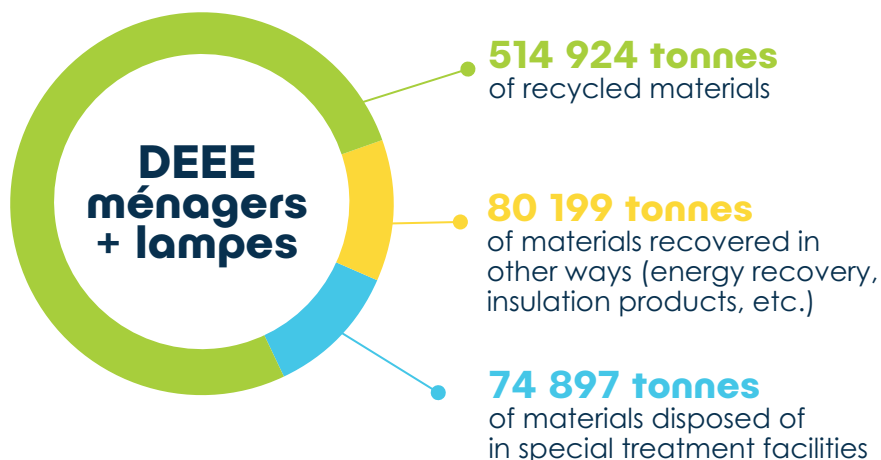
106,8 millions

million electric and electronic appliances



57,4 millions

lamps



548 736



tonnes of avoided CO₂ emissions

1 325 317



tonnes of CO₂ removed thanks to the treatment of polluting gases

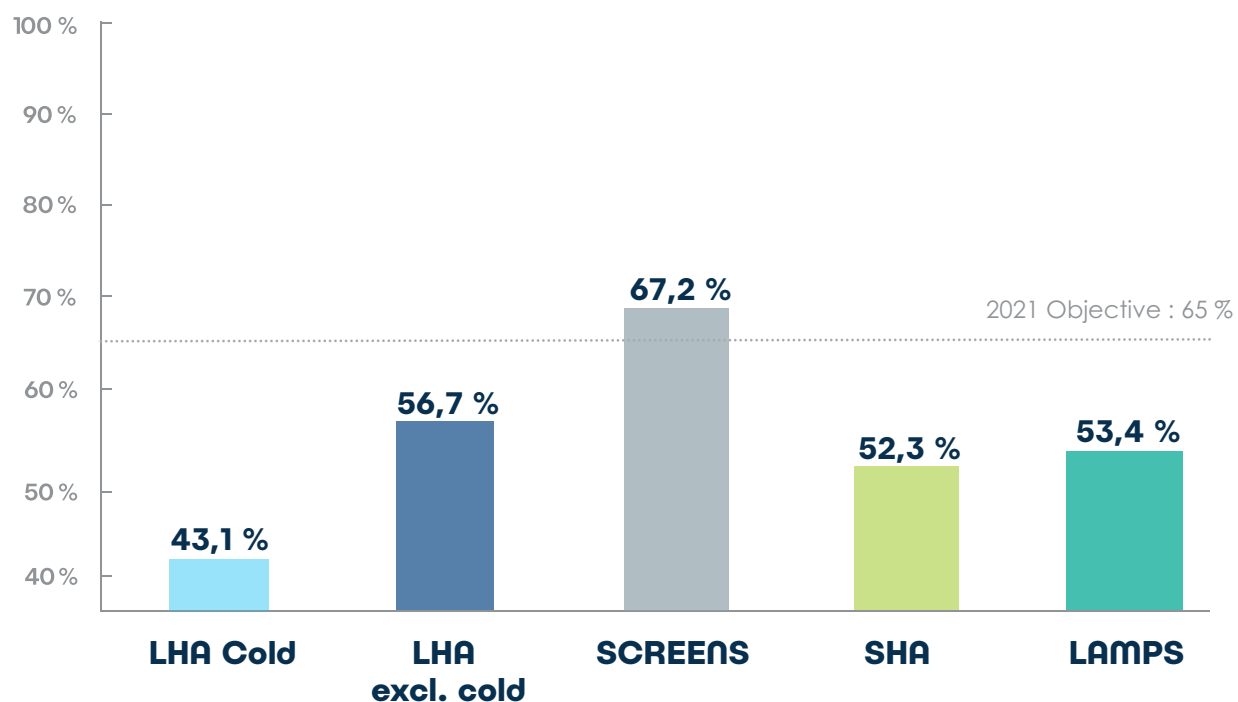
2021 NATIONAL ASSESSMENT

Collected tonnages

| | 2020 (tonnes) | 2021 (tonnes) | Progression 2020/2021 | Number of items in 2021 (millions)* |
|-----------------------|------------------|------------------|--------------------------|--|
| LHA Cold | 98 677 | 111 912 | + 13,4 % | 2,1 |
| LHA excl. cold | 291 439 | 337 570 | + 15,8 % | 6,4 |
| SCREENS | 35 472 | 36 061 | + 1,7 % | 2,6 |
| SHA | 157 901 | 179 311 | + 13,6 % | 95,6 |
| LAMPS | 4 832 | 5 166 | + 6,9 % | 57,4 |
| TOTAL | 588 322 | 670 020 | + 13,9 % | 164,2 |

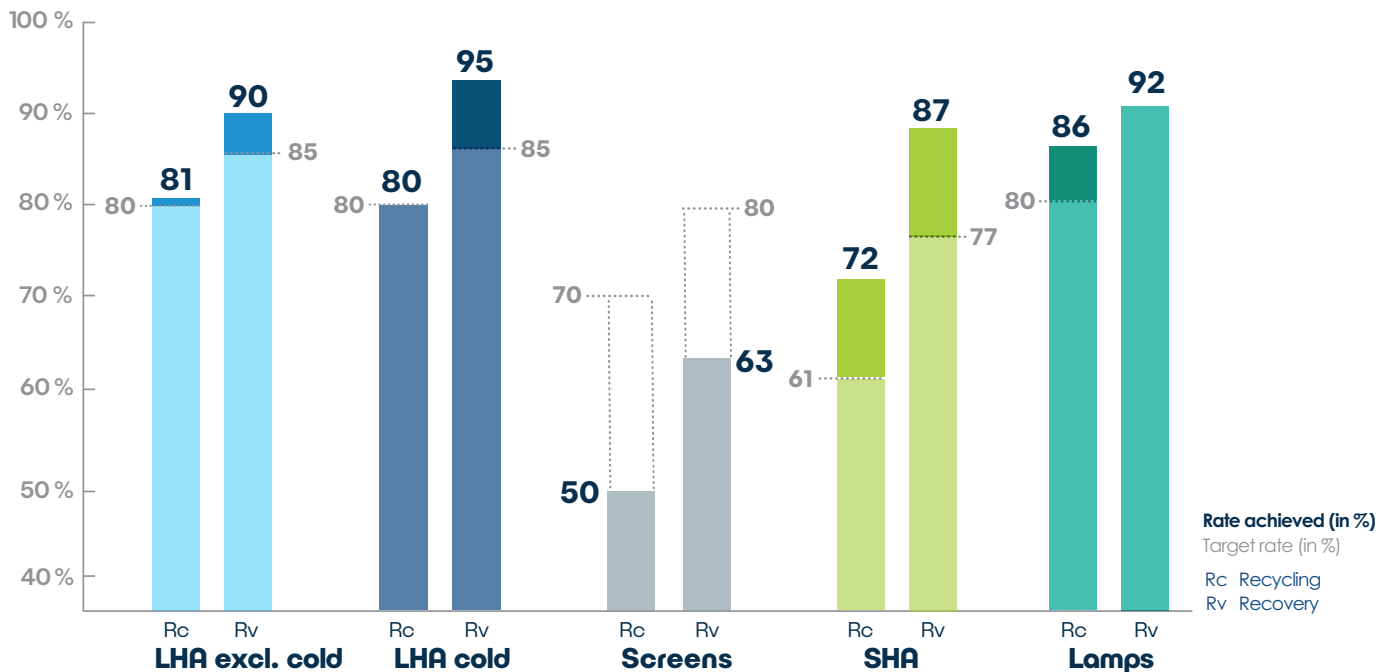
* Tonnages and numbers of items values have been rounded off to the nearest decimal, their sum does not correspond to the exact total cited in the table.

Collection rates



NATIONAL RESULTS: PROTECTING NATURAL RESOURCES

National recycling and recovery rates (2021)



The collection of used appliances and lamps is a source of raw materials. From the **670 020 tonnes** of household WEEE collected nationally by **ecosystem** in 2021:

- **76,8 %** have been **recycled**,
- **88,8 %** have been **recovered** in various forms (energy, backfill, etc.).
- The remaining tonnages (that cannot be recovered) were isolated and treated by specialised facilities.

In regard to the glass from cathode ray tubes, regulations do not authorize its recycling and Europe does have a recovery industry. Within this context, in France, their exportation is not authorized.

What becomes of refrigerators recycled by ecosystem?

FERROUS AND NON-FERROUS METAL

Steel, stainless steel, copper and aluminium are mainly recycled in metallic framework used in the construction industry and as spare parts in the automobile industry such as cylinder heads, exhaust pipe or cables.

PLASTICS

88,8% of plastics are recycled. Their recycling in closed loops is currently being developed. 9% of insulation foam is also recycled in the form of absorbent material. The remainder of plastics and foams is mainly recovered as energy (41%). The ashes resulting from the incineration of foam can be integrated into cement. 11% of the plastics and foams are disposed of in specialised landfills.

REGULATED SUBSTANCES

Cooling gases and capacitors are treated separately in order to be disposed of in specialised high temperature incinerators, in compliance with regulations.

ELECTRONIC CIRCUIT BOARDS

These are treated in special foundries where they will be recycled into different metals (gold, silver, copper, etc.). The remainder of electronic circuit boards (in particular epoxy plastic) is partly recovered as energy and partly disposed of.

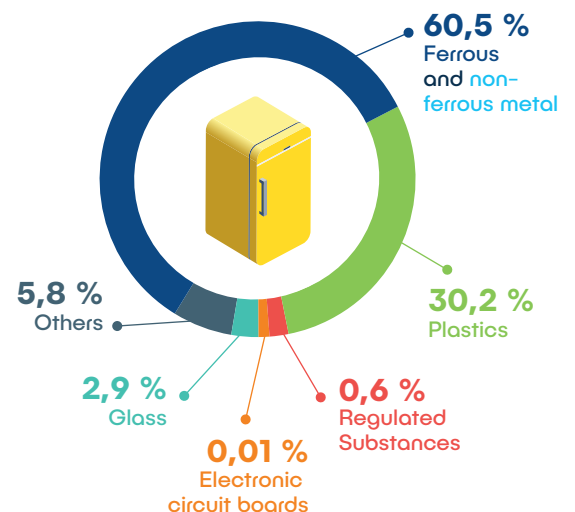
GLASS

The majority of glass shelving is recycled (93%). It is used to make flat glass used for single paned of glass or to make other glass shelves. The remainder is landfilled in specialised landfills.

OTHERS

The remaining materials, often small sized, are essentially made of wood (plywood on top of the appliance), rubber and shredded material residues. They are mainly recovered (30%) as energy, or sent to specialised landfills (70%), in compliance with legislation.

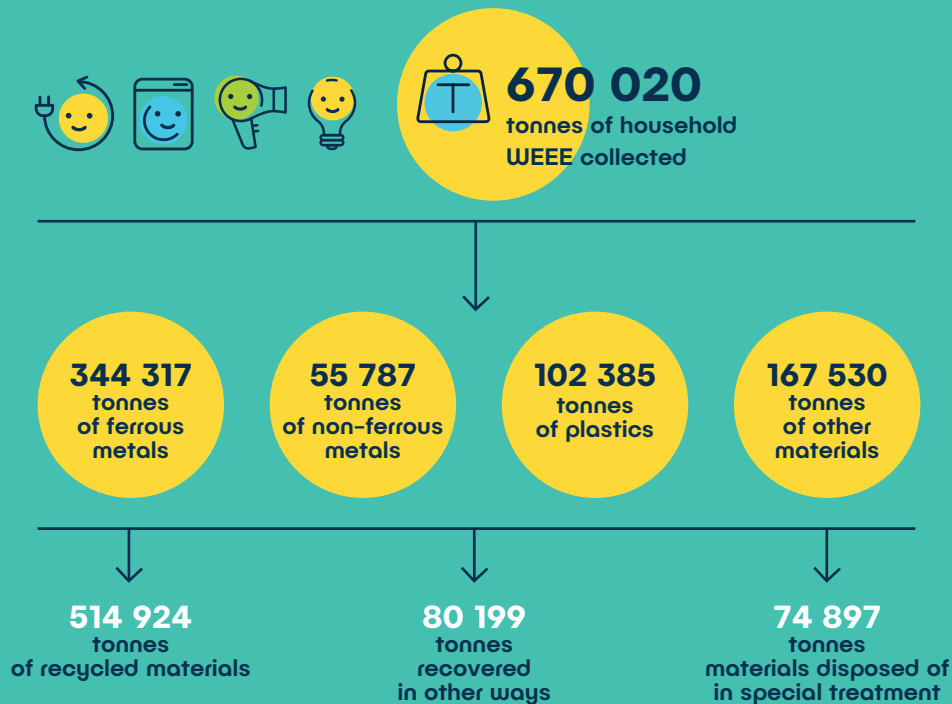
Composition of a refrigerator



PROTECTING NATURAL RESOURCES

Material balance of collected appliances and lamps

Household WEEE (appliances and lamps) that is collected is delivered to specific treatment sites for recovery. Here are the recovery figures that actively contribute to fighting against the depletion of mineral resources and fossil fuels.



Environmental review

ecosystem assesses the environmental footprint of each stage in the recycling chain (collection, depollution, treatment, etc.). This allows the areas where action can be taken in the field to be identified in order to continue to increase the environmental benefits of recycling.

For more details on the environment assessment: <https://www.ecosystem.eco/fr/article/bilan-environnemental>

Fighting against the depletion of natural resources

The recycling of appliances and lamps plays an important role in limiting mineral resource depletion (metals, precious metals, rare earth metals, etc.) and fossil fuels (oil, coal, gas). **Household WEEE collection from the goods that you placed on the market has enabled to be saved:**



3 917 850 tonnes de matières premières brutes, soit l'équivalent des ressources minérales nécessaires pour produire **9 763 328** équipements informatiques.



Recycling prevents the mining in large quantities, of raw materials (mineral ores, etc.) and thereby to fight against the over-exploitation of sometimes critical resources.



1 813 995 185 kWh, soit l'équivalent des consommations d'énergie de **393 360** Français pour se chauffer pendant un an.



Recycling allows materials to be regenerated. All of the sometimes energy-hungry stages required to manufacture the same raw materials are thereby avoided.

PROTECTING THE ENVIRONMENT

Fighting against global warming

The depollution and recycling of electric and electronic equipment and lamps play a major role in environmental protection. **Your collection efforts enabled:**



d'éviter l'émission de **548 736** tonnes de CO₂, soit l'équivalent de **4 943 565 696** km en voiture (**4 938 627** trajets Lille-Marseille en voiture).



d'éliminer l'équivalent de **1 325 317** tonnes de CO₂, soit la quantité de CO₂ absorbée par **110 443 056** arbres pendant un an.

The manufacture of virgin materials requires different stages (extraction, transportation, transformation, etc.) that emit greenhouse gases. In comparison, recycling stages (collection, treatment, regeneration, etc.) emit less.

Recycling materials thereby enables tonnes of CO₂.

The depollution of cooling equipment (refrigerators, air conditioners, etc.) enables the gases that they contain to be collected and neutralised. Some of these gases have a global warming effect up to 10,000 times higher than that of CO₂; a significant environmental impact that is thereby avoided thanks to the depollution stage.

Fighting against other forms of pollution (other environmental indicators)



Without depollution and recycling, polluting gases would have been released into the atmosphere and virgin materials would have been produced. **Your collection efforts enabled:**



Destruction de la couche d'ozone

d'éliminer l'équivalent de **227 570** kg de gaz responsables de la destruction de la couche d'ozone (CFC-11 équivalent).



Pics de pollution à l'ozone

d'éviter des émissions de molécules responsables des pics de pollutions à l'ozone, équivalentes à celles rejetées par **4 259 317** voitures pendant un an.



Acidification des sols et des eaux

d'éviter des émissions de molécules qui auraient généré l'équivalent d'un an de pluies acides sur une surface de **583 304 041** m².

For further information : <https://www.ecosystem.eco/fr/article/recycler-protéger>

PROTECTING HEALTH

One of the reasons that the industry exists is to protect health. Its purpose is to remove and neutralise any potentially hazardous substances contained in the WEEE collected, in particular household WEEE. This new activity has already led to the creation and development of specific treatment sites in France.

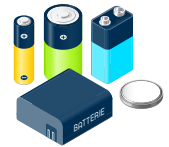
This year, **ecosystem collected nearly 670 020 tonnes of appliances and lamps in France**. Many hazardous or regulated substances or components have been extracted from the tonnages collected:

430 KILOS OF COMPONENTS CONTAINING MERCURY



Mercury is a toxic metal that affects the body, in particular the nervous system and the kidneys. It also disrupts reproduction and development. It is mainly found in lighting bulbs and screen backlighting bulbs (LCD). Mercury is also used as a switch in certain appliances such as chest freezers and laptops.

Mercury is stabilised before being landfilled in purpose-built facilities for hazardous waste
<http://ampoules-mercure.ecosystem.eco/>



1 126 TONNES OF BATTERIES AND ACCUMULATORS

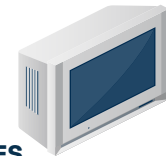
These contain heavy metals which have effects on living organisms if they are scattered in land and water. After removal from appliances, **batteries and accumulators are treated by Screlec & Corepile, two approved take-back scheme operators, who are responsible for their treatment.**

17 031 TONNES OF PLASTICS LIKELY TO BE BROMINATED



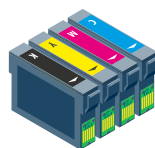
In some electric and electronic appliances, plastics may contain brominated flame retardants. Some of the plastics from SHA and screen streams may be classified as hazardous and POP (persistent organic pollutants). In this case these are treated in hazardous waste incinerators, fitted with high temperatures furnaces. **Through the precautionary principle, the category 'likely to be brominated' covers all brominated plastics as well as those for which there is a doubt, for them to undergo the same treatment.**

13 013 TONNES OF CATHODE RAY TUBES



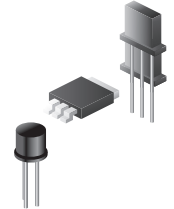
Cathode Ray Tubes contain barium-containing glass and glass with lead. **When separated, barium glass is considered as non-hazardous and can be recycled in the manufacturing process of materials for the construction industry. Lead glass and mixed glass (unsorted) is considered as hazardous: lead is likely to accumulate in organisms and cause harmful effects on reproduction and the development of living beings. It is sent to hazardous waste landfills.**

163 TONNES OF TONER CARTRIDGES



These contain pigments, the inhalation of which may cause respiratory disorders. **These are recovered, cleaned, and then reconditioned. Cartridges that cannot be reconditioned are treated by specialist companies.**

294 TONNES OF CAPACITORS

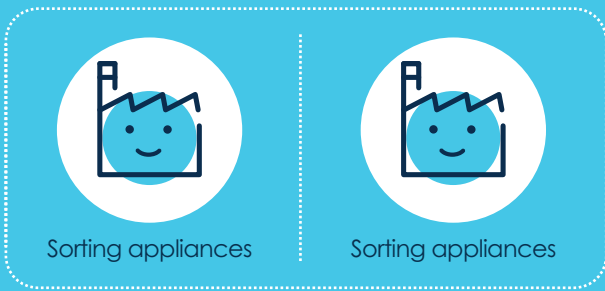
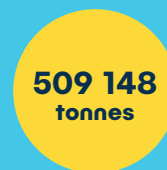


These include capacitors likely to contain PCBs (polychlorobiphenyls), or electrolytic capacitors. PCBs are persistent organic pollutants, highly resistant to biodegradation in the environment. They accumulate in the tissues of organisms throughout the food chain and can seriously damage the reproductive and immune systems. **Capacitors are treated in special hazardous waste sites equipped with a very high temperature furnace (1200°C).**

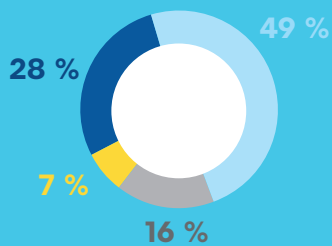
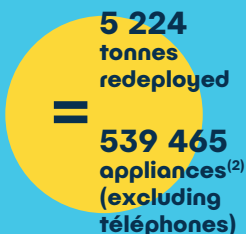
COMMITTING TO THE SOCIAL AND SOLIDARITY ECONOMY (SSE)



The **Emmaüs France network** redeploys electrical and electronic equipment coming from private individuals. The **Envie network** enables large household appliances collected by retailers to be reused. In 2021, nearly **633,425 appliances** were recovered or reused after repair

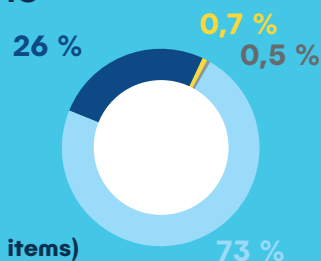
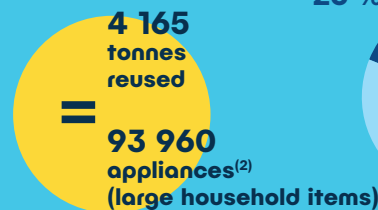


Emmaüs France



■ GEM hors froid ■ GEM froid ■ Écrans ■ PAM

Envie⁽³⁾



3 800 PEOPLE EMPLOYED,
22% OF WHOM ARE REENTERING THE
LABOUR MARKET

¹⁾ Waste management operators and those having waste (Energy Transition Law) partners and solidarity district collection rounds.
²⁾ Transformation into number of appliances based on 2020 sampling (average weights per appliance type).
³⁾ With the percentages in the circular diagram having been rounded to the nearest decimal, the sum does not add up to 100.

How is the eco-contribution redistributed?

The **eco-contribution** is paid by the consumer upon the purchase of a new appliance/or bulb. It **enables collection and recycling operations of household WEEE and lamps to be financed**.

The eco-contribution scale is regularly adjusted to include the increase in tonnages to be treated, the change in logistical and treatment costs as well as the change in the price of materials.

These adjustments are essential for ensuring a financial equilibrium and maintaining quality recycling. All **ecosystem** activities are carried out within a mission of public interest in accordance with non-profit-making principles.



Glossary

LHA C: large household cooling items (refrigerator, freezer, air conditioner. etc.)

LHA excl. cold: large household appliances exclude cooling ones (dishwasher, washing machine, cookers, etc.).

Screens : televisions or monitors

SHA: small Household Appliances (all other articles not covered by the 3 categories above)

Collection consists in recovering electric and electronic equipment waste from the delivery take-back of goods or waste deposited by customers in shops and municipal recycling facilities, that then send it to treatment centres where it is weighed before entering the treatment process. **The collection rate** is the ratio between the equipment collected in one year (in tonnes) and the average of equipment placed on the market (in tonnes) in the 3 previous years.

Treatment is all of the stages required for the depollution and recycling WEEE (dismantling, removal of hazardous components, shredding, material separation, etc.).

Depollution aims at removing or isolating components or substances that may pose an immediate or delayed risk to health and/or to the environment.

Recycling is the treatment of waste in which the materials from which it is comprised can be used for the manufacturing of new products or materials.

The recycling rate is the ratio between the quantity of waste recycled and the total quantity of waste weighed received by treatment centre.

Secondary raw materials are materials resulting from recycling and can be used to partially or totally substitute primary raw materials.

Recovery means all treatment methods whereby the result is that waste has a useful purpose by substituting other substances, materials or products. This includes recycling, other types of material recovery (backfill, conversion of waste into fuels) and energy recovery (incineration with energy recovery).

The recycling rate is the ratio between the quantity of waste recycled and the total quantity of waste weighed received by a treatment centre.

Reuse is an operation whereby a product, that is given away or sold by its initial owner to a third party, will be given a second lease of life for the same purpose for which it was designed. The product keeps its status as a product and is not considered as waste at any time whatsoever.

Redeployment is an operation that starts when an owner of a used time disposes of it without directly handing it to an enterprise whose activity is reuse. The owner can dispose of his/her item in a shop, a municipal recycling facility or when a new appliance is delivered. The used item then becomes considered as waste. It undergoes restoration/repair thereby allowing it to be considered as a product again. It can then benefit from a second lease of life.

CYCLE DE VIE D'UN APPAREIL ÉLECTRIQUE



PRODUCTION

Les producteurs (fabricants, importateurs, vendeurs à distance et revendeurs sous leur propre marque) sont responsables de la fin de vie des appareils électriques mis sur le marché.



DESIGN

Producers and members can be assisted by **ecosystem** in eco-design focusing on «the end of service life» of WEEE and other projects targeting a circular economy approach.

ECO-CONTRIBUTION

The eco-fee allows the collection and recycling operations of household WEEE and lamps to be financed. It is paid to ecosystem by producers for each item of electric or electronic equipment placed onto the market. The amount of the eco-fee paid is indicated on the purchaser's receipt.



Use of a product by its owner

Solutions to dispose of a used or unused electrical appliance:



MUNICIPAL RECYCLING FACILITIES: Deposit of appliances whatever their type, quantity and size.



SHOP
Deposit in a freely accessible recycling bin, take-back to a shop or during a delivery.



DONATION
- jedonnemontelephone.fr
- jedonnemonelectromenager.fr⁽¹⁾
- réseaux solidaires comme Emmaüs



RECYCLING:

New raw materials obtained through recycling are reintroduced into new production cycles.

Recycling
The appliances that cannot be used are sent to a treatment centre



TRAITEMENT CENTRE

Once sorted into 5 categories (screens, large household cooling and non-cooling appliances, small mixed appliances, lamps), the collection, depollution and treatment of WEEE is carried out by selected service-providers throughout France who are regularly audited.



REDEPLOYMENT/REUSE

Appliances that are in working order are redeployed or reused by stakeholders in the Social and Solidarity Economy (SSE) such as Emmaüs, Envie, or Ateliers du Bocage. Appliances that are collected but cannot be repaired are sent to treatment centres.

OTHER RECOVERY METHODS: Some waste is used as an energy source or for other types of material recovery: for example as backfill.



CONTROLLED DISPOSAL

End waste and regulated substances are disposed of in specialised facilities

ecosystem

recycler c'est protéger



www.ecosystem.eco

Contact :
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