

RecOlight

HOW WE RECYCLE



Why Recolight is different

THE RECOLIGHT RECYCLING PROCESS

Free recycling service

Recolight takes on responsibility for its Members' WEEE compliance. We do this by giving their customers access to the UK's most comprehensive free collection and recycling service, for

- Lamps
- Luminaires
- Street lanterns

and helping to ensure that as many lamps and light fittings as possible are kept out of landfill.

At Recolight, we meet our targets entirely by organising the collection and recycling of waste lighting from our Members' customers. Our free collection and recycling service is an invaluable solution for our Members, their customers, and end users.



Recolight use Approved Authorised Treatment Facilities



We can supply a full audit trail of tonnage collected and recycled.



An online booking system for you to manage your collections.



Recolight project manage the removal of the waste luminaires and lamps for large rollout projects.



Customer Service team managing over 800 collections each month.



Lamp containers, collection and recycling is provided free of charge.



Luminaire recycling and recovery rate achieved by Recolight's recycling plants is 98% against a WEEE regulation target of 75%.

Working with recycling & logistic partners

Recolight always use Approved Authorised Treatment Facilities to recycle waste. This ensures that the waste is treated responsibly, maximising the amount of recycling that can be achieved and minimising its impact on the environment.

We have full duty of care traceability – we know exactly where the waste we collect has come from, and how and where it gets recycled.



We regularly verify that our recycling and logistics operators comply with the relevant statutory requirements and Recolight criteria.



Our purchasing and tendering process specifies the criteria with which potential operators will have to comply.



We choose our contractors based on the extent to which they have tangible plans in place to achieve net zero.



Commercial collection points may apply to join our collection network and must agree to operate according to our standard terms which include health and safety.

How we recycle

THE RECOLIGHT RECYCLING PROCESS

Recycling luminaires with traditional and LED sources

Most luminaires are recycled in the same way as most other mixed WEEE items. This includes luminaires based around traditional and LED technologies.

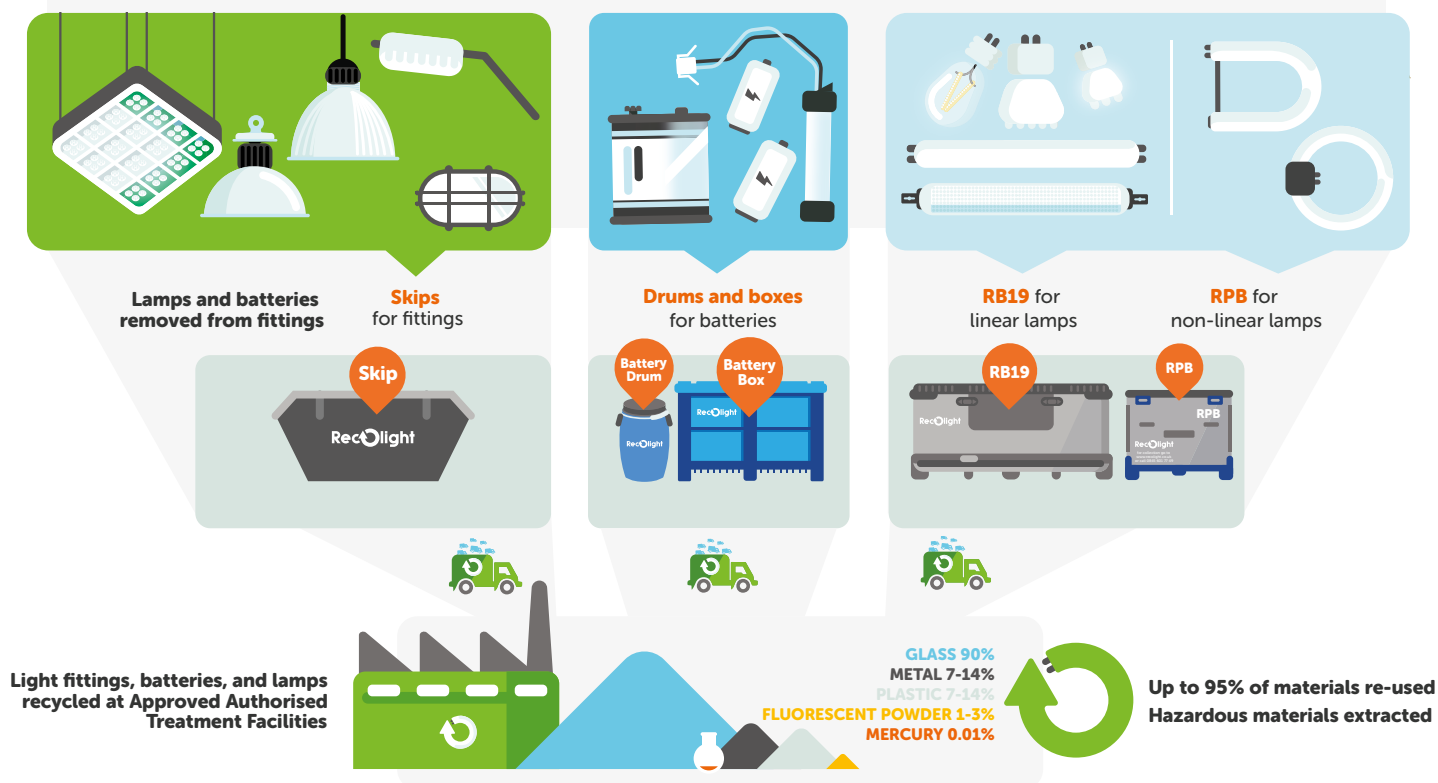
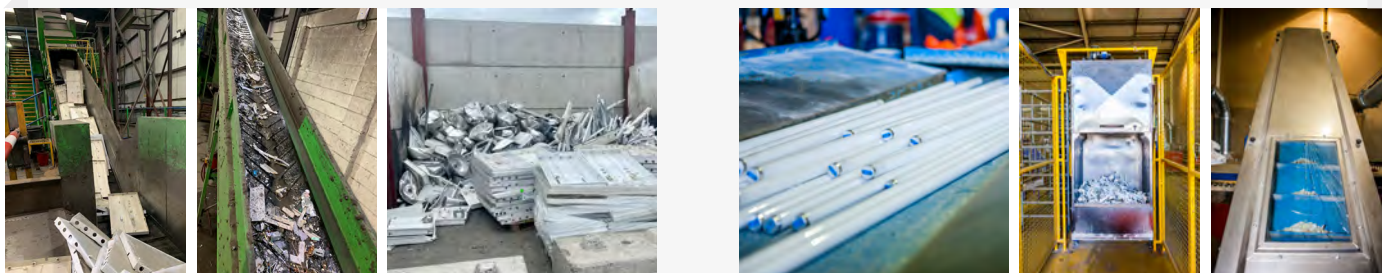
Assuming the luminaire is not suitable for refurbishment and re-use, the objective of treatment is to separate the fitting into its constituent materials (plastics, metals, etc.).

LED lamp recycling

LED lamps are almost invariably co-collected with fluorescent lamps. This means there is a risk of mercury contamination. This is because unavoidable breakages in general containers will cause some fugitive emissions. Therefore, they must be treated as mercury bearing lamps.

Lamp recycling process

Lamp recyclers use different recycling technologies although the principles are all broadly similar. Waste lamps are fed into the recycling plant under negative air pressure. The lamps are then crushed using a mechanical process, and the negative air pressure ensures that the mercury vapour released is captured in activated carbon filters and not vented to the environment. The crushed materials then pass through a range of different systems designed to separate them from each other. The output fractions are collected in separate containers, and then sent for further recovery.



Recolight Services

Re-Use | THE CIRCULAR ECONOMY & SUSTAINABILITY

Extending the Life of Luminaires

The need to no longer see luminaires as a single life product has been widely discussed in the Recolight Webinar series. At Recolight, we recycle, but as we move towards a Circular Economy model, recycling is not always the best solution.

Recolight is under a legal obligation to prioritise re-use over recycling, so we need to facilitate and encourage re-use.

Recolight has identified two opportunities for the lighting industry which will help to fulfil the obligation of:

- **Avoiding waste**
- **Reducing recycling**
- **Stimulating reuse**
- **Responding to the climate emergency**

RE-USE USED FITTINGS
RE-MANUFACTURE USED FITTINGS
REPAIR BROKEN FITTINGS

RE-USE

Zero-Waste*

Recolight's Re-Use Services for Lighting

USED LIGHTING – The re-use/re-manufacture of *used* lighting

Recolight collects more than 1000 tonnes of light fittings each year. Many are fluorescent fittings, some LED fittings, and many are collected from large scale projects. A large numbers of identical fittings are removed.

Currently, virtually none are reused, although some are in very good condition before removal. Much of the value is destroyed by recycling.

SURPLUS NEW LIGHTING – Putting unsold *new* lighting equipment into service

Many manufacturers hold unsold stock which takes up valuable warehouse space and the decision to discard is often made at short notice. The aim of the service is to avoid unnecessary recycling and waste.

Recolight want to make it as easy as possible for a manufacturer (donor) to hand over new lighting equipment that they will no longer offer for sale. This could be ex-demonstration stock, unsold stock, or returned stock in "as new" condition. It also needs to be as easy as possible for a third-party company (recipient) to receive that product so that it can be offered for sale, or otherwise put into service.

UNSOLD
SURPLUS DONOR LAMPS
INTO SERVICE

Reduce Raw Material

Recolight Services

Recycle | THE CIRCULAR ECONOMY & SUSTAINABILITY

Recycling - Recovery of raw materials

Where re-use is not possible, for technical or commercial reasons, recycling is the next best option.

Lamp collection rates in the UK have grown faster than any other waste electrical equipment category, from 19% in 2008, to 48% in 2018. The lighting industry is unique in taking such an effective, sector specific approach to waste and recycling. With electrical contractors, wholesalers and manufacturers working together, the industry can be justifiably proud of its recycling record, and this additional contribution to sustainability.

The best way to increase non-household collection rates is for specifiers to insist, when purchasing new luminaires, that producers always take responsibility for the collection and recycling of the waste luminaires that arise.

DESIGN

MANUFACTURE

DISTRIBUTION

RECYCLE

USE

COLLECTION

RECYCLING

WEEE Regulations & Recycling

The WEEE Regulations were introduced to the UK in 2007. Their purpose is to make sure waste electrical and electronic equipment, WEEE, is recycled responsibly, keeping this harmful waste stream from landfill.

Waste electricals should be stored in a separate container. Many waste electricals, such as fluorescent tubes, are also classified as hazardous, and it is illegal for a business to send hazardous waste to landfill.

There is a duty of care to make sure waste is disposed of correctly. This applies to all who:

- **Produce or store waste.**
- **Collect and transport waste.**
- **Receive waste for recycling or disposal.**

The environment agencies have reporting procedures in place to control the storage and movement of WEEE, with which businesses must comply.

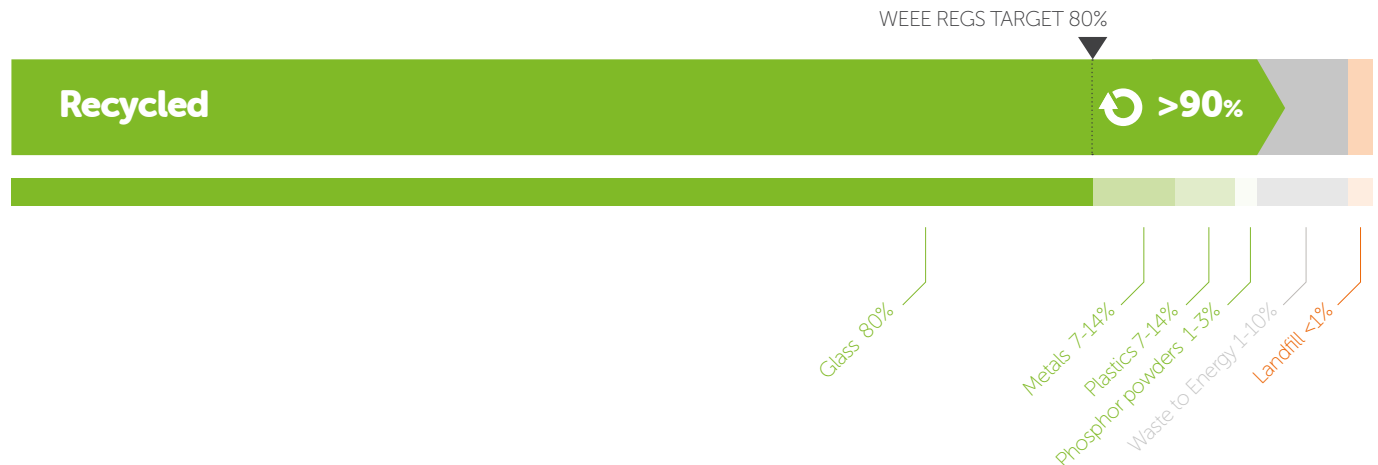
The future of LED recycling

Eucolight, the European Association for lighting WEEE are running a number of projects to seek solutions for this problem. Recolight is a founder member of the Association, which brings together Europe's leading WEEE schemes specialising in the lighting sector, and so is ideally placed to tackle this challenge.

Gas Discharge Lamps & LED Light Sources

RECYCLING & RECOVERY RATES

The WEEE regulations set a target for recovery and recycling that must be achieved by an Approved Authorised Treatment Facility (AATF). The recycling rate achieved by Recolight's contracted AATFs for lighting equipment and lamps exceeds the targets set.



The recycling target set by the WEEE Regulations for gas discharge and LED lamps is 80%. The Recolight recycling processes achieve over 90%.

The principle materials recovered are:

- Glass
- Aluminium
- PCBs
- Phosphor powders containing rare earths and mercury
- Plastics

The materials recovered from the various recyclers' processes are used in many ways.

- Aggregate in road construction is the most common use of waste glass.
- The metal and plastic fractions are sent to specialist recyclers who separate the various plastic and metal types.
- The metals are recovered and re-used as raw materials for manufacture of new products.
- Plastic fractions go through a density separation process to remove fractions containing brominated flame re-tardants, which are irreversibly destroyed by high temperature incineration

The diversity of LED lamps

The diversity and rapidly evolving nature of design and construction of LEDs presents additional challenges to their recycling. LEDs contain minute quantities of rare earths, but there is currently no economically viable solution to recover these compounds.

Retrofit LED tubes can cause a problem for some lamp recycling equipment because they often contain rigid materials, and don't crush in the same way as a normal glass lamp in the treatment machinery.

They can be separated and manually dismantled, or they can be sent to a general WEEE processing plant.

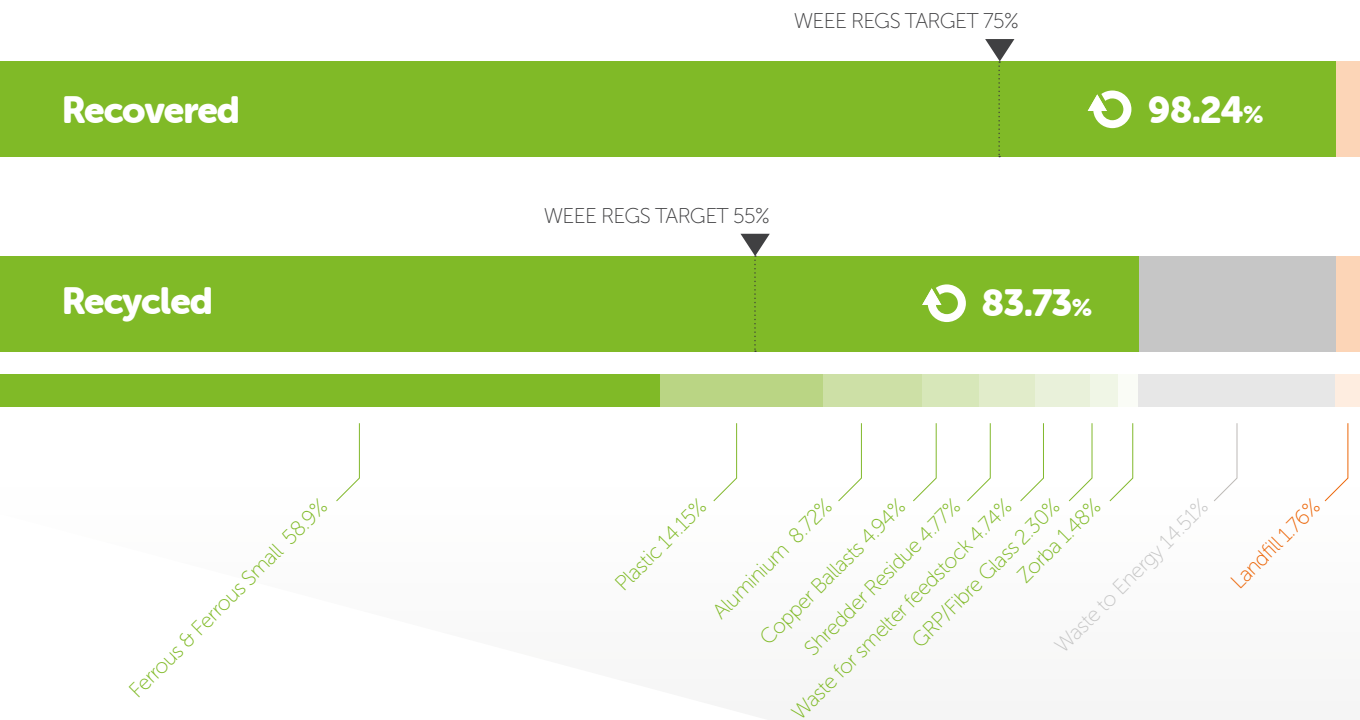
Due to the vast range of designs of LED lamps, and the wide range of materials used in their construction, the recovery of material for LED lamps can be materially less than those for fluorescent.



Recycled lamp outputs

Luminaires | Lighting Fittings

RECYCLING & RECOVERY RATES

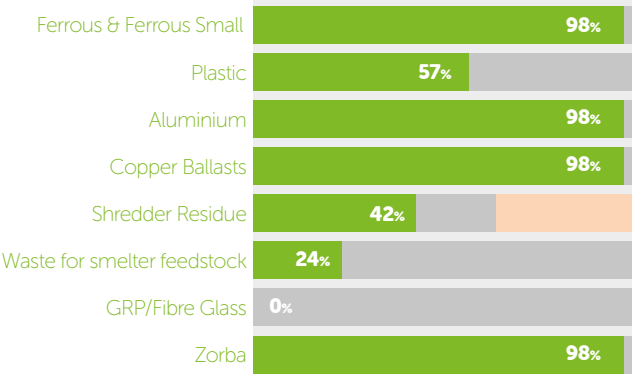


Recolight has commissioned a detailed analysis to assess the recyclability of waste luminaires. The results show that over 83% of a typical batch of luminaires can be recycled.

To perform the analysis, Recolight contracted SWEEEP Kuusakoski, based at Sittingbourne in Kent, to treat a mixed sample of 3 tonnes of luminaires to establish the recycling and recovery rate of materials through their recycling process.

It is encouraging that **98.2% of the material is recovered** and that **83% of material recovered can be recycled**. This is much higher than the target set by the WEEE Regulations. But disappointing that over **14%** doesn't make the grade, and is sent for waste to energy; a process that produces carbon emissions. However, only **2%** went to landfill because it was neither recyclable nor could be used to create energy.

The bulk of material used for waste to energy was plastics. It seems likely that Circular Economy legislation and standards may require or incentivise manufacturers to include a proportion of plastic from recycled sources.



Recolight

has recycled

13

Billion Lamps

since 2007

(More than all other
UK compliance schemes combined)

Recolight is a WEEE Producer Compliance Scheme, set up by and working for the lighting industry. We were established in 2005 with an operating model based on one developed by the forerunner of Lighting Europe, the European Trade Association for lighting manufacturers.

In addition to statutory financial and Environment Agency audits, Recolight is also audited by Ernst and Young for a wide range of operational, commercial, and performance criteria. That gives our Members the best possible confidence that Recolight is operating at the highest level of integrity and efficiency.

The WEEE Regulations require producers of EEE and their compliance schemes to finance the treatment of WEEE. A large proportion of the UK lighting industry meet their producer obligations by being a Member of Recolight.



Recolight are actively involved and affiliated with a range of organisations who share our sustainability goals, along with a fair and transparent implementation of Extended Producer Responsibility.

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