

THE RECOLIGHT COMMITMENT TO THE CIRCULAR ECONOMY & SUSTAINABILITY



RecOlight

WEEE? GOT IT.

The circular economy & sustainability

Recolight is more than just a WEEE Compliance Scheme. We act as an enabler and influencer; challenging and supporting the Lighting Industry to be more sustainable.

Lighting & the Circular Economy

Transformation to a circular economy is increasingly being seen as an essential requirement for manufacturing businesses. This will become ever more important as demand for resources rises, and energy costs increase.

Recolight regularly runs circular economy webinars to bring together experts from across the lighting industry. Free to all, they cover legislation for the circular economy, product design, and support the industry to be more sustainable.

Recolight are encouraged to see the lighting industry taking steps to become more sustainable. It is a given that we produce light sources that are very energy efficient. Moving beyond that and adopting circular economy principles in how we manufacture those products will soon be a must do, and not just an "ought to do".



Lighting and sustainability

Lighting has done a lot to promote sustainability. LED products have much longer lifetimes, far greater system efficacies, are more flexible and controllable, and vitally do not contain mercury.

Lamp recycling rates in the UK have grown faster than any other waste electrical equipment category, from 19% in 2008, to 43.1% in 2020. 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.

Protecting the environment

The disposal of end-of-life equipment should be an integral part of LED luminaire projects, not just for legislative compliance, but also to meet the sustainability and corporate social responsibility requirements.

The best way to increase non-household recycling 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.

But specifiers and end users want to know more than just how the lighting will be recycled. They are increasingly ask producers for the percentage of components and complete fittings:

- that can be recycled,
- of virgin raw material used in the manufacture,
- of recycled material used in the manufacture.

Net zero carbon commitment

Recolight have committed to be net zero carbon by 2030. We aim to reach this ambitious goal by addressing logistical, recycling and other operational activities, without using carbon offsets.

Recolight is the first WEEE scheme to make this commitment.

An independent environmental contractor has assessed our baseline carbon footprint, and we will then monitor our progress towards our target on an annual basis.

There will be challenges in reaching this goal, but Recolight are totally committed to the process and the outcome.



Why Recolight is different

The WEEE Regulations and 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.

Recolight takes on responsibility for its Members' WEEE compliance, giving their customers access to the UK's most comprehensive free lamp collection and recycling service, and helping to ensure that as many lamps and light fittings as possible are kept out of landfill.



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.



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. Large numbers of identical fittings are removed.

Currently, virtually none are re-used, 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.

Why Recolight is different

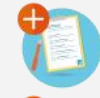
At Recolight, we meet our targets entirely by organising the collection and recycling of waste lighting from our Producer Members' customers. That means we offer a free collection and recycling service – an invaluable solution for our Members, their customers, and end users.

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 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.



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 and logistic operators

-  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.).

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.



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.

Recycling and Recovery rate

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.

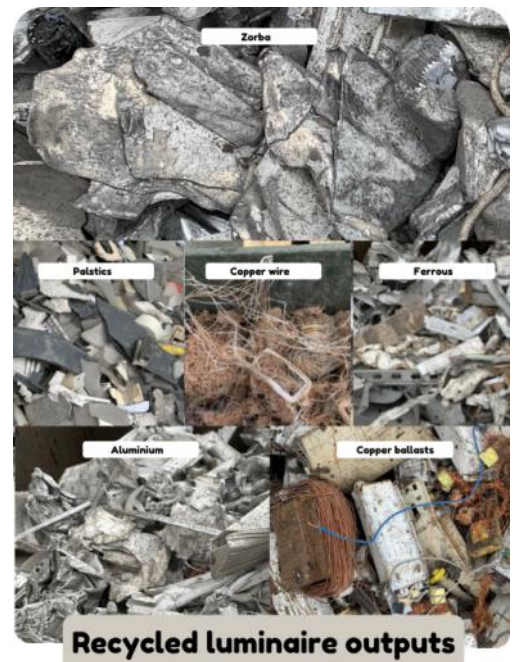
 RECYCLING & RECOVERY RATE	WEEE Regulations TARGET		ACHIEVED by Recolight	
	Recovery	Recycling	Recovery	Recycling
Lighting fittings	75%	55%	98.2%	83.7%
Gas discharge lamps & LED light sources	no target	80%		90% +

Luminaires

It is encouraging that 83% of material recovered could be recycled. But disappointing that over 14% didn't make the grade and was 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 would like to see more manufacturers using plastic derived from recycling in the manufacture of new fittings in preference to only using new plastic.



Recycled luminaire outputs

LUMINAIRE RECYCLING & RECOVERY RATE

Recycled	83.73%
Waste to energy	14.51%
Total recovered & recycled	98.24%
Landfill	1.76%

MATERIAL RECOVERED % OF LOAD

Ferrous and Ferrous small	58.90
Aluminium	8.72
Plastic	14.15
Copper ballasts	4.94
Zorba	1.48
Waste for smelter feedstock	4.74
Shredder residue	4.77
GRP/Fibre glass	2.30

Sample of 3039kg mixed luminaires

Recolight

Recycling and Recovery rate

Lamps

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 retardants, which are irreversibly destroyed by high temperature incineration
- It is not yet economically feasible to recover rare earths from the lamp phosphor powders, but we are undertaking further research into this through our European trade association, EucoLight.



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.

The future of LED recycling

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



Recolight has recycled

1.3

Billion

lamps since 2007



More than all other
UK compliance schemes combined

About Recolight

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.

info@recolight.co.uk | 020 8253 9750 | www.recolight.co.uk

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