

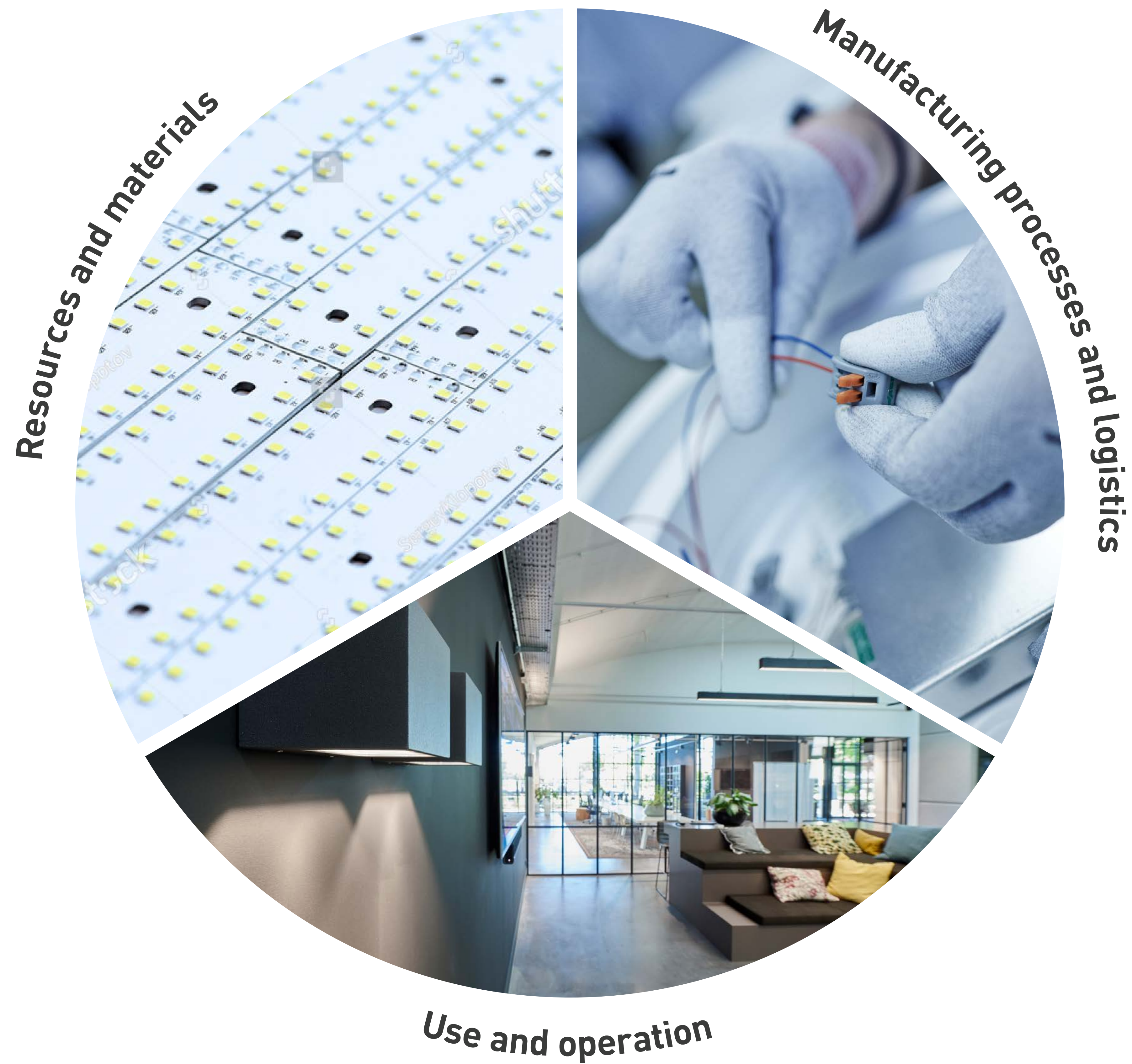
# twenty3 Sustainability

How does a twenty3 **luminaire** become sustainable?





# Factors influencing the environmental balance of a luminaire





# Four steps to a sustainable luminaire





# Everything starts with development

Our goal: sustainable options for all  
product ranges in the twenty3 portfolio.

Step 1



# The current portfolio is **decisive**

How the luminaires can be optimised in terms of sustainability is examined.







# Identifying optimisation potential

Investigation of the manufacturing processes and **sustainability of the producing companies** with regard to materials and components



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Step 1

Step 2

Step 3

Step 4







# Increasing efficiency and service life

## **Goal: optimising the usage balance of the luminaire**

The majority of carbon emissions are produced by operating the luminaire.

The longer a luminaire can be used, the later it has to be replaced and disposed of.

A longer service life thus significantly contributes to extending the cycle.

**Increasing the energy efficiency and service life are therefore the biggest levers in making a luminaire more sustainable.**







## Adapting the design

- Design the **luminaire modularly**
- **Enable disassembly** into components
- No bonding of individual components
- Possibility of **replacing individual elements** such as driver, light unit, etc.
- Check whether individual **materials** can be **replaced by sustainable alternatives**
- **Optimise recycling**



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# Optimising the processes

The long-term goal of TRILUX is **climate-neutral business operations along the entire value chain** (Scope 1, 2 and 3). The sustainability strategy comprises the following three steps:

1. Reduction of Scope 1 and 2 (analogous to SBTi)
  - at least 2.5% to 4.2% p.a. absolute reduction, corresponding to at least 15% to 25.2% by 2025
2. Voluntary commitment to reduce Scope 3
  - 2.5% p.a. in defined areas
3. Energy efficiency
  - increase share of use of renewable energy





A man in a dark shirt and blue jeans is inspecting a large, white, curved industrial machine. He is holding a handheld device and pointing it towards a circular light fixture hanging from the ceiling. The machine has a blue frame and a sign that reads "Eintritt Verboten! Messung".

# Manufacturing, testing and quality assurance

Once the product has been adapted in terms of concept, the manufacturing process begins

Step 2



**Every sustainable twenty3  
luminaire must comply  
with the same standards  
as the rest of the portfolio.**







## Quality requirements

- **Quality of light:** including luminous intensity, glare control, CRI values
- **Product quality:** including material, EMC, electrical safety







## Inspection and test processes

Each luminaire undergoes various inspection and test processes in **TRILUX in-house laboratories** as well as with **independent external inspectors**.







## Qualification

The final step is qualification to the same standards as the rest of the twenty3 portfolio.

This includes e.g. **certification according to ENEC** as well as **CE marking**.





# Recording the carbon footprint

An essential component of twenty3 sustainability is that the carbon emissions produced by the products over their lifetime are offset in a climate-friendly way.

Step 3



# Detailed CO<sub>2</sub> Report

In order to make carbon offsetting possible at all, the **carbon emissions must first be calculated.** The result is a report that shows in high detail when and where a specific product emits how much carbon.





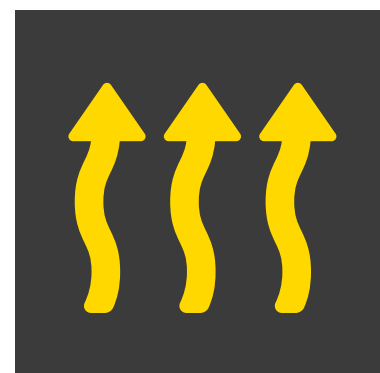


## Consideration of the complete life cycle

An **independent institute assesses the entire product life cycle**, from production, including materials used, to logistics, including use of the product, meaning operation of the luminaire.







## Most emissions caused during operation

Contrary to what one might initially think, **more than 90% of emissions are caused during use**, i.e. when the luminaire is in operation. The rest is accounted for by manufacturing processes, materials used and logistics.



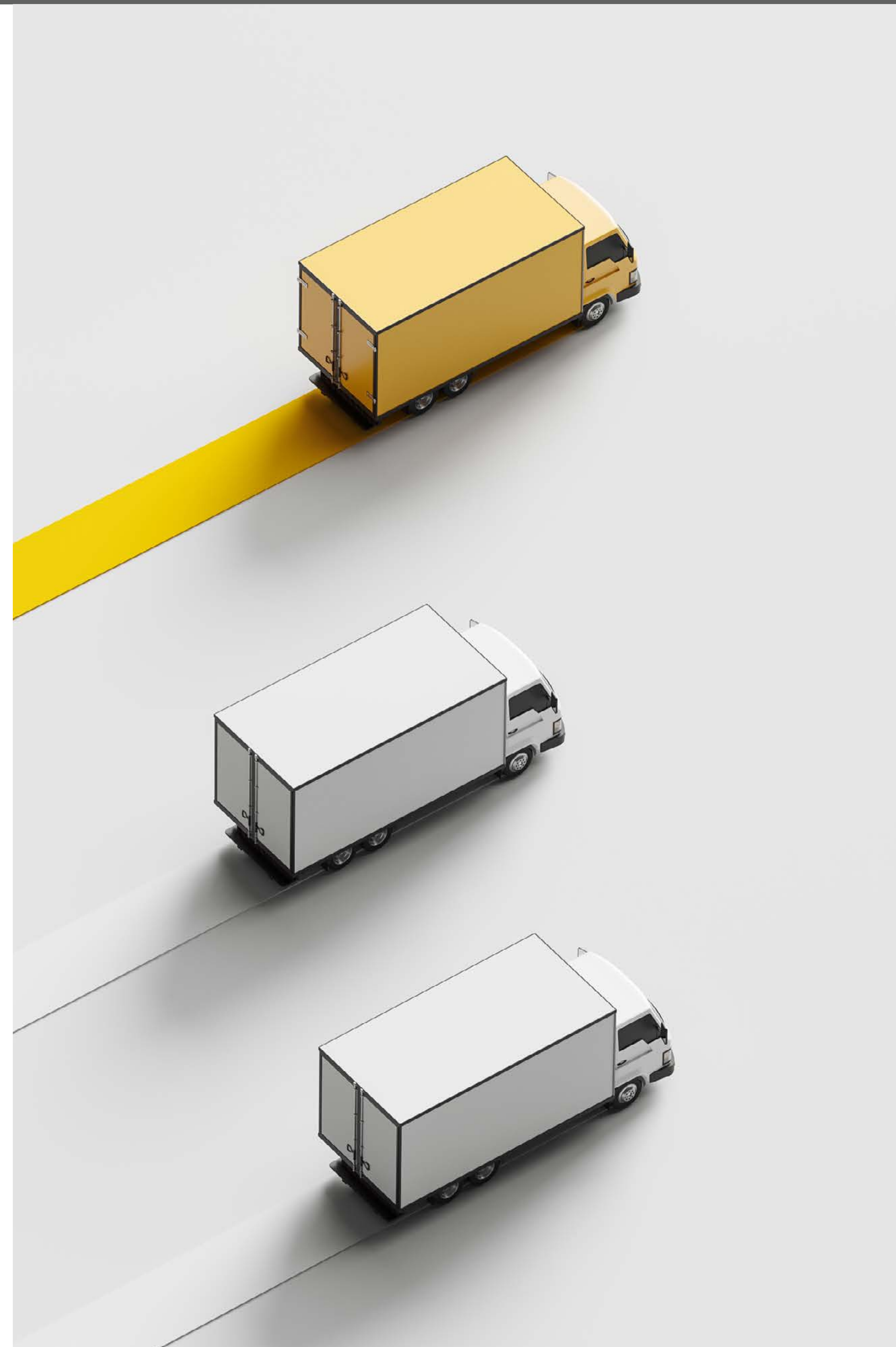




# Logistics

The logistics are not identical for every luminaire. This means an assumption must be made, which leads to the fact that this is **not an exact value**. However, the route from the place of manufacture to potentially the furthest location within the current twenty3 distribution regions is taken as the basis. Thus, the **calculation of emissions is usually higher than the actual emissions caused**.

On average, the **logistics account for only about 1% of total emissions**.







## Certification of the environmental balance

At the end of the calculations, the institute issues an **official certificate on the environmental balance**, which is the **carbon footprint of the product**.

There are different institutes that issue different certificates. **TRILUX has decided to have its twenty3 luminaires certified according to the PEP Eco Passport.**





# Verified carbon offsetting

Knowing the carbon footprint does not make a product sustainable. The environmental footprint can be neutralised and the product made sustainable by offsetting the carbon emissions emitted.



# The principle of carbon offsetting...

... is based on the idea that it is not decisive for the climate precisely where greenhouse gases are emitted or avoided. For this reason, **carbon emitted at one location can also be saved at a location far away.**







## How is carbon offset?

Offsetting takes place **by investing in climate protection projects**. The projects have a negative carbon balance, and the investments finance them and allow them to exist. **Emission certificates** are purchased. Each certificate represents a certain amount of offset carbon.







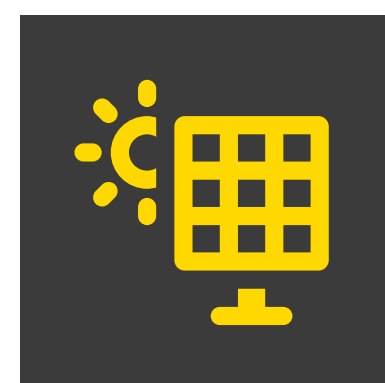
## How much needs to be invested?

The respective project specifies the amount that must be invested for a certain quantity of carbon. The necessary amount and emission certificates are calculated from:

- the **carbon footprint**
- the **number of luminaires** manufactured and for which the carbon is to be offset
- the **offsetting project**.







## What projects are there?

In principle, offsetting can only be made through projects that would not have existed without the offsetting mechanism.

Projects can, for example, be in the following areas:

- Wind power
- Hydropower
- Solar energy
- Biogas
- Trees / forest / reforestation

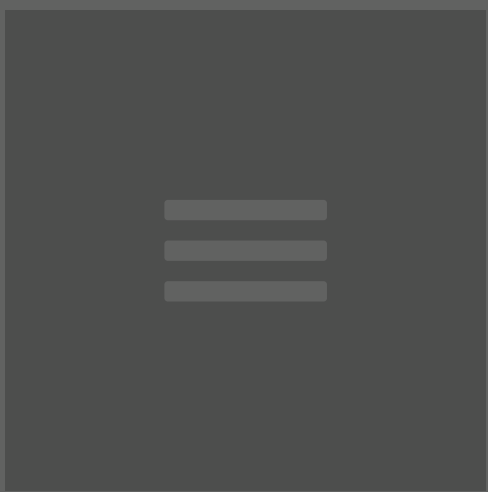


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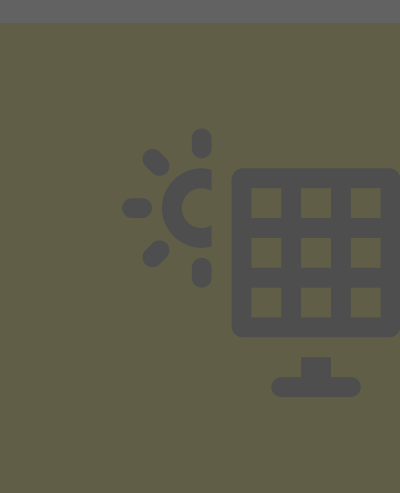


# Compensation with **TRILUX twenty3**

**TRILUX** currently offsets the emissions for its sustainable twenty3 products with wind power projects.



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## Carbon neutral vs. **verified carbon offset**

If the same amount of carbon is offset as was calculated in the carbon footprint, the certification is “carbon neutral”.

A **few unavoidable inaccuracies** or variables remain, for example:

- the **type of energy used** during product use
- the actual **logistics** routes

TRILUX has therefore decided **not to speak of carbon-neutral** products, even if the certificate certifies this.

**The sustainable luminaires in the twenty3 portfolio are verified carbon offset.**



# Just one of many unprovable sustainability stories?

We will be happy to show you all the certificates.  
Ask your TRILUX contact person or get in touch  
with us via [www.trilux-twenty3.com](http://www.trilux-twenty3.com)

