

**TRILUX**  
SIMPLIFY YOUR LIGHT.

SUSTAINABILITY  
REPORT 2020

MORE THAN A STANDARD

[www.trilux.com](http://www.trilux.com)



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# SUSTAINABILITY REPORT

## FOREWORD



**Dear Sir or Madam,  
dear readers,**

GRI 102-14

We bear great collective responsibility. We bear responsibility, on a large and small scale, entrepreneurially as well as privately, for using all reasonable means to protect our environment. The discussions surrounding climate protection and sustainability are marked by ups and downs and many emotions. Never before has climate protection been debated worldwide with such vehemence as in the past year of 2019/2020. EU Green Deal and CEAP (Circular Economy Action Plan) as well as Fit for 55 and the energy transition will change the European continent and the whole world. School strikes and large-scale demonstrations, SUV criticism, flight shame, extreme weather conditions even on our own doorstep, and climate agreements illustrate the urgency.

For TRILUX as an internationally active group of companies, there can only be one answer to the global challenge of climate change: sustainable management and continuous improvement of the company climate balance. For years now, we have been aligning the actions of our organisation in all core areas towards environmental and resource protection and the avoidance of CO<sub>2</sub> emissions.

Sustainability and efficiency are an integral part of our corporate DNA, and have been since way before measures to combat climate change were called for. Our company name alone is inspired by a technology that was energy efficient for its time: the then still young fluorescent lamp achieved a luminous efficacy three times higher than that of lamps previously used – TRI LUX.

This sustainability report informs you about the many and varied management approaches we employ today to resolutely promote the protection of resources and the climate with all our business processes, but also through our products. Beyond that, the publication also provides information about our practised corporate responsibility towards our employees and customers as well as towards society. Sustainability at TRILUX is not limited to resource and climate protection. We base our actions on a holistic concept of sustainability that includes ecological, economic and social aspects and is a top management task.

Efforts to achieve such a comprehensive and realistic assessment of the sustainability of an organisation require an open and analytical view and scientifically recognised, comprehensible assessment methods. However, it also requires the courage to ask unusual and complex questions and to constantly re-examine your own decisions. For instance, what is the area of conflict resulting from the digitalisation of light that is currently gaining ground, with its ever shorter innovation cycles and the demand for long-lasting, sustainable product solutions? What opportunities are opening up for lighting technology in the context of the circular economy? What does the life cycle analysis of an LED luminaire look like?

In various projects, we have joined forces with scientists, industry associations and our stakeholders and customers to find answers to these questions. The following pages serve to provide you with a comprehensive idea of how we as the TRILUX Group are helping to sustainably shape technological change in a market that is strongly characterised by competition and price pressure, and how we are taking our employees and customers along with us on this journey. We are proud to be at the helm of this company which is so consistently committed to sustainable management and makes an important contribution to climate protection that can even be quantified. Enjoy your read!

### **The Board of the TRILUX Group**



# TOPICS

## 1. OUR COMPANY





A lot has happened since the company was founded in 1912. The eventful history of the company looks back on a century of change.

In addition to technical perfection, efficiency has always been an important driver for TRILUX. It's right there in the name.

Learn more about TRILUX and its sustainable history in the following articles.



GRI 102-5   GRI 102-7   GRI 102-41   GRI 102-45

## 1A. COMPANY PRESENTATION

The TRILUX Group is an expert when it comes to intelligent, networked and sustainable lighting solutions. SIMPLIFY YOUR LIGHT is the brand message since the path for TRILUX customers to a customised and future-proof lighting system is as simple and secure as the solution is user-friendly and climate-friendly in application. Regardless of whether the requirement is energy-efficient general lighting for one room or an intelligently controlled system comprising several properties with additional digital services – TRILUX solutions are always perfectly matched to customer requirements and the area of application.

To safeguard this standard, TRILUX offers a wide portfolio of technologies and services as well as comprehensive know-how. The companies of the TRILUX Group and its partners form a high-performance network. This way, complex and extensive projects can be simply and rapidly implemented from a single supplier. In the lighting market, which is dynamic and increasingly complex in terms of technology, customers are provided with optimal advice and perfect light. TRILUX has proven to be a reliable and expert partner in all project phases

In total, the TRILUX Group employs almost 5,000 people worldwide. The company headquarters are located in Arnsberg.

GRI 102-13

### Numbers, data, facts (2019)

**5,167**

Employees worldwide

**33**

Companies

**147**

GRI disclosures

Founding year:	1912
Group sales 2018:	681 million €
Investment:	around 59 million € (2016-2018)
Employees worldwide:	approx. 5.000
Sales market:	50 countries
Subsidiaries and holdings:	30



# 1. OUR COMPANY

GRI 102-16

Committed to the values of a medium-sized, independent family business in accordance with European standards, TRILUX today is organised in an international, competitive holding structure. The light business division consists of the brands TRILUX SIMPLIFY YOUR LIGHT, Oktalite and Zalux. Associated companies are, amongst others, ICT. As a department for research and development, the innovation centre bundles the innovative power under the roof of TRILUX. The TRILUX Akademie has locations in Germany, Austria, the Netherlands, Belgium, Great Britain, France and Switzerland communicating expertise concerning topics, trends and new developments in the lighting sector. The TRILUX Group has six production facilities in Europe and Asia and supports international customers via 30 subsidiaries and a large number of sales partners.

TRILUX products are used in all areas of professional application. They ensure safety in production, logistics and commerce, bring ergonomic light into offices, create ideal conditions for health, education and sports and present goods in sales spaces or exhibits in museums and exhibitions in the best light. Luminaires from TRILUX illuminate streets, paths and squares, can be found all around buildings and showcase architecture.

TRILUX is at the forefront in terms of sustainability. Corporate responsibility, climate protection and compliance with social and environmental standards is not only a matter of course for TRILUX, but also a top priority to management. Therefore, the topic of sustainability at TRILUX is also a responsibility of top management and is centrally controlled by Group management. The highest controlling body is the Supervisory Board with Chairman Michael Huber. Responsibility for the sustainability goals and measures lies with Group management.

GRI 102-18

TRILUX aligns itself with the precautionary approach of the United Nations. Objectives and measures, as available, are based on scientifically recognised principles. TRILUX's commitment is based on the principle of prevention and continuously evaluates risks and opportunities.

The TRILUX Group is excellently networked. Technology developments are driven forward, standards are drawn up and political framework conditions are discussed and evaluated with industry associations, institutions in science and research and in cooperation with other manufacturers worldwide. Beyond its products and its own corporate management, TRILUX is involved in numerous organisations regarding sustainability. This includes memberships in national consortia such as the Dutch Green Building Council or Recylum, a recycling initiative in France, but at European level also within Lighting Europe. Within the lighting sector TRILUX is involved in the Central Association of the electrical industry and provides support in various specialist working groups, also on the subject of sustainability.

TRILUX signed the ZVEI Code of Conduct in 2012. This voluntary commitment underlines TRILUX's efforts to create a transparent international supply chain and reaffirms its own standard of actively addressing important environmental, ethical and social issues and acting in a responsible manner.

## MANAGEMENT APPROACHES

- Sustainability management is the responsibility of top management (Group management)
- Objectives and measures according to precautionary approach and scientific basis
- Obligation within the framework of the ZVEI Code of Conduct



## 1B. SUSTAINABLE HISTORY

### Sustainability as part of the DNA

#### A COMPANY HISTORY, DISTINGUISHED BY THE PURSUIT OF EFFICIENCY

TRILUX is looking back on a company history of more than 100 years. In 1912, Wilhelm Lenze founded a manufacture for luminaire accessories and residential lighting which developed into a successful medium-sized family business over a period of 30 years despite setbacks due to inflation and war. The Nazi regime brought about a difficult time for nonconformist Wilhelm Lenze. He and his company were subjected to political and economic ostracism. Expropriation and company closure were successfully reversed in 1944. However, in spring 1945, seven bombs hit the factory in Neheim-Hüsten – meaning the temporary end.

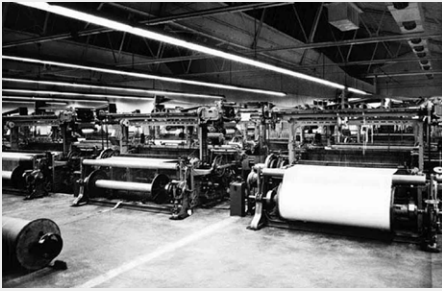
#### ENERGY EFFICIENCY AND CLIMATE PROTECTION ALL IN THE NAME

The restart after 1945 was made with the support of son Eberhard Lenze and his two brothers Franz and Wilhelm. Eberhard Lenze proved to be a tireless driving force of reconstruction. It was also he who decided that from 1949, only luminaires with fluorescent lamps would be produced. The “TRILUX linear assembly line luminaire” was soon found in countless factory halls. The fluorescent lamp, three times more efficient than the incandescent lamp, characterised the TRILUX brand name and became the heart of a versatile, continuously growing portfolio for professional lighting applications.

In retrospect, the decision for the new lamp technology at the time, and thus for higher luminous efficacy and longer service life, marked the first of many milestones along which the sustainability history of TRILUX, which spans over 70 years now, can be told.

As would be expected of a lighting expert, a large part of its work has been devoted to innovation which constantly improves energy efficiency and lighting quality. However, convincing examples of ecological, economic and social sustainability can also be found for many other criteria from species protection to supplier assessment. They are proof that TRILUX does not see sustainable action and corporate responsibility as a trend, but as an obligation and a tradition.

1950



### 65 INSTEAD OF 200 WATTS

In the 1950s, TRILUX linear luminaires with T12 fluorescent lamps were installed in many production plants. Instead of an incandescent lamp with 200 watts, they used a fluorescent lamp with 65 watts. This saved a lot of energy, but the new luminaires also provided a more targeted light distribution and therefore better visibility. The name TRILUX was born. More comfortable working conditions as a result are an important aspect of social sustainability.

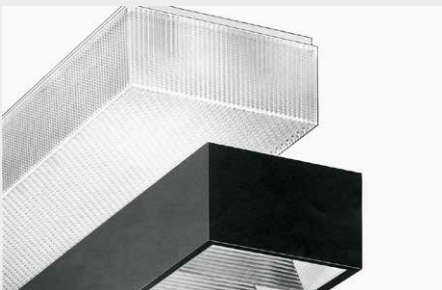
1970



### DESIGN, PROFITABILITY AND USER COMFORT

Competent lighting design is a prerequisite for satisfied users. TRILUX therefore provides extensive support for electrical installers, electrical system planners as well as architects and service technicians. The aim is to harmonise design, economy and user comfort in a sensible way tailored to the individual project. What began in 1951 with a light calculator in the form of a calculating disc had grown into a comprehensive service as early as 1970. In the interest of sustainable lighting applications, numerous publications communicate not only product information but also expert knowledge. A large support team provides consulting for customers.

1980



### LIGHTING TECHNOLOGY FOR ERGONOMIC OFFICES

TRILUX engineers worked on the development of Dark-light louvre luminaires. With their combination of parabolic reflectors and sheet louvres, they ensured glare-free vision at workstations increasingly equipped with computers. Good visual conditions make an important contribution to the sustainability criterion "health and safety of product users".

GRI 102-2

1960



### SUSTAINABLE CORPORATE CULTURE

TRILUX became one of the most important employers in the region. The family business now employed over 750 people. In some families, two or even three generations worked at TRILUX. The concept of a sustainable personnel policy included voluntary social benefits such as a company pension scheme, a support fund that provided assistance in emergencies, and subsidies for cures and medical treatment.

1975



### ATTRACTIVE WORKING CONDITIONS AND TECHNOLOGY BREAKTHROUGH

The number of TRILUX employees increased to about 1,200. To provide them with an attractive working environment, various measures were implemented including the opening of a subsidised company restaurant and a full-time medical station. Further education and company sports were financially promoted. The breakthrough in lighting technology and energy efficiency came in 1978: as one of the first luminaire manufacturers, TRILUX started developing electronic control gear (ECG) for fluorescent lamps.

1985



### ENVIRONMENTAL PROTECTION IN PRODUCTION

The electroplating shop, where the surfaces of the specular reflectors were tempered, was equipped with its own waste water system. It ensured that the chemical processes could take place without any consequences for the environment. This measure exemplifies the ecological responsibility that TRILUX consistently practises at all its production sites.

1998



### TRILUX BECOMES INTERNATIONAL

TRILUX opened production sites in the Philippines and China. In 2000, the acquisition of Chinese component manufacturer ICT followed.

2007



### LED LUMINAIRES FOR THE ROAD

TRILUX started research and development in the field of the new light source technology LED early on. As early as 2007, Düsseldorf was therefore able to install TRILUX LED street luminaires on a test route. Compared to high-pressure sodium vapour lamps, LED technology at the time facilitated energy savings between 20 and 30%. Today, converting a street lighting system from conventional luminaires to LED luminaires can, under certain conditions, save up to 80% of lighting energy.



1995

### OFFICIAL RECOGNITION AND MORE EFFICIENCY

The electronic control gear unit "Ectron" received permission to bear the "Blue Angel", the German government's environmental label. Products awarded the Blue Angel are more environmentally friendly than comparable conventional products. The following year, TRILUX was one of the first manufacturers to introduce the energy-saving T5 fluorescent lamp generation.



2000

### MANAGING LIGHT

With Lightgate technology, TRILUX simplified light management for its customers – tuning lighting more and more finely to requirements became possible. TRILUX has continuously pursued the topic of requirement-oriented light control. Today, freely scalable and programmable systems with many options – from wireless data transmission to cloud connectivity – are available. These digital solutions optimise energy consumption and increase user comfort.

2008



### SUSTAINABLE COMPANY BUILDINGS

TRILUX put its new European Distribution Center into operation. It improved customer service but also increased the efficiency of the group-wide transport network. The new construction enabled particularly efficient building operation. It features exemplary thermal insulation: heating is carried out with dark radiators and the lighting is equipped with a daylight-dependent control. A solar system was installed on the roof, supplying about 420,000 kWh per year. The building thus produces more energy than it consumes.

2012



### LUMINAIRES FOR SUSTAINABLE CONSTRUCTION

In 2012, the new office and administration building of Fraunhofer IAQ2009 in Stuttgart received the DGNB certificate in platinum according to the evaluation system of the Sustainable Building Council. An LED lighting solution from TRILUX made an important contribution to energy-efficient building operation. From that point, TRILUX luminaires and lighting management systems made their way into more and more buildings worldwide distinguished for their sustainability quality.

2020



### CLIMATE PROTECTION TARGETS AND ONLINE SUSTAINABILITY REPORT

TRILUX adopted a group-wide climate protection target, aiming for complete climate neutrality by 2025. Goals, measures and successes are presented and reported in the online sustainability report.

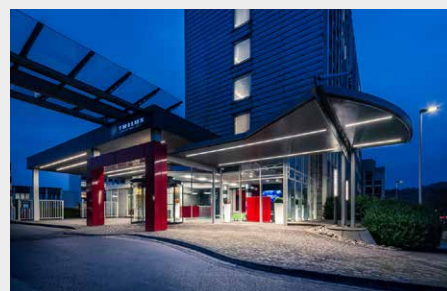
2011



### EMPLOYEE QUALIFICATION AND CUSTOMER TRAINING

The TRILUX Akademie opened its doors. Training and further education have always been of great importance at TRILUX. This includes vocational training and the qualification of TRILUX employees as well as customer training and know-how transfer in the industry. With the TRILUX Akademie, a state-of-the-art training centre was created. It not only offered lectures, but also experimenting, assembly and discussion. Consulting, qualification and information offers cater to a wide variety of target groups.

2012

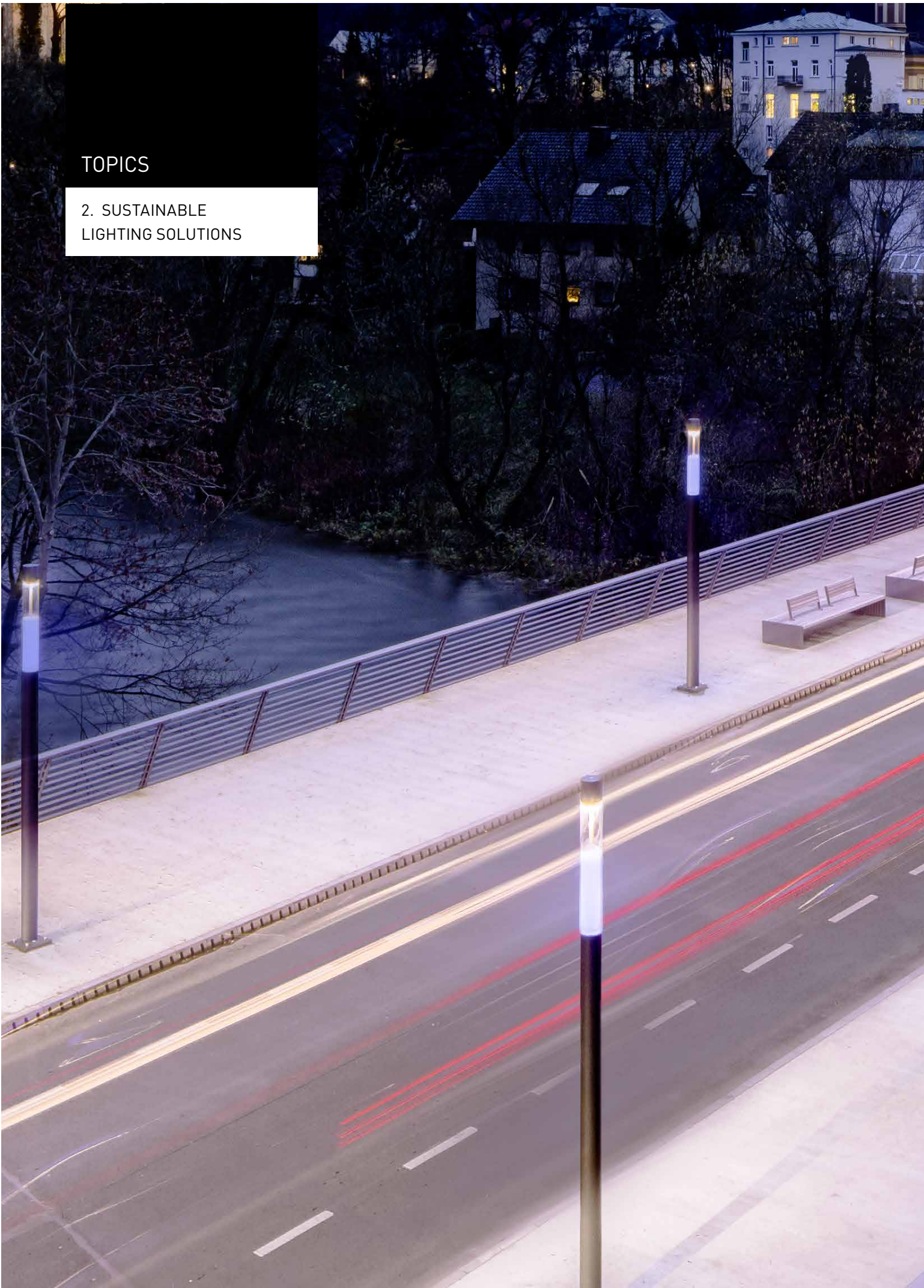


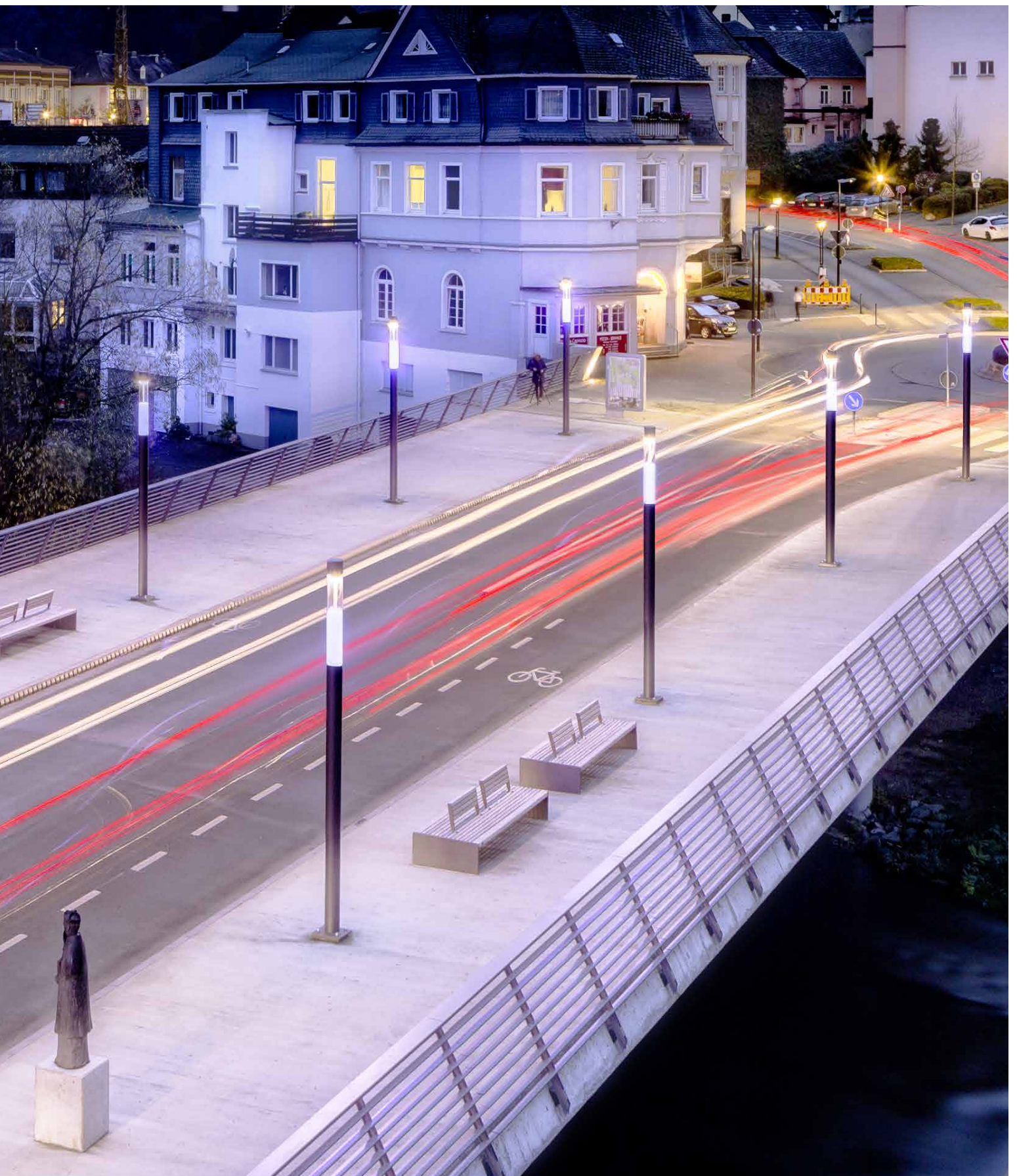
### COMMITMENT TO ETHICAL PRINCIPLES WITHIN THE FRAMEWORK OF ECONOMIC ACTIVITY

TRILUX signed the ZVEI Code of Conduct, acknowledging its worldwide social responsibility within the scope of its corporate activities. The Code of Conduct is based on internationally established standards with regard to human rights, environmental protection, working conditions, rejection of corruption, etc.

## TOPICS

### 2. SUSTAINABLE LIGHTING SOLUTIONS





At TRILUX, everything revolves around light. The luminaire that is created at the end of the production process already has a long history and is more than just the sum of its parts.

Learn more about our high standards for the supply chain, engineering, product safety and other sustainable aspects of the product life cycle in this chapter.



### 2A. INGREDIENTS

#### Resource efficiency through intelligent product design

##### RESOURCE PROTECTION IS MORE URGENT THAN EVER

The International Resource Panel of the United Nations Environment Programme continuously collects figures on the extraction and use of natural resources and, in particular, the resulting environmental impacts. The latest panel reports contain alarming figures: global consumption of raw materials has more than tripled since 1970, with non-metallic mineral consumption increasing fivefold and fossil fuel consumption increasing by 45%. This is dramatic on the one hand because the natural resources of our planet are finite. However, the ever-increasing extraction and processing of materials, fuels and food must above all be slowed down because they are responsible for half of global greenhouse gas emissions and contribute to over 90% of water stress and loss of biodiversity. One instrument for countering this dangerous trend is a much more efficient use of resources.



## 2. SUSTAINABLE LIGHTING SOLUTIONS – INGREDIENTS

GRI 301-1

### Resource protection in the context of sustainable lighting technology

For lighting specialist TRILUX, resource efficiency means, among other things, optimising the amount of resources and materials used in luminaires. Without compromising on quality and function, TRILUX therefore focuses on reducing the volume of raw and other materials used and avoiding the use of hazardous, critical and particularly valuable substances as far as possible.

### The material mix of a luminaire is essentially determined by:

- body/housing made of metal or plastic
- optical unit (lenses and reflectors) made of plastic
- lighting unit with LED module and control gear unit (so-called driver with hardware for power supply, control and communication) made of a combination of materials that is classic for semiconductor-based electronic products

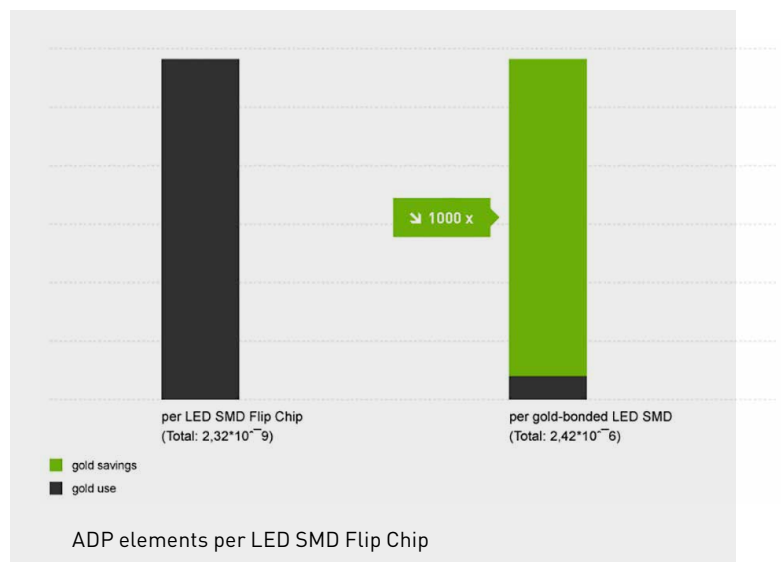
Thanks to continuous research and development work as well as prompt implementation of the latest technologies, TRILUX has succeeded time and again not only in improving the quality, performance and functionality of its products, but also in successfully increasing resource efficiency.

A current example is the use of so-called flip-chip LEDs. Whereas gold wires are used to connect conventional LEDs to the circuit board, flip-chip LEDs are connected by means of contact mounds that require considerably less gold. The difference is as large as a factor of 1000! As gold is one of the conflict raw materials, the extraction of which is considered to pose a particular threat to the environment and human rights, less gold in a luminaire represents a major step towards sustainability. TRILUX uses flip-chip LEDs throughout in the “Performance” product category, but their share is also growing rapidly in the rest of the portfolio.

### PRECISE ANALYSES, INDEPENDENT CONTROLS

Anyone who claims to offer resource-efficient and sustainable products must know the quantities and nature of materials are used in them. TRILUX therefore has the material mix of its luminaires examined by independent third parties.

Laboratory analyses of this kind are necessary, for example, for declarations of conformity, audits and certifications. They provide insight on whether all legal requirements, regulations and industry standards are met. To avoid dangers to people and the environment, all TRILUX products meet the requirements of the product safety directive and are RoHS-compliant.



However, the laboratory analyses also allow evaluations to be made regarding due diligence obligations in the raw material supply chain. Conflict raw materials such as tin, gold, tantalum and tungsten or EU-declared critical raw materials can be identified. TRILUX uses this data as a point of reference for the further optimisation of its products in terms of ecological, economic and social sustainability.

## 2. SUSTAINABLE LIGHTING SOLUTIONS – INGREDIENTS

### Main factors for sustainability

Characterisation Factor	Unit	Environmental Relevance
GWP Global Warming Potential	kg CO <sub>2</sub> equivalent	Increased positive radiative forcing due to the increase of greenhouse gases at the atmosphere
PED Primary Energy Demand	Megajoule	Increased energy consumption from renewable and non-renewable energy sources
ADP elements Abiotic Depletion Potential, Elements	kg Sb-equivalent	Increased extraction of resources leading to depletion of mineral reserves
ADP fossil Abiotic Depletion Potential, Fossil	Megajoule	Increased extraction of resources leading to depletion of fossil reserves
AP Acidification Potential	kg SO <sub>2</sub> -equivalent	Increased acidity of soil and water due to proton release from antropogenic emissions
EP Eutrophication Potential	kg PO <sub>4</sub> -equivalent	Increased biomass formation and loss of biodiversity due to release of nutrients

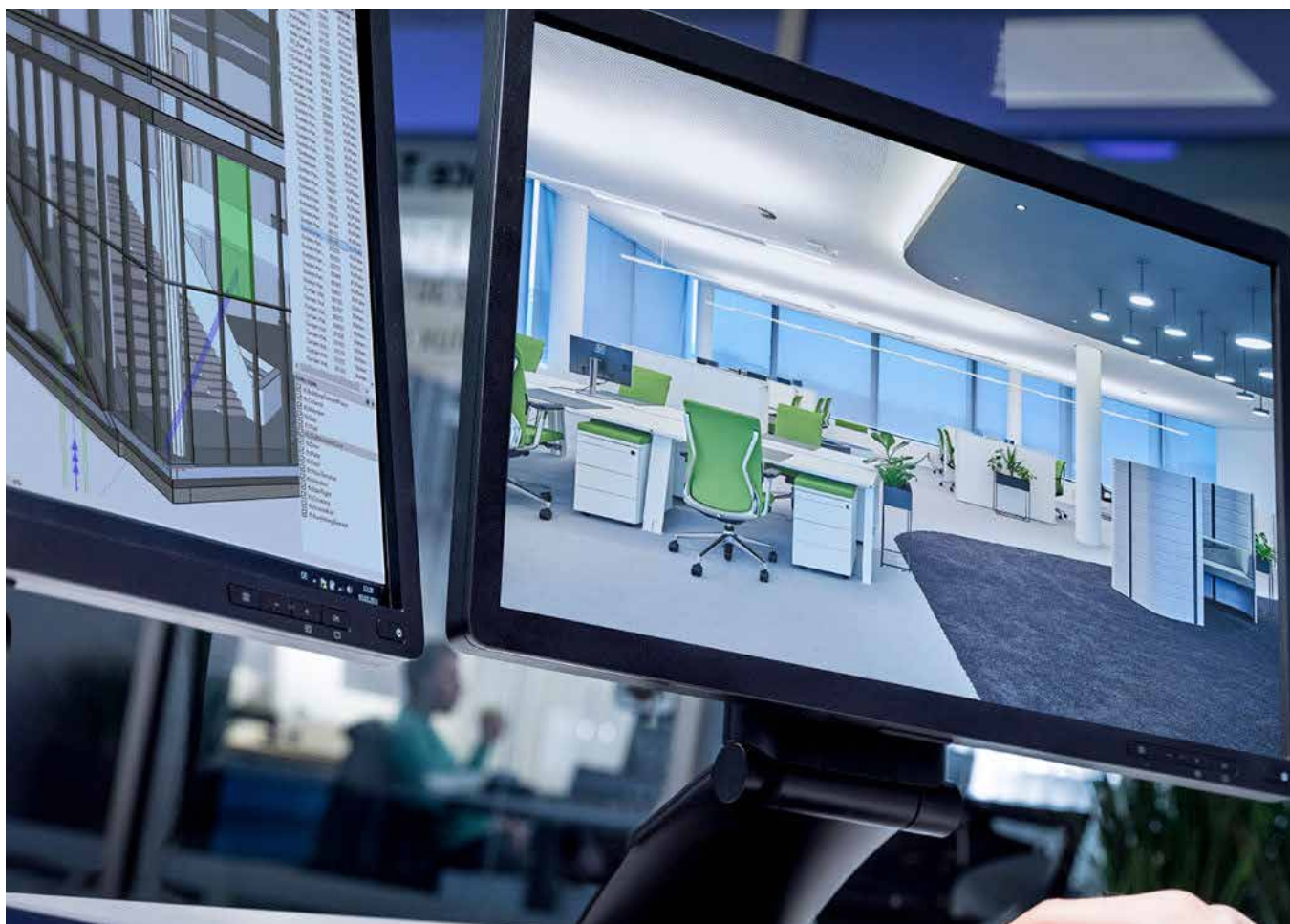
Last but not least, detailed material analyses are a crucial prerequisite for assessing the impact of a product on the environment. TRILUX invests a lot of effort and know-how in these evaluations. Not only are CO<sub>2</sub> balances created, but the ADP (abiotic depletion potential) of luminaires and components is also determined. This value stands for non-renewable material resources that the product has consumed. All types of raw materials and fossil fuels are converted into an antimony equivalent. The application of different assessment criteria (global warming potential, ADP, ozone layer depletion potential, fresh water aquatic ecotoxicity, acidification etc.) renders a much more complete picture of the environmental impact of a product. It allows for the deduction of more effective measures and makes it possible to avoid undesirable side effects when it comes to reducing the ecological footprint of a product.

### MATERIALS PURCHASED IN 2019

Category	Unit	Quantity
Steel parts	Pieces	88,300,000
Steel	Kilogram	6,600,000
Aluminium parts	Pieces	3,800,000
Aluminium	Kilogram	165,000
Plastic parts	Pieces	19,700,000
Plastic	Kilogram	3,900,000
Electrical components	Pieces	23,700,000
LED modules	Pieces	9,000,000
LED ECG	Pieces	3,600,000
Luminaires	Pieces	1,900,000

### MANAGEMENT APPROACHES

- Research project Repro Light (link to the article “Repro Light”)
- Analysis of luminaires by external laboratories according to RoHS
- Purchasing statistics
- Accounting of luminaires according to CO<sub>2</sub>e/GWP and ADP elements
- Further research project Sumatra starts in 2021: Sustainable materials in future luminaire design



### 2B. CAREFUL SOURCING AND ENGINEERING

GRI 204-1

GRI 308-1

GRI 308-2

GRI 416-1

#### Sustainability in the supply chain

##### **The whole is only as sustainable as its parts**

An effective sustainability strategy cannot end at the boundaries of an organisation, but must be conceived along its entire value and supply chain. Sustainable Supply Chain Management (SSCM) is therefore an indispensable component of a holistic approach to sustainable management. TRILUX has integrated many of the instruments and measures of this management concept into everyday business. Strict guidelines are applied for the selection of suppliers and their assessment is not only based on quality criteria but always also on sustainability criteria.

### COMMITTED TO SOCIAL RESPONSIBILITY

GRI414-1

TRILUX has signed the **“ZVEI Code of Conduct”**. This industry guideline defines what social responsibility means in particular regarding working conditions, social and environmental compatibility as well as transparency, trusting cooperation and dialogue. All signatories undertake to also promote compliance with the contents of

the **“ZVEI Code of Conduct”** among their suppliers and in the extended value chain within the framework of their respective possibilities and scopes of action.



Essential OEM partners have signed a voluntary commitment to corporate responsibility and sustainable development in CSR reports or comparable documents. TRILUX has these declarations on hand. In addition, we approach our suppliers proactively and work to persuade them to incorporate CSR aspects and voluntary commitments to sustainability into their corporate policy.

### CERTIFIED QUALITY MANAGEMENT SYSTEM

At TRILUX, the entire supply chain is integrated into the ISO 9001-certified quality management system. Monitoring, evaluation and further development of suppliers are essential obligations according to ISO 9001. **Customer health and safety are our top priority.**

### THE FOCUS IS ON THE ENTIRE LIFE CYCLE

GRI416-2

With its luminaires and light control systems, TRILUX is very close to its customers. It goes without saying that all possible measures are taken to ensure that products as well as all services never become a threat to customer health and safety. Central topics in this context are electrical, electromagnetic, mechanical and photobiological safety, fire protection, noise emissions and functional safety by protecting the products against environmental influences from the application environment (e.g. weather, aggressive atmospheres, etc.). TRILUX naturally complies with all relevant legal requirements and specifications from standards and guidelines.

The protection of our customers' health and safety takes top priority throughout the entire life cycle of our products. This begins with development and design, applies to sourcing and production and, of course, the entire service life. Ultimately, this obligation only ends once specialist disposal companies have correctly disposed of the raw materials and supplies used and, if possible, recycled them. TRILUX accompanies the entire development process with a risk analysis (FMEA), thoroughly checking for potential risks to product safety. This assessment is regularly updated.

### TESTED SECURITY CREATES TRUST

TRILUX carries out safety tests in its own test laboratory. However, products are also regularly tested for their effects on health and safety by independent third parties and accredited testing centres. As a result, TRILUX products bear national and international safety labels.



### **KNOWLEDGE TRANSFER ENSURES MAXIMUM PRODUCT BENEFIT**

Good lighting significantly contributes to more safety. TRILUX outdoor luminaires, for example, prevent accidents on roads, paths and squares, and TRILUX lighting solutions in offices and factory halls help prevent occupational accidents. With their high quality of light, they are also an important component in ergonomic lighting concepts that promote health, performance and well-being – be it in logistics, trade and production, offices, health and education, sales spaces, hotels and restaurants or sports facilities.

Utilising these product advantages requires competent lighting design and the proper use of lighting technology.

In view of this, TRILUX communicates product, design and application-related information far beyond the prescribed scope, tailored to the respective target group. It ranges from comprehensive design support and the latest findings on the effects of light on living beings to cross-sectional topics such as data security.

Every TRILUX product comes with instructions for installation and use which clearly describe the intended use and explicitly inform about restrictions of use (temperature, humidity, aggressive environment ...).

**Fair and responsible customer dialogue.**

## 2. SUSTAINABLE LIGHTING SOLUTIONS – CAREFUL SOURCING AND ENGINEERING

### TARGET GROUP-ORIENTED ACROSS MANY CHANNELS

GRI 417-1

GRI 102-19

Enabling customers to make responsible purchasing decisions requires reliable information about the positive and negative environmental and social impacts of products and services. TRILUX therefore provides them with comprehensible and comprehensive information on these topics. Honest and transparent communication is provided through proprietary printed and digital publications as well as through various public and private media channels. The spectrum ranges from industry journals to the company's online video channel.



### INFORMATION REGARDING ENERGY EFFICIENCY

A central topic in terms of the ecological effects of TRILUX products is energy and material efficiency. When considering the consumption of primary energy over the entire life cycle of a luminaire, over 90% is consumed during the application phase. Reliable information in data sheets, including parameters such as luminous efficacy and service life, ensure comparability between different products.



## 2. SUSTAINABLE LIGHTING SOLUTIONS – CAREFUL SOURCING AND ENGINEERING

LED luminaires combined with a requirement-oriented light management system offer a particularly large energy savings potential. TRILUX has carried out information campaigns for various target groups in this respect. Training courses communicate technical know-how and provide information on funding opportunities; the implementation of flagship projects is intended to motivate multipliers and involvement in industry initiatives such as licht.de takes expert knowledge and a general understanding of light and sustainability to light experts and end users alike.

### FAST RESULTS WITH THE TRILUX ONLINE EFFICIENCY CALCULATOR

The TRILUX online efficiency calculator is a helpful tool for customers to carry out extensive comparisons of the cost-



effectiveness and sustainability of lighting solutions. Upon entering project data, for example regarding room typology and room use, this software tool allows users to view up to five variants of a lighting system in terms of energy consumption, CO<sub>2</sub> emission as well as system, lamp, energy and annual total costs. The tool provides explicit calculation results in the form of tables and various diagrams.

To address different target groups from light experts to facility managers and operators, calculations of varying complexity can be performed. The efficiency calculator is available in 14

languages with information in twelve currencies.

**Other tools TRILUX provides in the online portal to support its customers include a pay-per-use calculator, a lifetime calculator, an app for selecting street and path lighting and various luminaire configurators.**

### MANAGEMENT APPROACHES

- Quality management system DIN EN ISO 9001
- FMEA
- Stakeholder dialogues
- Tests in laboratories (e.g. EMC, mechanical safety, photometric characteristics)
- ZVEI Code of Conduct
- (Supplier) audits
- General purchasing regulations and supplier contracts
- CE conformity assessment procedures
- CSR reports from OEM partners



### 2C. SUSTAINABLE PRODUCTION

GRI 303-1

GRI 303-2

GRI 303-3

GRI 303-4

#### Climate neutrality as a goal

A manufacturer of intelligent lighting solutions such as TRILUX can undoubtedly generate the greatest effects in favour of climate and resource protection via its efficient and sustainable products. However, all processes in production, administration and transport also offer potential for more sustainable management. This is why TRILUX is working systematically to optimise them and to minimise their impact on environment and climate. Energy efficiency, CO<sub>2</sub> emissions, water consumption, reducing waste and avoiding environmental risks are important approaches here.

#### Water as a precious commodity

Water consumption is measured at all locations and continuously reduced through measures. Waste water is discharged exclusively into municipal sewage systems in accordance with official regulations. In Arnsberg, a water treatment plant is operated for this purpose to adjust the pH value.



## 2. SUSTAINABLE LIGHTING SOLUTIONS – SUSTAINABLE PRODUCTION

### No infringements and sanctions in 2019

The minimum standard for the TRILUX Group with regard to climate and environmental protection consists of the respective legal requirements at the locations. All relevant regulations are continuously monitored and their compliance is checked by regular audits. These measures are reliably effective. Throughout the TRILUX Group, no statutory violations were registered in 2019, nor were sanctions imposed in the area of environmental protection.

The sites Arnsberg, Alhama de Aragón and Zaragoza in Spain have a certified environmental protection management system in accordance with ISO 14001. Arnsberg also has and a certified energy management system in accordance with ISO 50001.



GRI 302-1

	<b>Occupational health and safety management</b>	<b>Environmental management</b>	<b>Energy management</b>	<b>Quality management</b>
<b>Germany</b>	BS 18001 (from 2021: ISO 45001)	ISO 14001	ISO 50001	ISO 9001
<b>Spain</b>	None	ISO 14001	None	ISO 9001
<b>India</b>	None	None	None	None
<b>China</b>	ICT Own System	ICT Own System	None	ISO 9001 & IATF 16949

## 2. SUSTAINABLE LIGHTING SOLUTIONS – SUSTAINABLE PRODUCTION

GRI 302-2   GRI 302-3   GRI 303-5

### PERMANENT BALANCING AND OPTIMISATION

As part of its environmental reporting, TRILUX continuously records values on energy consumption, greenhouse gas emissions, water withdrawal and waste generation. This database is used to identify potential for improvement and to derive realistic objectives for even greater sustainability.

	2015	2016	2017	2018	2019
<b>Arnsberg</b>	2015	2016	2017	2018	2019
Electricity in [kWh]	9,900,157	9,747,857	9,429,179	9,349,415	9,101,009
Renewable energy [%] of electricity	45.8	45.3	45.3	52.9	52.9
Natural gas consumption [kWh]	15,533,973	16,533,197	15,595,365	14,729,148	14,442,986
Water in [m3]	25,013	22,240	22,597	21,356	22,642
Waste water in [m3]	22,998	22,597	21,356	22,642	20,621
<b>Cologne</b>	2015	2016	2017	2018	2019
Electricity in [kWh]	334,560	326,821	308,573	424,703	424,700
Renewable energy [%] of electricity	45.5	45.3	45.3	52.9	52.9
Natural gas consumption [kWh]	652,419	523,307	319,029	158,363	160,000
Water in [m3]	1,478	1,305	386	2,121	2,100
<b>Spain</b>	2015	2016	2017	2018	2019
Electricity in [kWh]	9,663,315	9,724,648	7,940,357	6,741,025	-
Renewable energy [%] of electricity	-	-	-	11	-
Heating oil consumption [kWh]	500,084	536,203	524,399	783,328	-
Water in [m3]	2,510	3,470	3,694	2,649	-
Waste water in [m3]	2,375	3,335	3,559	2,514	-
<b>China</b>	2015	2016	2017	2018	2019
Electricity in [kWh]	8,684,400	10,190,400	11,278,740	11,234,244	-
Renewable energy [%] of electricity	-	-	-	-	-
Gas consumption [Liter]	4,130	3,640	5,180	4,200	-
Water in [m3]	127,212	122,794	127,607	118,445	-
<b>India</b>	2015	2016	2017	2018	2019
Electricity in [kWh]	626,549	612,942	610,484	704,157	-
Renewable energy [%] of electricity	-	-	-	-	-
Gas consumption [kWh]	47	42	59	48	-
Water in [m3]	1,889	1,854	1,809	1,574	-
Waste water in [m3]	472	463	452	394	-
<b>Total</b>	2015	2016	2017	2018	2019
Electricity in [kWh]	29,208,981	30,602,668	29,567,333	28,453,544	-
Energy intensity (electricity)	5.19	5.39	5.19	5.22	-
Heating energy [kWh]	16,690,653	17,596,388	16,444,032	15,516,724	-
Energy intensity (heating energy)	2.97	3.10	2.89	2.85	-
Water in [m3]	158,101	151,663	156,093	144,024	-
Water intensity	0.0281	0.0267	0.0274	0.0264	-
Intensity basis (pieces of luminaires)	5,624,325	5,676,084	5,698,477	5,449,286	5,409,000

The statistics show: energy and water consumption are declining overall. Any deviations can be explained, e.g. at the Cologne location due to the expansion of the site.

### NUMEROUS SUCCESSFUL MEASURES

GRI 302-4

This positive development was achieved through a variety of measures. The spectrum ranges from energy efficiency measures for machines and buildings and the digitalisation of all order-related data to reusable packaging along the entire value chain. Several positive effects were achieved at once, for example, by introducing paperless contract production. On the one hand, all paperwork (test instructions, assembly instructions, drawings, packaging instructions, TQ control certificates, current value tables, etc.) is no longer required, and on the other hand, considerable savings are released in internal logistics because parts are now delivered precisely to the piece and there are no more returns to the warehouses.



In addition to the introduction of digital order data, TRILUX put many other sustainable ideas into practice, of which only a few will be listed here:

- Solvents must be used for degreasing and cleaning of metal parts. These solvents are reprocessed in a closed circuit with fully automatic filter systems and returned to the cleaning process.
- The oil sludge resulting from the degreasing of the steel sheets is retained in separators. Residues are disposed of separately from other types of waste.
- Painting is carried out with solvent-free powder coatings.
- Cooling systems with closed water circuits reduce the water requirement considerably.
- In the manufacture of plastic luminaire covers, the plastic waste produced is recycled and returned to the production process.
- Hot water boilers with exhaust gas heat consumers and automatic, pressure-dependent and speed-controlled circulation pumps lead to considerable energy savings.
- At the Arnsberg location, TRILUX operates a photovoltaic system with 6,240 modules which can deliver over 500 kW (peak) and supply more than 100 homes with environmentally friendly electricity.

## 2. SUSTAINABLE LIGHTING SOLUTIONS – SUSTAINABLE PRODUCTION

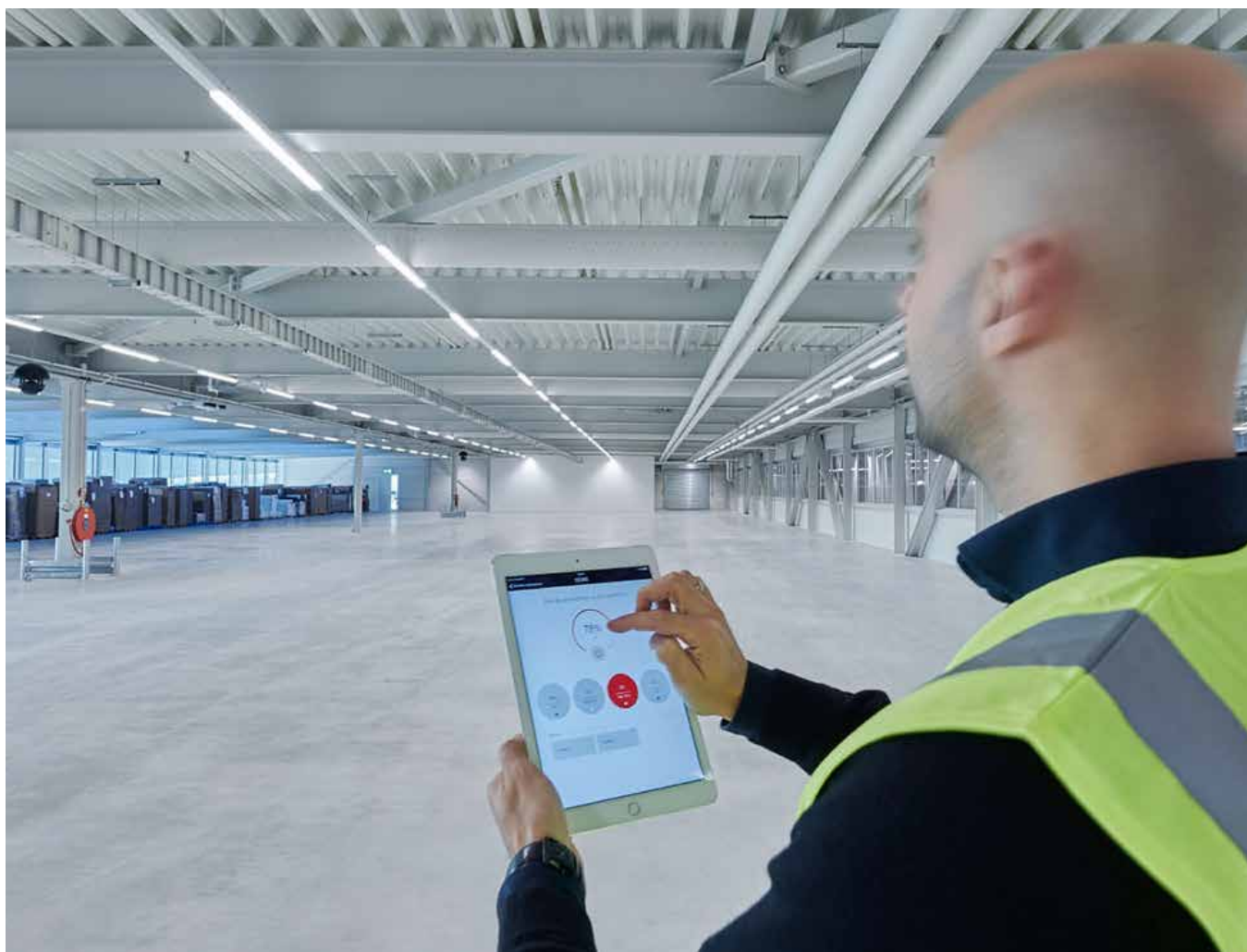
### WELL ON THE WAY TO GROUP-WIDE CLIMATE NEUTRALITY

Having already achieved so much, large goals can be set with determination. TRILUX aims to achieve climate neutrality at all locations worldwide by 2025. Direct and indirect emissions will already be reduced by at 10% per year in the coming years. Sustainable production will contribute to this as much as sustainable TRILUX products and business models.



#### MANAGEMENT APPROACHES

- Environmental management system ISO 14001
- Energy management system ISO 50001
- Measured data from building management system
- Process control of the water treatment plant
- CO<sub>2</sub> balancing (corporate footprint)



### 2D. LIGHT MANAGEMENT

GRI 305-3

#### Energy efficiency and light management

##### Sustainable lighting solutions

TRILUX makes a very decisive contribution to climate protection and sustainability with its products, because powerful LED luminaires and intelligent light control systems are the basis for lighting solutions with high quality of light, an exemplary energy balance and a long service life. In this regard, climate and resource protection are inherent in TRILUX's core business.

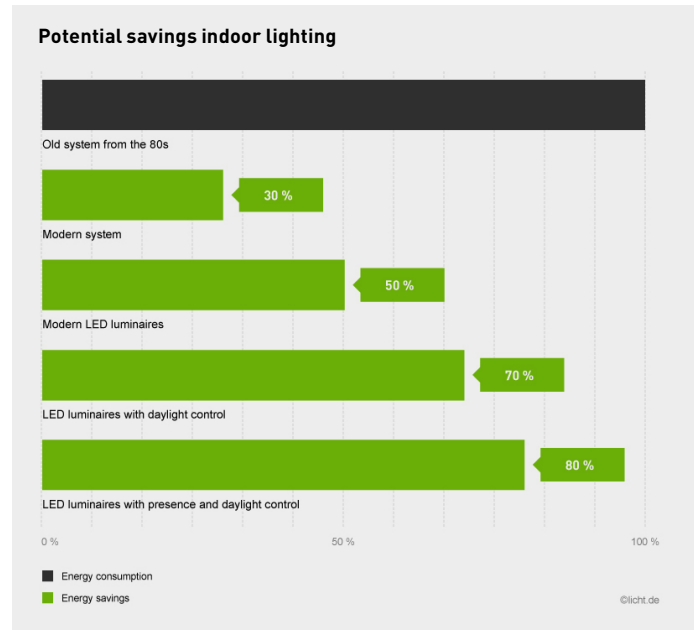
## 2. SUSTAINABLE LIGHTING SOLUTIONS – LIGHT MANAGEMENT

GRI 302-5

### Halving energy consumption with led light sources

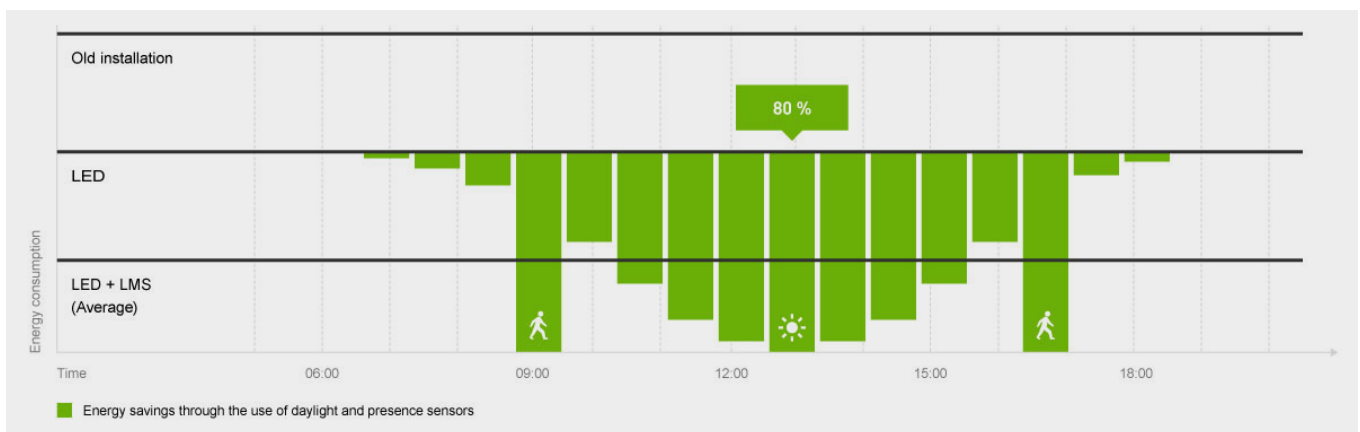
Lighting energy accounts for about 19% of total global energy consumption. In terms of volume alone, therefore, there is great sustainability potential waiting to be tapped. The lighting industry has a particularly effective instrument for this purpose in the form of light-emitting diodes (LEDs) in general lighting. Current LED light sources have a luminous efficacy of up to 200 lm/W. For comparison: in an incandescent lamp this value was up to 30 lm/W, the latest generation of fluorescent lamps achieves about 100 lm/W. There are projections stating that in 2017 alone, over half a billion tonnes of CO<sub>2</sub> emissions could be avoided by converting old lighting systems to modern LED technology.

TRILUX has largely converted its luminaire portfolio to LED technology and, thanks to ongoing research and development work, keeps on top of the rapid pace of innovation in the LED industry. As a result, lighting systems can be realised with TRILUX luminaires that consume only half as much energy or even less compared to conventional lighting technology – with equivalent or better quality of light. In addition, these luminaires feature other sustainability genes, including their long service life of more than 50,000 operating hours and much longer maintenance cycles. This way, LED technology provides several sustainability trumps at once.



### CONTROLLING LIGHT ACCORDING TO REQUIREMENTS

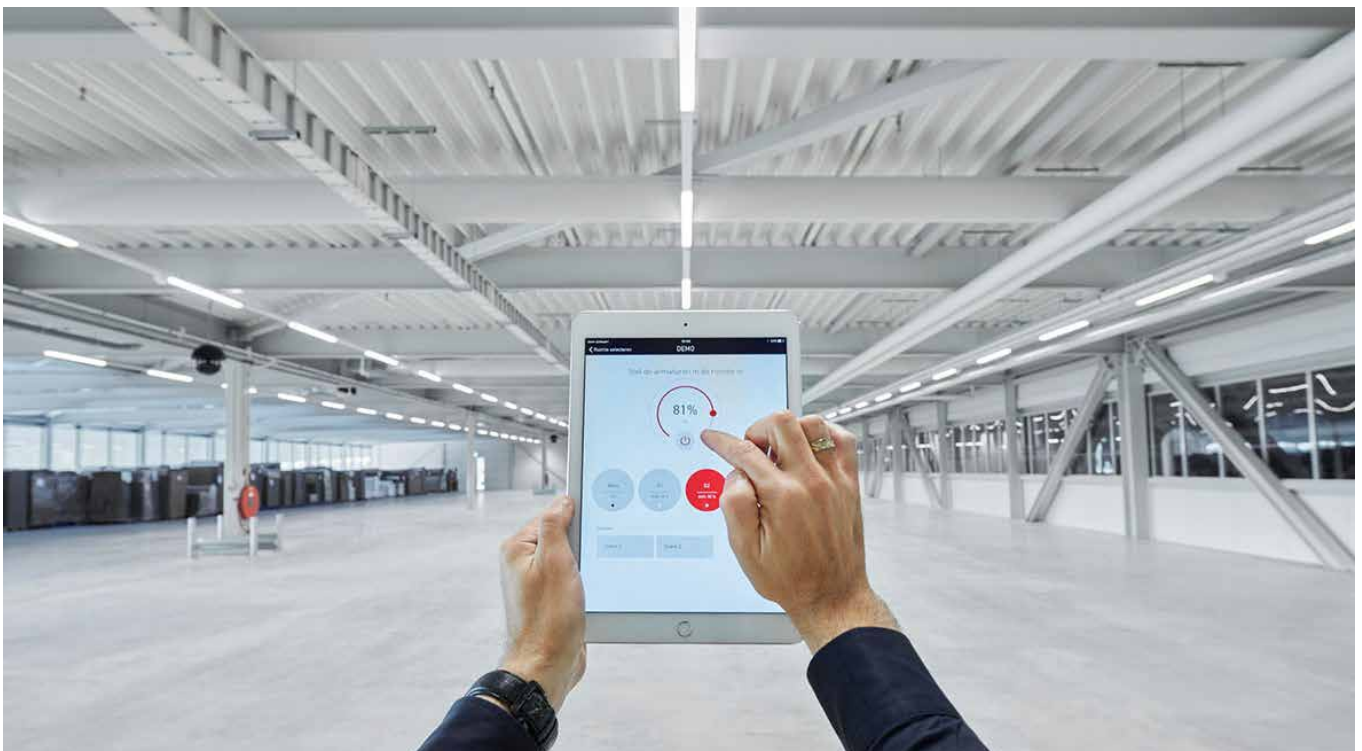
However, LED technology is not only a true efficiency innovation because of its high luminous efficacy – it has also established the foundation for the digitalisation of light since LEDs can be switched and dimmed very conveniently. In combination with sensors and electronic control and communication modules, intelligent **light management** can be realised. For example, the light is switched and dimmed depending on presence (persons, vehicles, etc.), corresponding to the available daylight or simply according to a suitable time schedule. As a result, the lighting is only switched on when it is actually needed and then does not always provide the maximum level of brightness, but always a level of brightness adapted to requirements. Lighting solutions with LED light sources controlled according to requirements by a light management system can achieve energy savings of up to 80% compared to a system with conventional light sources and simple on/off operation.



## 2. SUSTAINABLE LIGHTING SOLUTIONS – LIGHT MANAGEMENT



LiveLink provides TRILUX customers with a freely scalable **light management system** for implementing sustainable and cost-efficient lighting solutions with ideally controlled, individually adapted light. The system makes it possible to plan and operate even the control of complex lighting systems in a simple way, and it is suitable for almost any application area. In particular, commissioning, which is considered one of the greatest challenges in light control systems, is carried out effortlessly via an intuitively operated graphical user interface and preconfigured scenarios. This way, the potential of a digital lighting solution can be safely tapped with minimal effort and without risk.



### INTELLIGENT LIGHT CAN ACHIEVE EVEN MORE SUSTAINABILITY

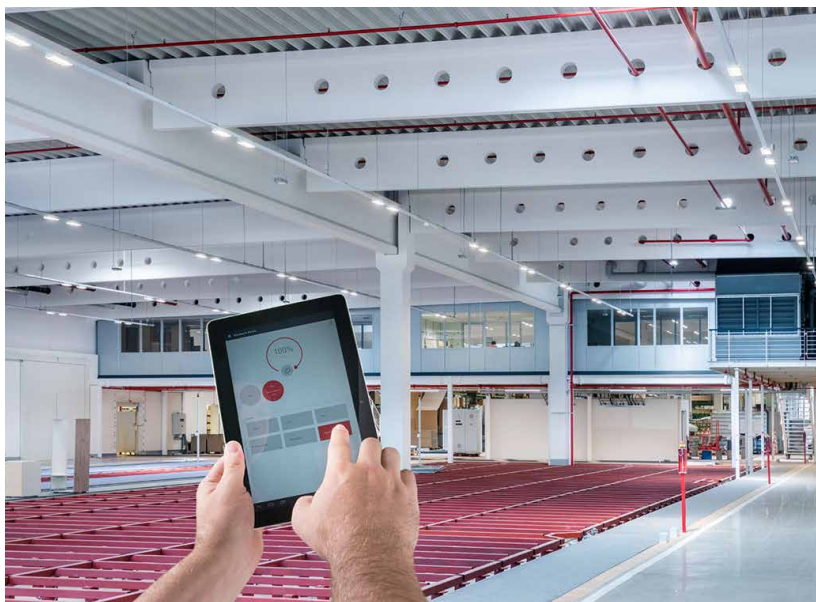
Once luminaires are connected via a light management system, it is an obvious next step to not only submit control commands from the controller to the luminaires, but also to transmit, store and use data from the luminaires the other way around. Intelligent lighting networks of this nature with bidirectional communication enable numerous services, each of which offers opportunities for greater sustainability, for example:

## 2. SUSTAINABLE LIGHTING SOLUTIONS – LIGHT MANAGEMENT



### Energy monitoring

Recording and analysing the energy consumption of each individual light point in a system can be used to identify hidden energy saving potentials. Detailed consumption data also create comparability between different plants or properties and thus offer possible approaches for optimisation.



### Predictive maintenance

Knowing the precise operating data of luminaires makes it possible to optimise maintenance and servicing. Instead of rigid inspection and maintenance intervals, it is possible to act just-in-time and as needed – and to do so with foresight, because operating parameters such as power consumption or temperature are good markers for the condition of a component. Blanket, plant-wide replacement of spare parts after a defined operating period is no longer necessary. Instead, replacements can now be made as necessary. This keeps intact lamps and assemblies in operation longer, saving resources. Since all data including location identification is centrally accumulated for each individual light point, maintenance teams can address the luminaire directly and on-spec inspection trips become obsolete, which noticeably reduces the amount of travel and thus resource consumption and greenhouse gas emissions.





### 2E. RECYCLING

GRI 301-2

#### On the way to the circular economy

With a sustainable management of material flows, companies can make a significant contribution to climate and resource protection. TRILUX therefore ensures that materials and additives used in production and in products are recycled and reused to the greatest extent possible. If this is not possible, proper disposal is arranged for.

#### PERMANENTLY DECREASING WASTE VOLUMES

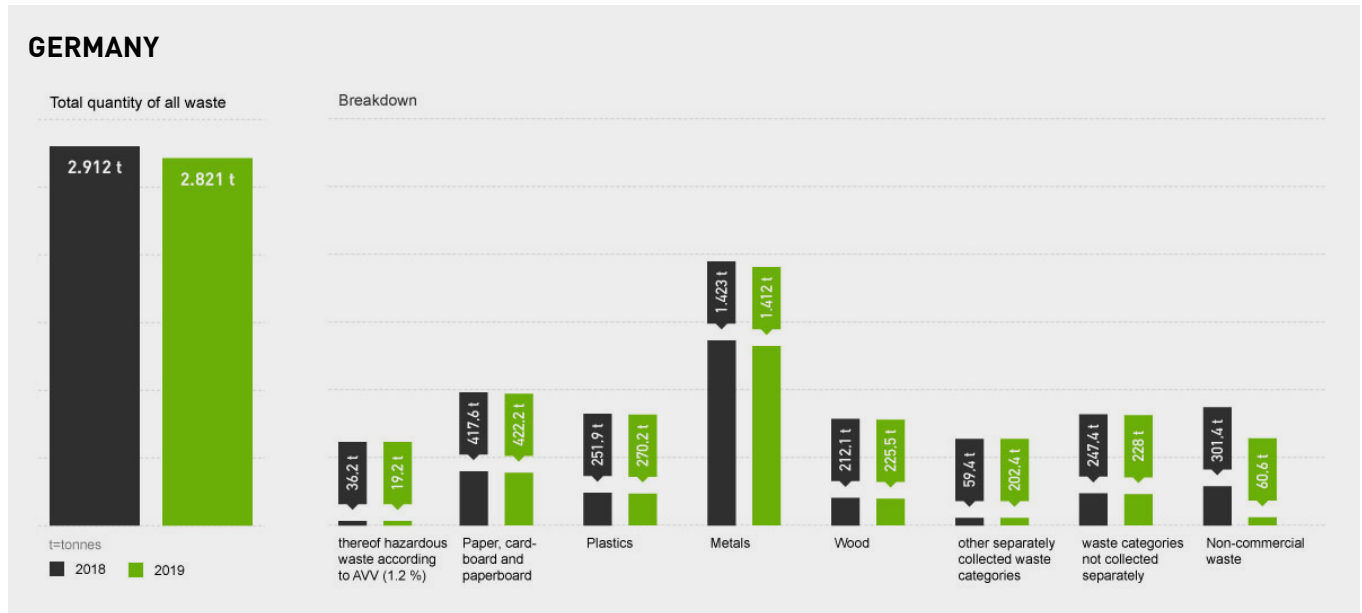
GRI 306-2

Products that do not generate waste and do not themselves become waste are the ideal of circular economy. Another approach to effective resource protection is recycling. Recovering raw materials from end-of-life products has two other advantages: recovery is often more efficient in terms of energy and costs than new extraction, and recycled materials are usually obtained locally.

In view of this, TRILUX continuously analyses all stages along the value chain with the aim of identifying and using as many options as possible for the recovery and recyclability of materials. Numerous processes in all phases of

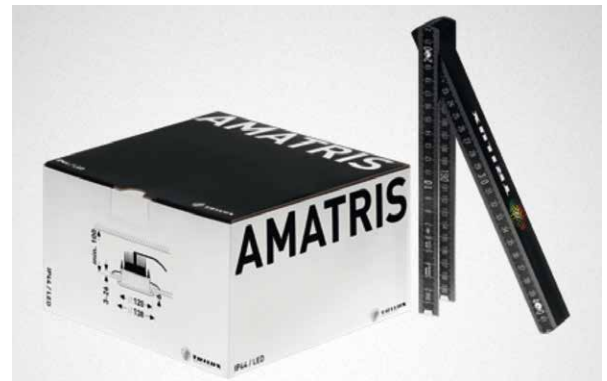
## 2. SUSTAINABLE LIGHTING SOLUTIONS – RECYCLING

the product life cycle have already been firmly established in business practice and the TRILUX Group has been able to report continuously decreasing waste volumes in production for years. The separate collection rate for recycling at the Arnsberg site is over 90%. TRILUX' legally compliant and exemplary approach to waste management is checked and confirmed annually by a recognised expert.



### As little packaging as possible

TRILUX starts reducing packaging waste right from the product development stage. Construction and development are already being reviewed with regard to sustainable packaging options and recyclability is an important criterion in the selection of packaging materials and design. TRILUX has obliged all suppliers to take back their packaging and has itself introduced a system to avoid unnecessary packaging and minimise the amount of material.



### Take-back is contractually governed

The majority of TRILUX products are subject to the German Electrical and Electronic Equipment Act (ElektroG). As the German implementation of the European WEEE Directive, it regulates the placing on the market, return and disposal of electrical and electronic equipment. In order to fulfil its take-back obligations in Germany resulting from the law, TRILUX has concluded a contract with the company ISD Interseroh-Dienstleistungs GmbH. Interseroh carries out take-back, recycling and disposal. To simplify recycling, all TRILUX suppliers are obliged to label their products and their components with regard to recyclability.







### Closing product and material cycles

TRILUX acts as a pioneer in the industry when it comes to designing, bringing to market and applying sustainable business models. With its **“Pay per Use”** service, the company is establishing the foundation for putting important circular economy approaches into practice. The three central approaches here are generally extended product life cycles, reuse and recycling. With “Pay per Use”, customers no longer buy lighting technology, but pay a monthly rate for a completely planned and installed LED solution including maintenance.

## 2. SUSTAINABLE LIGHTING SOLUTIONS – RECYCLING

In addition to the many sustainability advantages that this full-service concept offers in operation, interesting options also arise from the fact that TRILUX remains the owner of the luminaires. This way, after disassembling the products in the first project, a lighting expert decides whether they are suitable for further use in another application, whether they can be refurbished and updated with new components or how individual assemblies and components can be optionally put to further use.

### Customer advantages

 <b>The Customer has only one Contractual Partner: TRILUX</b> During the Pay-per-Use contract period, customer lighting is in good hands, in any case	 <b>Full Service</b> Pay per Use includes comprehensive services: Planning, installation, financing, light management and monitoring services.	 <b>Full Control</b> Customers can identify their consumption and consumption behaviour and additionally save costs through predictive maintenance.
 <b>Consumption-based Payment</b> Monitoring services allow for consumption-based payment. Customers only pay the full price if they make full use of the light.	 <b>Quick Indication</b> Through an automated process, customers receive a non-binding cost indication within a few hours.	 <b>Financing</b> Among other things, Pay per Use is a form of financing that can be depicted in a balance sheet-neutral manner for customers and requires no investment.

### Correct disposal of critical substances is ensured

GRI 307-1

GRI 306-3

GRI 306-4

It goes without saying that TRILUX follows the motto “avoidance before recovery before disposal” with regard to waste. This rule applies to all substances and materials, but is particularly strict for those that are classified as hazardous to humans and the environment. If the use of such substances cannot be avoided, their correct disposal must be ensured. TRILUX cooperates with waste management and recycling specialist REMONDIS in order to fulfil all statutory and regulatory requirements. REMONDIS also handles any hazardous waste transport. Non-conformities or significant emissions of harmful substances are not known.

### MANAGEMENT APPROACHES

- Environmental management system ISO 14001
- Waste register
- Waste statistics
- Electronic waste recording procedure

## TOPICS

### 3. CLIMATE PROTECTION





For TRILUX, climate protection is more than just a random topic. Artificial lighting accounts for a large portion of greenhouse gas emissions worldwide. By striving for efficiency and influencing our customers' energy consumption, we are already making a big difference in the fight against climate change.

Learn more about the influence of LED lighting and light management on greenhouse gas emissions and venture a look at the "big picture" with us in this chapter.



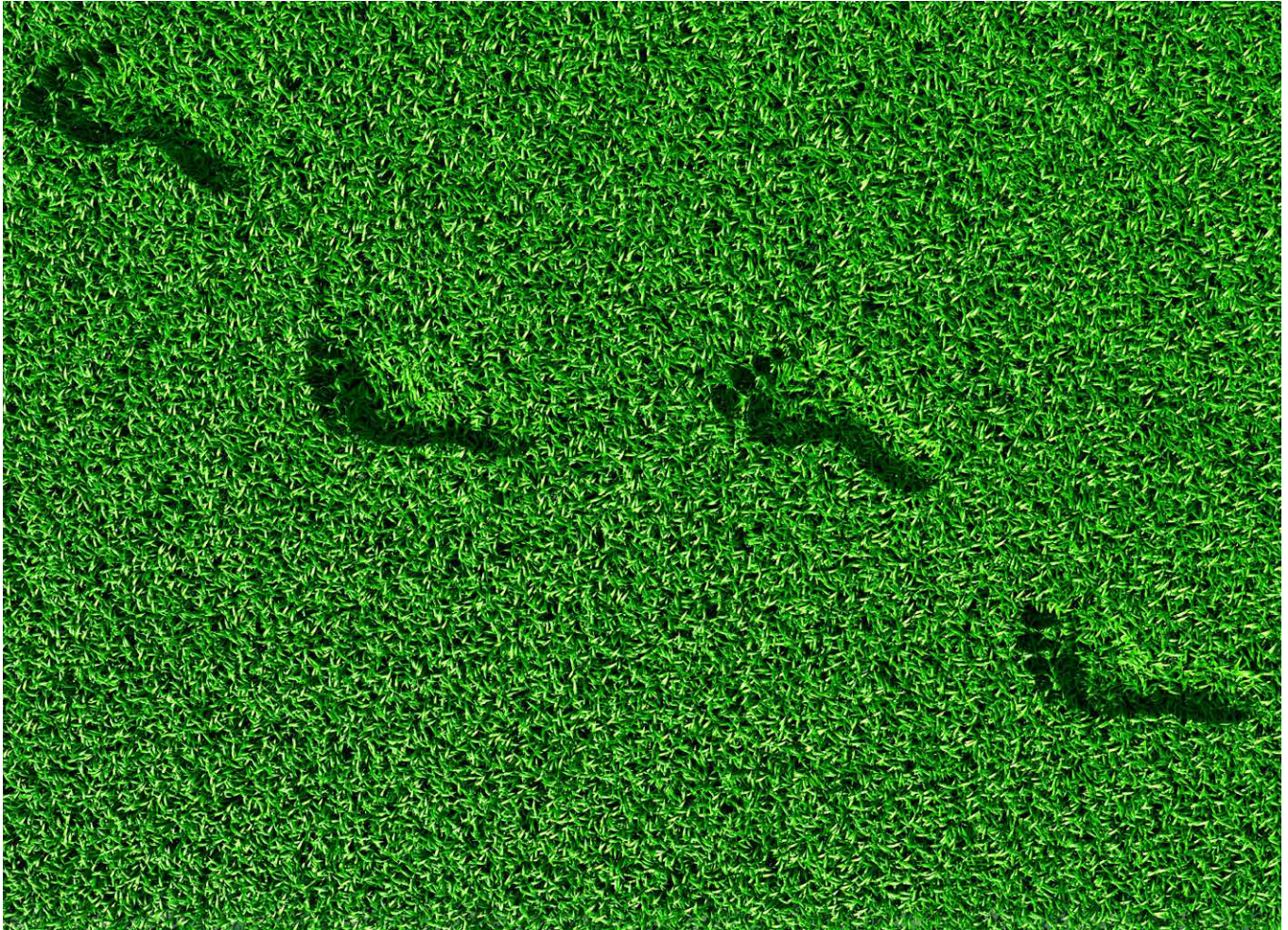
#### 3A. OUR COMMITMENT AGAINST CLIMATE CHANGE

##### TRILUX products in the fight against climate change

###### TRILUX supports the european green deal

The European Union has decided that the European continent is to become climate-neutral by 2050. In order to achieve this ambitious goal, it has presented the European Green Deal, a set of measures that ultimately aims to achieve a profound ecological turnaround. Be it in energy production, industry, building operation, mobility or agriculture – green technologies, sustainable products and applications, new business models and closed-loop recycling management are to ensure climate and resource protection in all areas of society.

TRILUX is highly engaged in the EU Green Deal and thoroughly analysed the set of measures with regard to the potential for its own entrepreneurial activities. Initial directives for action were derived and some have already been put into practice. This sustainability report and explicit provisions on greenhouse gas emissions are examples of this: By 2025, the German production sites will be climate-neutral. Direct and indirect emissions will already be reduced by at least 10% per year in the coming years.



#### HALVING ENERGY CONSUMPTION AND GREENHOUSE GAS EMISSIONS WITH LED LUMINAIRES

GRI 302-5

GRI 305-1

GRI 305-5

TRILUX is already a sustainability leader when it comes to the end use of the company's products. LED luminaires and light control systems are the basis for lighting solutions with high quality of light, an exemplary energy balance and a long service life. In this regard, climate and resource protection are inherent in TRILUX's core business.

By converting existing plants to LED technology, more than half a billion tons of CO<sub>2</sub>e emissions could be avoided in 2017 alone. CO<sub>2</sub>e stands for CO<sub>2</sub> equivalent. All greenhouse gases are considered to this end and factored into the value in a weighted fashion according to their potential for global warming. Thanks to their energy efficiency, TRILUX LED luminaires demonstrably avoid around 50 % of CO<sub>2</sub> emissions compared to conventional lighting and they become more efficient from generation to generation.

#### The CO<sub>2</sub> footprint of a luminaire

GRI 305-3

GRI 305-4

If we look at the consumption of primary energy over the entire life cycle of a luminaire, by far the largest item falls into the use phase. Several studies estimate that the operation of luminaires accounts for over 90% of energy consumption. Less than 10% is used for raw materials, transport, production and recycling. This fact is confirmed by extensive audits in which external experts determined the carbon footprint of TRILUX products.

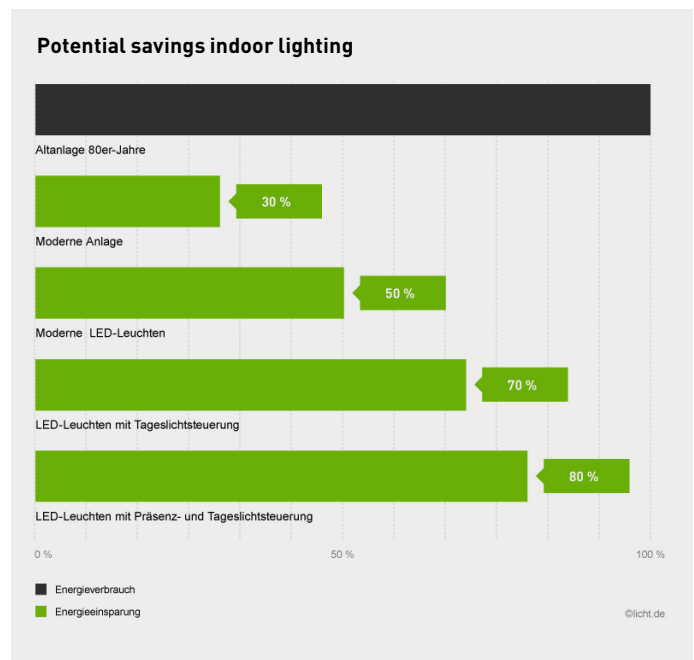
### 3. CLIMATE PROTECTION – OUR COMMITMENT AGAINST CLIMATE CHANGE

**Therefore, if the objective is to make a luminaire more sustainable, increasing its energy efficiency is an effective lever. This can be demonstrated impressively by the following calculation:** Since LED luminaires are about 50% more energy-efficient than conventional lighting technology such as fluorescent lamps, their CO<sub>2</sub>e emissions during the use phase are also roughly halved. Assuming that a conventional luminaire emits around one tonne of CO<sub>2</sub>e over its service life, the 5,000,000 LED luminaires that TRILUX puts on the market each year can save around 2,500,000 tonnes of CO<sub>2</sub>e per year. This amount is roughly equivalent to the CO<sub>2</sub> emissions of 500,000 passenger cars per year (mid-range, gasoline, 15,000 km mileage) or 0.6% of Germany's overall savings target until 2030.

#### EVEN MORE CLIMATE AND RESOURCE PROTECTION THROUGH LIGHT MANAGEMENT

GRI 305-4

The energy efficiency of LED luminaires is not the only instrument offered by TRILUX for sustainable lighting applications. With LiveLink, TRILUX customers have a freely scalable light management system at their disposal to implement lighting controlled according to requirements in almost all application areas of indoor and outdoor lighting. The system makes it possible to plan and operate even the control of complex lighting systems very easily. For example, the light is switched and dimmed depending on presence (persons, vehicles, etc.), corresponding to the available daylight or simply according to a suitable time schedule. As a result, the lighting is only switched on when it is actually needed and then does not always provide the maximum level of brightness, but always a level of brightness adapted to requirements. Lighting solutions with LED light sources controlled according to requirements by a light management system can achieve energy savings of up to 80% compared to a system with conventional light sources and simple on/off operation. Further options for climate and resource protection are offered by these networked systems through additional services such as energy monitoring or predictive maintenance and the increase of lighting comfort as well as the individualisation of lighting according to user requirements.







In addition to the CO<sub>2</sub> savings targets from Scope 1 and Scope 2, TRILUX's aim is therefore to further minimise CO<sub>2</sub> emissions in Scope 3 through savings measures. Besides measures in the areas of transport and logistics, light management is a focus issue here.



### 3B. WITH REPRO-LIGHT FOR SUSTAINABLE LIGHTING

#### TRILUX PARTICIPATES IN INTERNATIONAL SUSTAINABILITY RESEARCH

TRILUX continuously pursues all options for action to optimise its portfolio with regard to efficiency and sustainability. To this end, the company relies on proven measures such as increasing energy efficiency, extending service life by means of highly developed thermal management or recycling after the use phase. At the same time, TRILUX is also on the lookout for completely new technologies, methods and business models that promote climate and resource protection. In this context, the company actively participates in the European research project Repro-light.

Repro-light (re-usable and re-configurable parts for sustainable LED-based lighting systems) aims to accompany the European lighting industry on its way to a more sustainable and competitive future. The research project is looking for ways and means to design a modular architecture and an intelligent production scheme for LED luminaires and to make lighting technology fit for the circular economy. In 2021, we will further deepen these findings in the follow-up project Sumatra in order to move towards a circular economy.

#### There are many metrics to sustainability assessment

Extensive analyses are indispensable when it comes to evaluating the relevance of replaceability, further use and recycling of the components of an LED luminaire and the influence of individual phases of the life cycle with regard to climate and resource protection. As a typical product, Repro-light therefore examined an LED luminaire from TRILUX and applied a variety of different metrics for sustainability assessment. In addition to CO<sub>2</sub> balance, abiotic depletion potential (ADP), acidification potential and eutrophication (accumulation of nutrients in water bodies) were also examined.

#### Different evaluation framework, new questions on sustainability

A look at the CO<sub>2</sub> emissions delivered a familiar result: the energy consumed in operating the luminaire accounts for over 90% of total greenhouse gas emissions over all life cycle phases.

#### Essential factors for sustainability

Characterisation Factor	Unit	Environmental Relevance
GWP Global Warming Potential	kg CO <sub>2</sub> equivalent	Increased positive radiative forcing due to the increase of greenhouse gases at the atmosphere
PED Primary Energy Demand	Megajoule	Increased energy consumption from renewable and non-renewable energy sources
ADP elements Abiotic Depletion Potential, Elements	kg Sb-equivalent	Increased extraction of resources leading to depletion of mineral reserves
ADP fossil Abiotic Depletion Potential, Fossil	Megajoule	Increased extraction of resources leading to depletion of fossil reserves
AP Acidification Potential	kg SO <sub>2</sub> -equivalent	Increased acidity of soil and water due to proton release from antropogenic emissions
EP Eutrophication Potential	kg PO <sub>4</sub> -equivalent	Increased biomass formation and loss of biodiversity due to release of nutrients

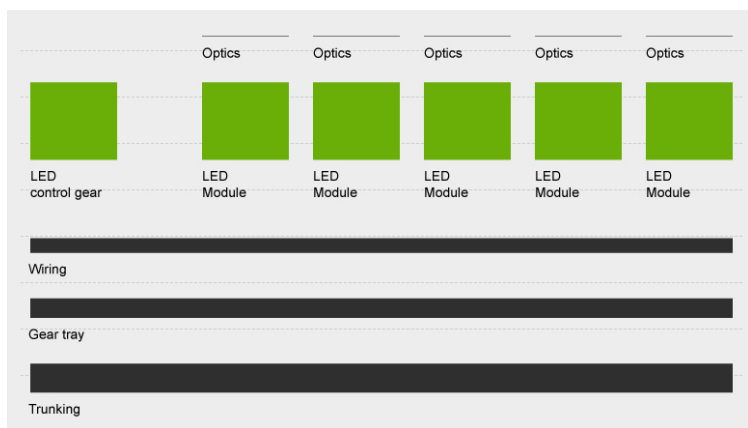
#### Components from a sustainability perspective

However, a completely different picture emerged, for example, in the evaluation according to the Abiotic Depletion Potential (ADP elements). Here the influence on the environment is distributed quite differently: 77% are due to the production phase (including precious, limited materials such as gold and copper) and only 23% fall into the use phase (caused by the materials used to generate the energy needed to operate the luminaire). Another fact also becomes clear: at 75%, LED modules have by far the largest share of ADP of the entire luminaire. The remainder is divided between the LED driver (13%), the cabling (8%) and the optics and mechanical components (5% combined).

Luminaire	ADP
5 optics	0 %
5 LED modules	75 %
LED control gear	13 %
wiring	8 %
mechanics	5 %

#### Example: E-LINE LED

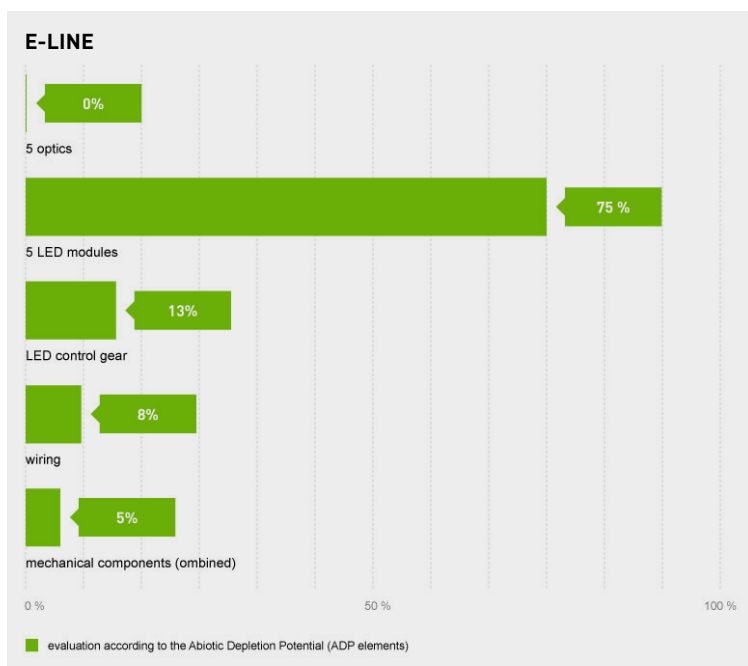
In view of this balance, surprising questions arise. For example, how sensible is the demand for replaceability of LED modules which is widespread in the industry? Replacing the LED module of a luminaire and continuing to use the housing sounds plausible only at first glance.



#### OUTLOOK WITH INTERESTING OPTIONS

The TRILUX research department intensively engaged with the interpretation of life cycle analyses and put interesting scenarios for the most sustainable strategies for action up for discussion. The TRILUX luminaire examined was found to achieve maximum energy efficiency after 18,000 hours of operation when including the energy required to manufacture and operate the luminaire in the calculation. In contrast, optimum material efficiency according to the ADP estimate is achieved at 295,000 operating hours – an enormous discrepancy that calls for solutions.

What would things look like, for example, if an LED module or an LED luminaire were to be given a “second life” in the context of the circular economy? Lighting applications entail very different requirements. While one project may require 1,500 lm of luminous flux, 900 lm may be sufficient in another application. Therefore, if an LED module has exceeded the optimum in terms of sustainable operation in its first application, it could consequently provide exactly the right operating parameters for a second use with different requirements. Whether complete luminaires are dismantled and reused elsewhere or only LED modules are replaced remains open. In any case, in view of these considerations the reuse of luminaires and modules could become a new business model in the future that conceives of sustainability far beyond saving energy.



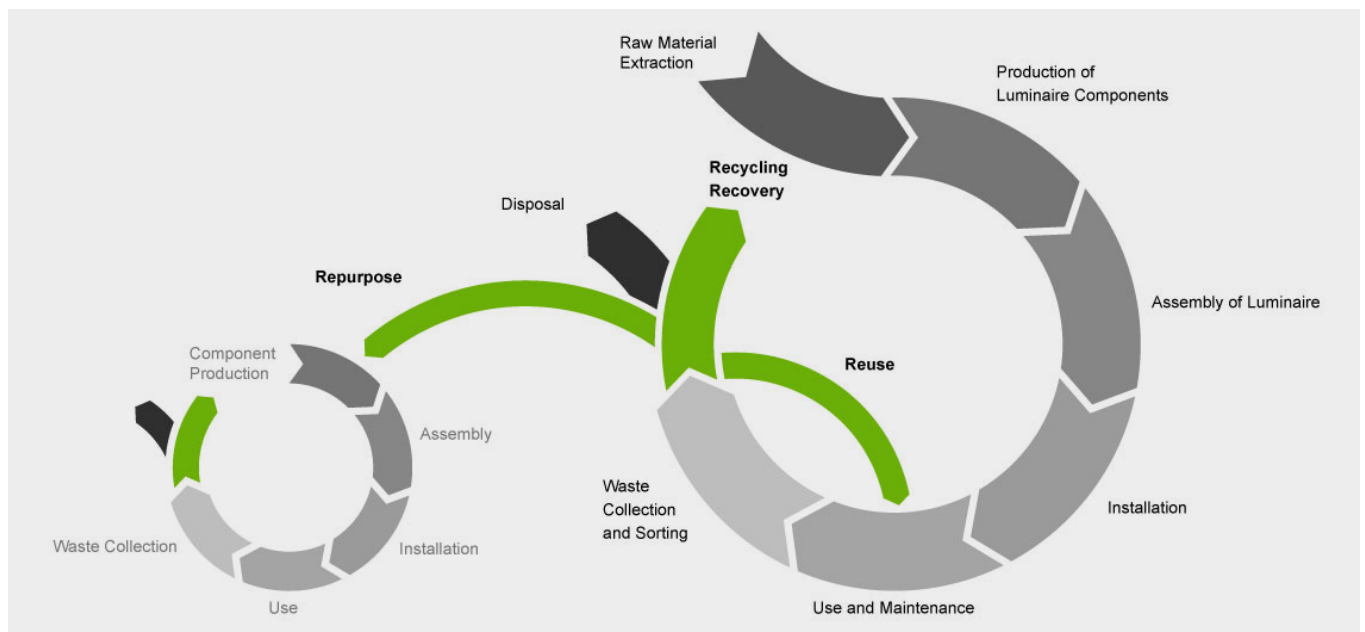
The Repro-light results also offer an interesting starting point for the optimisation of luminaires with regard to ecological criteria. TRILUX has achieved great success here, for example with the “E-Line Next” continuous line luminaire. The current version of the luminaire is more than 61% better for the environment than the previous version in terms of abiotic depletion potential. This was achieved by largely avoiding the use of particularly valuable materials, especially in the area of the LED module.

### 3. CLIMATE PROTECTION – WITH REPRO-LIGHT FOR SUSTAINABLE LIGHTING

#### CONDITIONS FOR REUSE ARE ALREADY IN PLACE

Even if these ideas derived from the results of the Repro-light project are not yet practised today, they allow for a core statement: circular economy in the lighting industry is not only possible, it offers enormous sustainability potential. TRILUX has already created initial prerequisites for exploiting these opportunities for climate and resource protection. For example, the company already takes back luminaires from customers after disassembly.

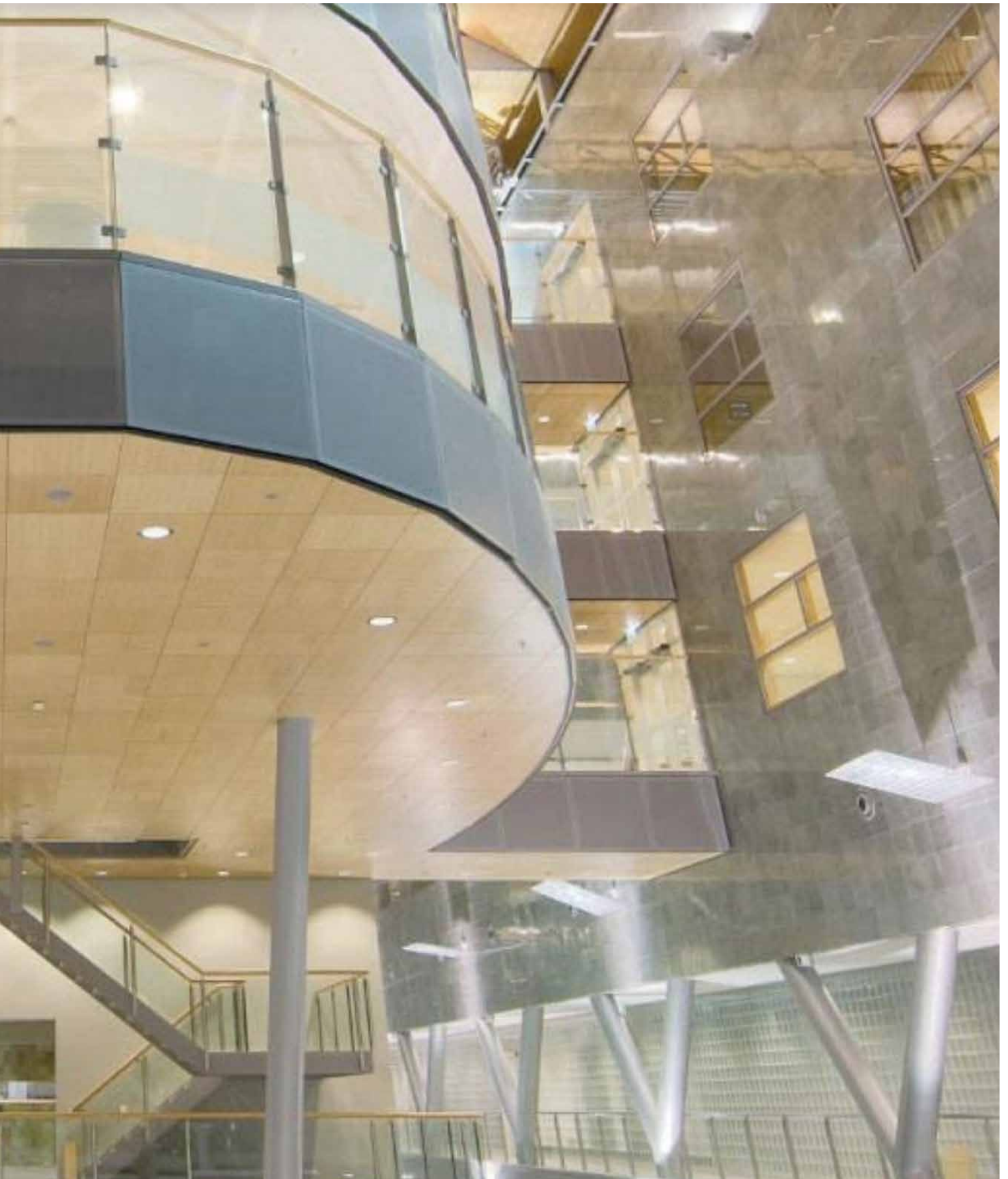
In addition, newer business models such as the TRILUX Pay per Use programme turn luminaires into objects of rental or leasing contracts. They therefore remain the property of the manufacturer. Essential legal requirements for further use, new configuration or conversion are thus fulfilled. The consistent implementation of the principles of the circular economy will certainly bring about many new business models for the lighting industry. One thing is for sure: TRILUX will approach these new possibilities with an open and well informed mind.





TOPICS

4. CORPORATE  
RESPONSIBILITY



Great success also brings great responsibility. To meet its high standards, TRILUX implements a variety of measures to ensure that our business activities are sustainable.

Find out more about measures to ensure compliance along the supply chain and our risk management in this chapter.



### 4A. RISK MANAGEMENT

GRI 201-2

#### IDENTIFYING RISKS AND SYSTEMATICALLY TAKING COUNTERMEASURES

Entrepreneurial action is always associated with risks. To identify, minimise or, in the best case, eliminate potential risks, TRILUX has established a systematic risk management system based on the ISO 31000 standard at the company headquarters in Arnsberg as an elementary component of the certified ISO 9001 quality management system.





Within the scope of the TRILUX Group's initial risk inventory in 2011, 30 top risks were identified. Since then, the main risks to the existence and success of the company have been continuously recorded, assessed, controlled and monitored, and the effectiveness of measures implemented to control them has been regularly checked. Current results are documented in the quality management manual.

GRI 102-15

**An internal risk register records risks that threaten the existence of the company and material risks.**

**It lists, for example:**

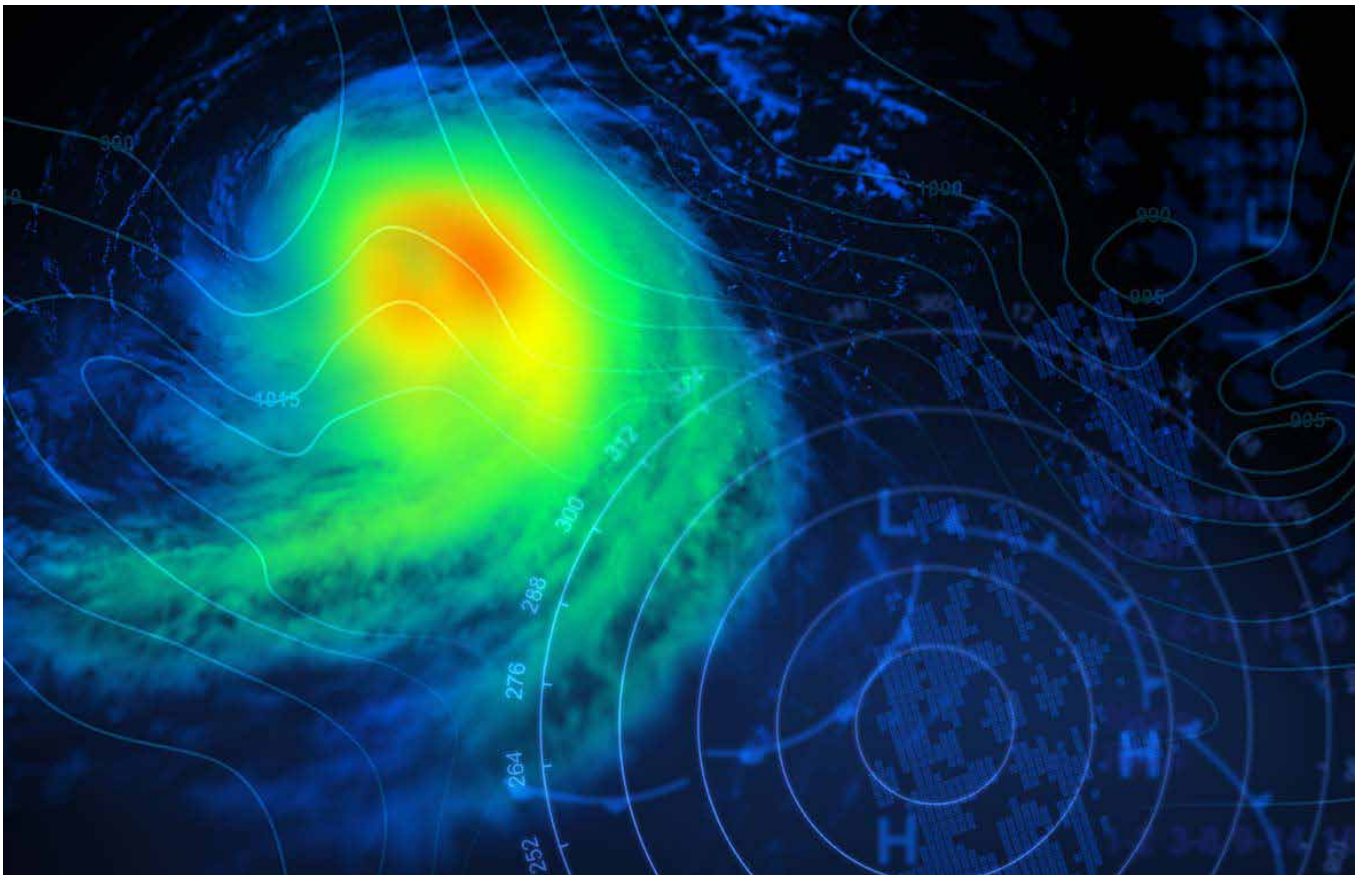
- strategic risks
- financial risks (capital commitment, liquidity, currency fluctuations, interest rate fluctuations, loss of receivables etc.)
- risks resulting from violations of regulations, laws, guidelines, standards
- product risks (product liability cases, complaints etc.)
- market risks (trends, technology, design, service, image, market shares etc.)
- IT risks (data security, data protection, IT misuse etc.)
- changes of ownership in the supply chain (insolvencies, ability to deliver)
- personnel risks (shortage of skilled workers, fluctuation, personnel costs, age structure, succession planning etc.)

GRI 102-11

GRI 102-30

To avoid dangerous crises, foresighted action is essential. TRILUX therefore relies on a systematic and proactive approach to risk management. Those responsible for the individual divisions carry out risk assessments and develop suitable concepts to minimise or eliminate possible dangers. Across divisions, risks are assessed by management in regular reviews. The results are consolidated and factored into upcoming strategic decisions.

TRILUX examines and evaluates typical financial risks e.g. with the help of scenario analyses for different development courses. To protect against IT risks, a cyber policy was signed as early as 2017 and the quality of typical business processes such as purchase-to-pay or order-to-cash is regularly monitored as part of the IT audit.



One risk for TRILUX's business activities that is difficult to assess consists of the consequences of climate change. Explicit statements regarding the probability of occurrence and extent of damage are hardly possible in this context. Weather phenomena such as heavy rainfall, storms or extreme temperature fluctuations pose a potential threat to infrastructure, real estate and production facilities which can lead to production downtimes, impairment of value or depreciation. A further area of risk becomes apparent in view of increasingly international supply chains. Here, local disruptions, natural disasters or epidemics/pandemics can have a considerable impact even on distant locations. But the direct risk potential for TRILUX products must also be considered in detail. It is conceivable, for example, that extreme heat records would require the maximum permissible operating temperatures in LED outdoor luminaires to be put to the test.

### MANAGEMENT APPROACHES

- Quality management system DIN EN ISO 9001
- Risk assessment/risk inventory
- Audits



### 4B. COMPLIANCE

GRI 205-1

GRI 205-2

GRI 206-1

#### BUILDING TRUST AND PRACTISING RESPONSIBILITY

GRI 407-1

GRI 408-1

GRI 409-1

GRI 412-1

A conduct compliant with laws, guidelines, recognised standards and voluntary commitments in all business activities is the basis for the trust of all stakeholders in the TRILUX Group. It is also a prerequisite for avoiding legal consequences, penalties and damage to the reputation. For TRILUX, integrity and compliance are therefore integral components of all processes and activities. This applies to all locations inside but also outside the EU.

### E-LEARNING REACHES MANY EMPLOYEES

GRI 410-1

GRI 412-2

GRI 414-2

The TRILUX compliance programme focuses, among other things, on the fields of action of corruption prevention, antitrust law and responsibility in export. The TRILUX Akademie offers a learning programme in the form of e-learning on precisely these topics. The multimedia course communicates knowledge about the most important laws and rules, increasing awareness of typical risks using examples and demonstrating how to counteract them. In interactive exercises, correct behaviour in conflict situations can also be trained. A proprietary TRILUX guideline is also part of the e-learning. It formulates rules and regulations that help all employees to move through every-day business in accordance with the rules. There are no known violations of the requirements of the compliance guideline.



E-learning has proven to be an efficient and flexible training solution. It was implemented in many TRILUX locations and has already reached numerous employees worldwide. A reliable reporting and verification system is in place regarding the compliance training courses on corruption prevention, antitrust law and responsibility in export.



### SELF-COMMITMENT IN THE CODE OF CONDUCT (COC)

GRI 412-3

GRI 414-1

The TRILUX Group is aware of its social responsibility towards customers, business partners and employees as well as its responsibility towards the environment and the ethical requirements in business. To document this understanding and its actions to the public, the TRILUX Group has entered into a comprehensive voluntary commitment. It has adopted the Code of Conduct of the industry association Zentralverband der Elektrotechnik- und Elektronikindustrie e.V. (ZVEI) and declared it binding for all subsidiaries and business units. The same is required from suppliers.

The set of rules contained in the Code of Conduct of the ZVEI represents an important element within the TRILUX compliance programme and is rooted in guidelines, information documents and training courses. Important criteria of the Code of Conduct include:

- compliance with all laws in the field of activity
- fair competition
- compliance with the core labour norms regarding labour and social standards of the International Labour Organisation
- environment and resource protection
- preservation and promotion of human rights in accordance with the UN Charter of Human Rights

Since it is of little use if a code of conduct exists but the values described in it are not established throughout the company, numerous e-learning courses are also conducted on the Code of Conduct.

### MANAGEMENT APPROACHES

- ZVEI Code of Conduct
- Quality management system ISO 9001
- E-learning courses on compliance
- Group Compliance Officer

# SUSTAINABILITY REPORT

## REPORT PROFILE

GRI 101-1

GRI 101-3

GRI 103-2

GRI 103-3

GRI 102-21

GRI 102-40

GRI 102-42

GRI 102-43

GRI 102-44

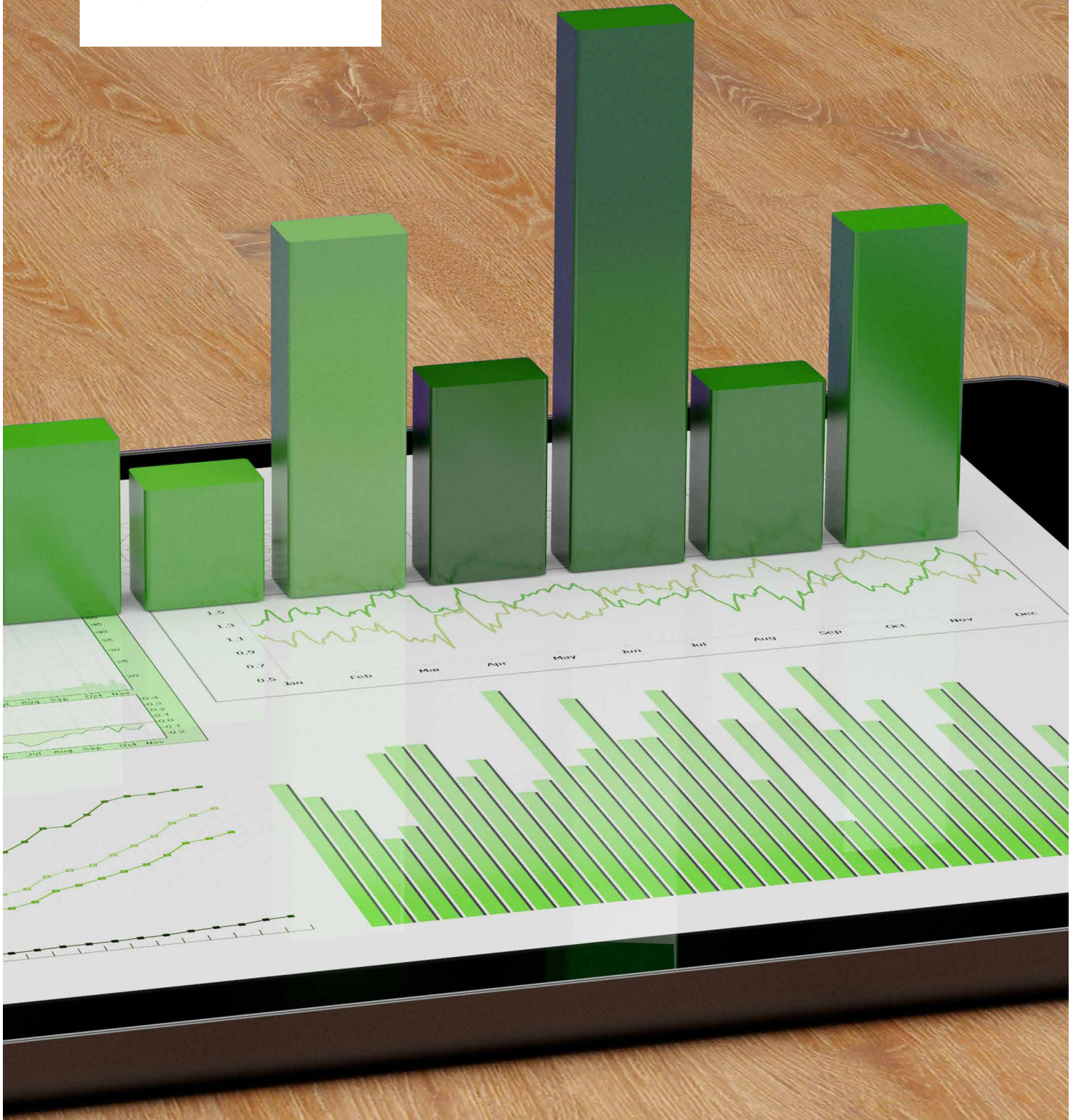
GRI 102-46

GRI 102-48

GRI 102-49

GRI 102-55

GRI 102-56



## STAKEHOLDERS AND KEY TOPICS

We did not leave the target groups for our reporting and the selection of topics to chance. For the selection of stakeholders, different interest groups were discussed and analysed in the context of a workshop. Subsequently, key topics were defined in the course of stakeholder surveys. The sustainability reporting benefited from the fact that the organisation pursues a close stakeholder orientation within the framework of ISO 9001 certification, but also from the fact that product development takes place in close contact with the customer. For example, in addition to internal considerations, the main issues were discussed with external parties and derived from them in the context of "client labs". Legal and normative principles were also considered and the worldwide sales organisation was included in a survey as a peer.

GRI 102-47

### The following stakeholders were defined for sustainability reporting:

#### External

- Customers
- Press
- Potential employees
- Suppliers
- Experts

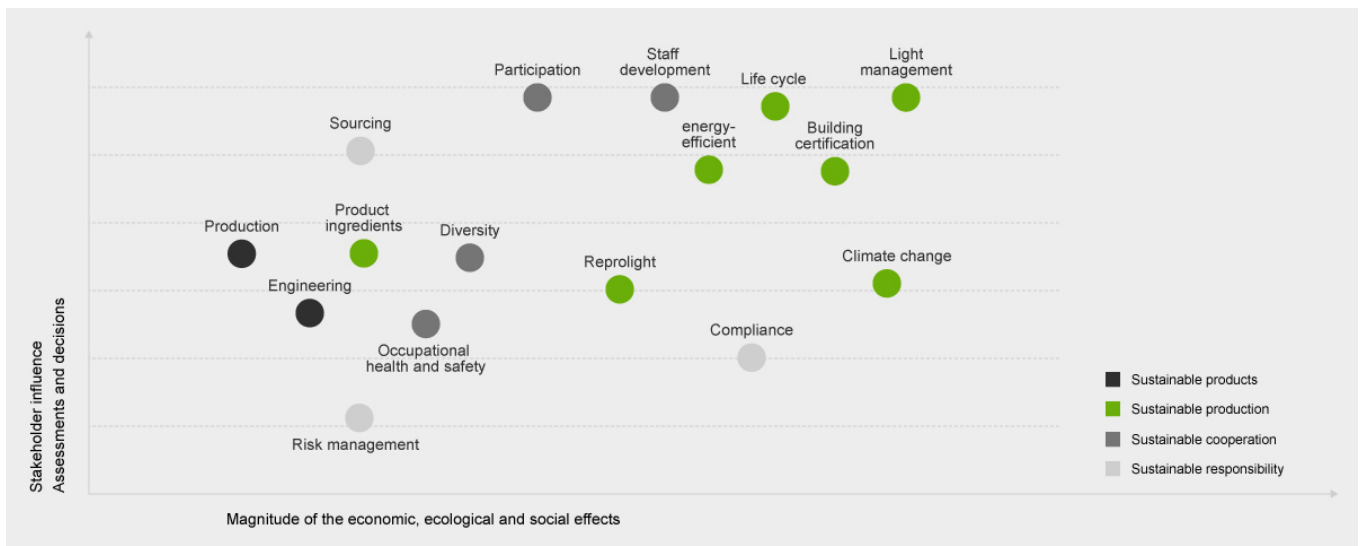
#### Internal

- Employees
- Subsidiaries

### The following essential topics were derived:

- Sustainable products: climate change, CO<sub>2</sub> savings and energy efficiency
- Sustainable production: quality, engineering, material efficiency and ingredients
- Sustainable cooperation: staff development and participation
- Sustainable responsibility: compliance and supply chain

All the articles in the sustainability report can be classified under these four main topics, and they also formed the basis for the selection of the disclosures.



## SUSTAINABILITY CONTEXT

GRI 101-2

The key topics cover a wide range of contributions at the environmental, social and economic levels. Likewise, the interpretation of the reporting is selected in such a way that the articles and disclosures not only match the key topics, but also authentically cover the company and the brand and will remain valid for at least the next 5 years. Individual articles and contents even refer to the next 10 years, for example the climate protection objective of the group of companies. Further objectives are also included in the reporting. Geographical priorities were selected according to materiality. The number of employees, energy and process intensity as well as the local political situation played a major role in this selection.

### The report therefore focuses on the following regions:

- Germany (Arnsberg and Cologne)
- Spain (Alhama de Aragon)
- China (Zuhai)
- India (Prune)

This includes all group companies in which TRILUX is the majority shareholder.

Both internal and external contact persons and experts were involved in the procurement of information.

Internal surveys were based on the corporate structure and the department managers at the individual locations.

External surveys were based on the structure of the supply chain and the involvement of external specialist agencies, such as CO<sub>2</sub>OL as a consulting agency for CO<sub>2</sub> accounting.

The sustainability report is considered a presentation of our objectives, measures and management approaches both internally and externally, making it an important strategic means of communication with our stakeholders.

## Topicality

GRI 101-10

GRI 102-10

This online sustainability report is an initial report. A previously published sustainability report from 2012 should not be regarded as a predecessor, as too much has changed in terms of requirements as well as content and structure. The reporting period is the year 2019. Where data from 2019/2020 was not available in some areas, the corresponding data from 2018 were used.

Continuous updates to the sustainability report are planned, which means an annual update for most data sets.

Interactive online reporting provides the opportunity to compare figures and deduce trends in the future. It is also possible to show the progression of measures and the achievement of objectives over time.

## Accuracy, reliability and balance

GRI 101-5

GRI 101-6

GRI 101-9

The report endeavours to provide concrete statements and figures for all disclosures required and presented in the tables. Deviations, e.g. from the reporting period, are commented with footnotes or annotations. Omissions and restrictions are also indicated.



TRILUX aligns itself with the precautionary approach of the United Nations. Objectives and measures, as available, are based on scientifically recognised principles. TRILUX's commitment is based on the principle of prevention and continuously evaluates risks and opportunities.

GRI 102-11

Despite careful data retrieval and verification, the organisation is limited in terms of data quality. For instance, the different normative requirements or different technical approaches in the individual countries result in incompatible or non-existent data. Similarly, the availability of data varies, in some cases greatly, in terms of scope. One example is the human resources area. With regard to methodology, data collection and calculations were carried out on the basis of scientific principles and standards. For a core area of the data, CO<sub>2</sub> accounting, a renowned consulting firm (CO<sub>2</sub>OL) was used and the Greenhouse Gas Protocol was applied.

## Comprehensibility and comparability

GRI 101-7

GRI 101-8

The report is oriented in its comprehensibility to the identified stakeholders. Partially complex contexts are expressed in an easily understandable way as far as possible. The organisation welcomes questions regarding connections that are not clear enough to the individual. Technical possibilities such as links facilitate good orientation in the online report. The reporting structure was devised with consideration to the GRI standard and an easy-to-learn navigation structure.

On principle, tables and figures are structured in such a way that they can be compared over a period of several years. Since this is an initial report at this stage, not all data is available for the full year and therefore cannot be presented as a trend. A key objective here is to improve the report in the future and to ensure greater comparability.

## REPORTING STRUCTURE AND PRESENTATION

GRI 101-4

**The report is based on the structure of the GRI standard. It is divided into four parts:**

- Report – Contains editorially prepared articles, derived from the identification of the key topics. The articles contain information on requirements from the GRI catalogue of topic-specific disclosures. Individual GRI disclosures are also linked. In order to ensure that the essential information can be recorded quickly, objectives (where available) and management approaches are presented separately at the end of the article. These articles are updated, adjusted and extended annually.
- Reporting profile – This section contains all relevant information on the type of reporting, including the disclosures required in the “Core” version of the report (“Foundation” and “General Disclosures”).
- GRI table – Contains a complete overview of all topic-specific GRI disclosures in the form of comments, figures or links to the corresponding article.
- News – Contains current information on topics that are closely related to the articles in the sustainability report, also during the year.

## STATEMENT

GRI 101-3

This sustainability report was prepared in accordance with the GRI standards in the “Core” option and is to be continued accordingly.

SUSTAINABILITY  
REPORT

GRI TABLE - GLOBAL  
REPORTING INITIATIVE



**GRI**

Disclosure	Disclosure Name	GRI Standard	Value	Period of time
101-1	Stakeholder Inclusiveness	Foundation	Report profile	2019
101-2	Sustainability Context	Foundation	Report profile	2019
101-3	Materiality	Foundation	Report profile	2019
101-4	Completeness	Foundation	Report profile	2019
101-5	Accuracy	Foundation	Report profile	2019
101-6	Balance	Foundation	Report profile	2019
101-7	Clarity	Foundation	Report profile	2019
101-8	Comparability	Foundation	Report profile	2019
101-9	Reliability	Foundation	Report profile	2019
101-10	Timeliness	Foundation	Report profile	2019
102-1	Name of the organization	General Disclosures	TRILUX Group	2019
102-2	Activities, brands, products, and services	General Disclosures	Sustainable history	2019
102-4	Location of operations	General Disclosures	Worldwide	2019
102-5	Ownership and legal form	General Disclosures	Company presentation	2019
102-6	Markets served	General Disclosures	B2B customers worldwide with the exception of markets with embargoes applicable to companies in the EU.	2019
102-7	Scale of the organization	General Disclosures	Company presentation	2019
102-8	Information on employees and other workers	General Disclosures	5,000 employees	2019
102-8	Information on employees and other workers	General Disclosures	5,000 employees	2019
102-8	Information on employees and other workers	General Disclosures	5,000 employees	2019
102-8	Information on employees and other workers	General Disclosures	5,000 employees	2019
102-8	Information on employees and other workers	General Disclosures	5,000 employees	2019
102-8	Information on employees and other workers	General Disclosures	5,000 employees	2019
102-9	Supply chain	Management Approach	Regional and national sourcing with the focus on metal and plastic parts as well as electronic components and OEM (luminaires). In 2019: 92,000,000 metal parts, 19,000,000 plastic parts, 24,000,000 electronic components and 1,900 luminaires.	2019
102-10	Significant changes to the organization and its supply chain	General Disclosures	Report profile	2019
102-11	Precautionary Principle or approach	General Disclosures	Report profile	2019
102-11	Precautionary Principle or approach	General Disclosures	Risk management	2019
102-12	External initiatives	General Disclosures	ZVEI Code of Conduct	2019
102-13	Membership of associations	General Disclosures	ZVEI Code of Conduct	2019
102-14	Statement from senior decision-maker	General Disclosures	Vorwort	2019
102-15	Key impacts, risks, and opportunities	General Disclosures	Risk management	2019
102-16	Values, principles, standards, and norms of behavior	General Disclosures	Company presentation	2019
102-17	Mechanisms for advice and concerns about ethics	General Disclosures		2019
102-18	Governance structure	General Disclosures	Company presentation	2019
102-19	Delegating authority	General Disclosures	The managers of the respective company are responsible	2019
102-20	Executive-level responsibility for economic, environmental, and social topics	General Disclosures	CEO	2019
102-21	Consulting stakeholders on economic, environmental, and social topics	General Disclosures	Report profile	2019
102-22	Composition of the highest governance body and its committees	General Disclosures	Management TRILUX GmbH & Co. KG and Supervisory Board	2019
102-23	Chair of the highest governance body	General Disclosures	Chairman of the Executive Board TRILUX GmbH & Co. KG, Hubertus Volmert	2019
102-24	Nominating and selecting the highest governance body	General Disclosures	By Supervisory Board, Chairman: Ernst Kayser	2019

102-26	Role of highest governance body in setting purpose, values, and strategy	General Disclosures	Fully responsible	2019
102-30	Effectiveness of risk management processes	General Disclosures	Risk management	2019
102-40	List of stakeholder groups	General Disclosures	Report profile	2019
102-41	Collective bargaining agreements	General Disclosures	Company presentation	2019
102-42	Identifying and selecting stakeholders	General Disclosures	Report profile	2019
102-43	Approach to stakeholder engagement	General Disclosures	Report profile	2019
102-44	Key topics and concerns raised	General Disclosures	Report profile	2019
102-45	Entities included in the consolidated financial statements	General Disclosures	Company presentation	2019
102-46	Defining report content and topic Boundaries	General Disclosures	Report profile	2019
102-47	List of material topics	General Disclosures	Report profile	2019
102-48	Restatements of information	General Disclosures	Report profile	2019
102-49	Changes in reporting	General Disclosures	Report profile	
102-50	Reporting period	General Disclosures	2019	2019*
102-51	Date of most recent report	General Disclosures	None	2019
102-52	Reporting cycle	General Disclosures	Continuously through online reporting	2019
102-53	Contact point for questions regarding the report	General Disclosures	Michael Spall, Executive Director TRILUX GmbH & Co. KG	2019
102-54	Claims of reporting in accordance with the GRI Standards	General Disclosures	This report was prepared in accordance with the GRI standards: "Core" option.	2019
102-55	GRI content index	General Disclosures	Report profile	2019
102-56	External assurance	General Disclosures	Report profile	2019
103-1	Explanation of the material topic and its Boundary	Management Approach	Report profile	2019
103-2	The management approach and its components	Management Approach	Report profile	2019
103-3	Evaluation of the management approach	Economic Performance	Report profile	2019
201-1	Direct economic value generated and distributed	Economic Performance	Print version of the publication Consolidated Financial Statements from the Federal Gazette	2018 (eventuell 2017)
201-2	Financial implications and other risks and opportunities due to climate change	Economic Performance	Risk management	2019
201-2	Financial implications and other risks and opportunities due to climate change	Economic Performance	Risk management	2019
201-3	Defined benefit plan obligations and other retirement plans	Economic Performance	Print version of the publication Consolidated Financial Statements from the Federal Gazette	2018 (eventuell 2017)
201-4	Financial assistance received from government	Market Presence	Print version of the publication Consolidated Financial Statements from the Federal Gazette	2018 (eventuell 2017)
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	Market Presence	Starting salaries above the legal minimum wage (cf. ERA collective agreement), international compliance with legal requirements on minimum wages. No gender differences.	2019
202-2	Proportion of senior management hired from the local community	Indirect Economic Impacts	92% of the executive directors come from the domestic market (country of the company's registered office).	2019
203-1	Infrastructure investments and services supported	Indirect Economic Impacts	5000 employees	2019
203-2	Significant indirect economic impacts	Procurement Practices	5000 employees	2019
203-2	Significant indirect economic impacts	Procurement Practices	Diversity @TRILUX	2019
204-1	Proportion of spending on local suppliers	Anti-corruption	Careful Sourcing and Engineering	2019
205-1	Operations assessed for risks related to corruption	Anti-corruption	Compliance	
205-2	Communication and training about anti-corruption policies and procedures	Anti-corruption	Compliance	
205-3	Confirmed incidents of corruption and actions taken	Anti-competitive Behavior	None	2019
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Materials	Compliance	

# GRI TABLE

301-1	Materials used by weight or volume	Materials	Ingredients	2019
301-2	Recycled input materials used	Materials	Recycling	2019
301-3	Reclaimed products and their packaging materials	Energy	With Repro-light for sustainable lighting	2019
302-1	Energy consumption within the organization	Energy	Sustainable production	2015-2018
302-2	Energy consumption outside of the organization	Energy	Sustainable production	2019
302-3	Energy intensity	Energy	Sustainable production	2019
302-4	Reduction of energy consumption	Energy	Sustainable production	2015-2018
302-5	Reductions in energy requirements of products and services	Energy	Our commitment against climate change	2019
302-5	Reductions in energy requirements of products and services	Energy	Light management	2019
303-1	Interactions with water as a shared resource	Water and Effluents	Sustainable production	2015-2018
303-2	Management of water discharge-related impacts	Water and Effluents	Sustainable production	2015-2018
303-3	Water withdrawal	Water and Effluents	Sustainable production	2015-2018
303-4	Water discharge	Water and Effluents	Sustainable production	2015-2018
303-5	Water consumption	Biodiversity	Sustainable production	2015-2018
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity	None	
304-2	Significant impacts of activities, products, and services on biodiversity	Biodiversity	Outdoor lighting	2019
304-3	Habitats protected or restored	Biodiversity	None	
305-1	Direct (Scope 1) GHG emissions	Emissions	Our commitment against climate change	2019
305-1	Direct (Scope 1) GHG emissions	Emissions	Our commitment against climate change	2019
305-2	Energy indirect (Scope 2) GHG emissions	Emissions	Our commitment against climate change	2019
305-2	Energy indirect (Scope 2) GHG emissions	Emissions	Our commitment against climate change	2019
305-3	Other indirect (Scope 3) GHG emissions	Emissions	Light management	2019
305-3	Other indirect (Scope 3) GHG emissions	Emissions	Our commitment against climate change	2019
305-3	Other indirect (Scope 3) GHG emissions	Emissions	With Repro-light for sustainable lighting	2019
305-4	GHG emissions intensity	Emissions	Our commitment against climate change	2019
305-4	GHG emissions intensity	Emissions	Our commitment against climate change	2019
305-4	GHG emissions intensity	Emissions	Our commitment against climate change	2019
305-5	Reduction of GHG emissions	Emissions	Our commitment against climate change	2019
305-6	Emissions of ozone-depleting substances (ODS)	Emissions	Our commitment against climate change	2019
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Effluents and Waste	None	
306			Pay per Use	
306-2	Waste by type and disposal method	Effluents and Waste	Recycling	2019
306-3	Significant spills	Effluents and Waste	Recycling	2019
306-4	Transport of hazardous waste	Environmental Compliance	Recycling	2019
307-1	Non-compliance with environmental laws and regulations	Supplier Environmental Assessment	Recycling	
308-1	New suppliers that were screened using environmental criteria	Supplier Environmental Assessment	Careful Sourcing and Engineering	2019
308-2	Negative environmental impacts in the supply chain and actions taken	Seitenzahl	Careful Sourcing and Engineering	2019
401-1	New employee hires and employee turnover	Employment	5000 employees	2019
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Employment	Full-time and part-time employees receive the same benefits pro rata.	2019
401-3	Parental leave	Labor/Management Relations	Not determinable for the reporting period due to initial reporting.	2019

402-1	Minimum notice periods regarding operational changes	Occupational Health and Safety	In the case of changes to operations pursuant to para. 111 German BetrVG, the employer must report to the competent works council in good time (i.e. the works council must be put in a position to be able to influence the whether and how the change to operations is to take place) and in a comprehensive manner and must discuss the planned change to operations with the works council.	2019
403-1	Occupational health and safety management system	Occupational Health and Safety	Occupational safety	2019
403-2	Hazard identification, risk assessment, and incident investigation	Occupational Health and Safety	Occupational safety	2019
403-3	Occupational health services	Occupational Health and Safety	Health management	2019
403-3	Occupational health services	Occupational Health and Safety	Health management	2019
403-4	Worker participation, consultation, and communication on occupational health and safety	Occupational Health and Safety	Occupational safety	2019
403-4	Worker participation, consultation, and communication on occupational health and safety	Occupational Health and Safety	Employee development	2019
403-5	Worker training on occupational health and safety	Occupational Health and Safety	Occupational safety	2019
403-6	Promotion of worker health	Occupational Health and Safety	Health management	2019
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Occupational Health and Safety	Occupational safety	2019
403-8	Workers covered by an occupational health and safety management system	Occupational Health and Safety	Health management	2019
403-8	Workers covered by an occupational health and safety management system	Occupational Health and Safety	Occupational safety	2019
403-9	Work-related injuries	Occupational Health and Safety	Occupational safety	2019
403-10	Work-related ill health	Occupational Health and Safety	Health management	2019
403-10	Work-related ill health	Occupational Health and Safety	Health management	2019
404-1	Average hours of training per year per employee	Training and Education	Employee development	2019
404-2	Programs for upgrading employee skills and transition assistance programs	Training and Education	Employee development	2019
404-3	Percentage of employees receiving regular performance and career development reviews	Training and Education	Target agreements outside of the pay rate: A hundred percent. ERA performance assessment in the pay rate area: After 18 months, every non-exempt employee can individually claim for a new ERA performance assessment.	2019
405-1	Diversity of governance bodies and employees	Diversity and Equal Opportunity	Diversity @TRILUX	2019
405-2	Ratio of basic salary and remuneration of women to men	Non-discrimination	Full equality	2019
406-1	Incidents of discrimination and corrective actions taken	Freedom of Association and Collective Bargaining	None	2019
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Child Labor	Compliance	2019
408-1	Operations and suppliers at significant risk for incidents of child labor	Forced or Compulsory Labor	Compliance	2019
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Security Practices	Compliance	2019
410-1	Security personnel trained in human rights policies or procedures	Rights of Indigenous Peoples	Compliance	2019
411-1	Incidents of violations involving rights of indigenous peoples	Human Rights Assessment	None	2019
412-1	Operations that have been subject to human rights reviews or impact assessments	Human Rights Assessment	Compliance	2019

# GRI TABLE

412-2	Employee training on human rights policies or procedures	Human Rights Assessment	Compliance	2019
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Local Communities	Compliance	2019
413-1	Operations with local community engagement, impact assessments, and development programs	Local Communities	5000 employees	2019
413-2	Operations with significant actual and potential negative impacts on local communities	Supplier Social Assessment	None	2019
414-1	New suppliers that were screened using social criteria	Supplier Social Assessment	Careful Sourcing and Engineering	2019
414-1	New suppliers that were screened using social criteria	Supplier Social Assessment	Compliance	2019
414-2	Negative social impacts in the supply chain and actions taken	Supplier Social Assessment	Compliance	2019
415-1	Political contributions	Customer Health and Safety	No party donations	2019
416-1	Assessment of the health and safety impacts of product and service categories	Customer Health and Safety	Careful Sourcing and Engineering	2019
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Marketing and Labeling	Careful Sourcing and Engineering	2019
417-1	Requirements for product and service information and labeling	Marketing and Labeling	Careful Sourcing and Engineering	2019
417-2	Incidents of non-compliance concerning product and service information and labeling	Marketing and Labeling	None	2019
417-3	Incidents of non-compliance concerning marketing communications	Customer Privacy	None	2019
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Socioeconomic Compliance	None	2019
419-1	Non-compliance with laws and regulations in the social and economic area	Socioeconomic Compliance	None	2019

