

Sustainability Report 2018 of OSRAM Licht AG

Light is OSRAM

OSRAM



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About this Report

This Sustainability Report presents the sustainability performance of the OSRAM Licht Group (OSRAM). It sheds light on the impact of our business from an environmental, economic, and social perspective, and describes the systems we have put in place and the measures we have taken. The report is intended to inform our stakeholders—analysts and investors, customers, suppliers, non-governmental organizations, politicians and government agencies, our employees and anybody with an interest in the Company—about what we do in order to make our products, solutions, processes and supply chain even more sustainable.

Like the report for the prior fiscal year, the sustainability report we present here is based on the standards of the Global Reporting Initiative (GRI) and was drawn up in accordance with the GRI standard option 'Core.' We have submitted the GRI report for review by the GRI Materiality Disclosure Service, which confirmed the correct presentation of the Materiality Disclosures (102-40 to 102-49). The report also presents our Communication on Progress (COP) report for this fiscal year in relation to the UN Global Compact. The corresponding sections of the report have been identified in the GRI Index. OSRAM signed up to the UN Global Compact in 2005 and has been publishing a COP since 2006.

As a company that is active in the capital markets, OSRAM is required to disclose its sustainability performance by the CSR Directive Implementation Act (CSR-RUG), which came

into force at the beginning of 2017. We have met these reporting requirements through a separate non-financial group report, which forms part of the annual report published on December 5, 2018.

The reporting period for this sustainability report covers fiscal year 2018 (October 1, 2017 to September 30, 2018). Unless otherwise indicated, all figures for this fiscal year and, where applicable, the comparable figures for the prior fiscal year(s), refer to the continuing operations of the OSRAM Group and encompass all consolidated companies*. We have inserted an appropriate note for performance indicators to which this does not apply. Some of the performance indicators for fiscal year 2017 have had to be adjusted in this report. This is due to improved data quality and does not affect the overall trends. For certain key performance indicators, we also include a reporting period covering multiple years. The financial data is taken from the OSRAM Annual Report 2018.

In March 2018, OSRAM GmbH and Continental Automotive GmbH agreed to establish OSRAM CONTINENTAL GmbH to pool their activities in the area of automotive lighting. This took effect on July 1, 2018. The contractual agreements with Continental give OSRAM control over OSRAM CONTINENTAL GmbH. The company and its subsidiaries have been included in the consolidated financial statements of OSRAM Licht AG since July 1, 2018. Where the management approaches

relevant to non-financial reporting do not yet exist at the OSRAM CONTINENTAL companies, the aim is to establish or implement them during fiscal year 2019.

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft has identified the disclosures for the period from October 1, 2017 to September 30, 2018 in the German PDF version of the report with a [...] Ⓞ that were subject to a limited assurance engagement in accordance with the International Standard on Assurance Engagement (ISAE) 3000 (Revised). Only disclosures for fiscal year 2018 were part of the assurance engagement. Most of the figures for the previous fiscal year were covered by the assurance engagement for the Sustainability Report 2017 and are identified as such there. This report is published in PDF format » www.osram.com/sustainability.

• **GRI-Index**
102-48
102-49

References in the text

» **Internal reference**
(within the document)

»» **External reference**
(in another document or on the Internet)



Foreword



Dr Olaf Berlien, Chairman of the Managing Board of OSRAM Licht AG

Dear Readers,

Our products have been contributing to progress and to the quality of life of our customers and society for the past 112 years—true to our mission of using the limitless possibilities of light to improve people’s lives. We are fully exploiting the potential presented by the digital revolution. And we are extending our reach beyond lighting to enter into fields of application such as visualization, sensors, and treatment.

We don’t just want to generate economic added value, we also want to contribute to sustainable development. Our intelligent, energy-efficient products and solutions are helping to combat climate change. Furthermore, our lighting technologies are helping to enhance safety in road traffic and public spaces, protect personal data, and improve wellbeing in the workplace and the home.

As part of this process, we are forging ahead with our transformation into a high-tech company focused on photonics. In fiscal year 2018, we strengthened our activities in high-growth fields both organizationally and by way of acquisitions, equity investments and partnerships. The most important investments to mention from a sustainability perspective involved smart farming, human centric lighting, and safety-enhancing sensors in cars. OSRAM CONTINENTAL also commenced operations during the fiscal year. The company is bringing together the latest lighting technologies with electronics and software and helping to make road traffic safer through intelligent lighting solutions.

Sustainability means responsibility, which for us includes not only the value that our products add but also the way that we treat our employees, suppliers, and customers. Throughout our value chain, we put the emphasis on careful use of resources, environmental protection, good working conditions, health and safety, and compliance with human rights—both in respect of our own employees and those of our partners.



This sustainability report highlights OSRAM's commitment to sustainable development. It documents the progress that we are making in our sustainability activities, which are based on the 17 Sustainable Development Goals (SDGs) of the United Nations. As a long-standing supporter of the UN Global Compact, we align our business and our strategy to these universally acknowledged principles.

Our efforts are delivering results and we have received several acknowledgements of our sustainability achievements. In January 2018, for example, sustainability investment specialist RobecoSAM once again presented us with its Bronze Class Award and we were included in the company's 2018 Sustainability Yearbook. We also continue to be listed by oekom research in the Prime Status category. Furthermore, OSRAM shares are included in the sustainability indices FTSE4Good, MSCI ESG Leaders Index, Global Challenges Index, STOXX Global ESG Leaders, and STOXX Global Social Leaders. In 2018, our LightUp! graduate scheme was accredited by Trendence as a fair and career-enhancing program. The Top Employers Institute certified us as a Top Employer in Germany, while the Germany Test conducted by Focus Money magazine highlighted the excellent career opportunities that we offer. OSRAM was presented with the Asia Recruitment Award 2018 in Malaysia and again received the Employer Excellence Award of China. We regard this as acknowledgement and motivation at the same time.

We want to continue doing better in the future. The best way to do this is with partners who share our aims in terms of sustainable development. This is why we are issuing you with a very warm invitation to enter into a dialog with us. Your ideas are very much welcome and they will help us to continue growing our Company in a sustainable way. And with this aim in mind, I would like to wish you an interesting read.

Dr Olaf Berlien
Chairman of the Managing Board of OSRAM Licht AG





1.0

Company Profile

OSRAM is a leading lighting manufacturer. We offer lighting technology in the areas of automotive and specialty lighting, light management systems, and lighting solutions.



1.1

Our Company

The OSRAM Licht Group comprises the parent company OSRAM Licht AG, which is headquartered in Munich and is an Aktiengesellschaft (stock corporation) in accordance with German law, and 96 subsidiaries and investees (including minority interests) [» 2018 Annual Report, B.6.7 Other Disclosures, Note 36 | List of Equity Investments of the OSRAM Licht Group in Accordance with Section 313 of the HGB, p. 141.](#)

Our product portfolio ranges from high-tech applications using semiconductor-based technologies, such as infrared and lasers, to networked, intelligent lighting solutions for buildings and urban areas. The operating activities covered by our business model are essentially organized into four business units: Opto Semiconductors, Specialty Lighting, Digital Systems, and Lighting Solutions. [» 2018 Annual Report, A.1.1.1 Business Model, p. 3 and A.1.1.3 Organization and Reporting Structure, p. 7.](#)

OSRAM's business is structured on a regional basis. OSRAM's global activities, which encompass more than 120 countries and over 27 production sites, are divided into three reporting regions/markets: EMEA (Europe, Russia, the Middle East, and Africa), APAC (Asia, Australia, and the Pacific region), and the Americas (U.S.A., Canada, Mexico, and South America). The key locations can be found in the

[» 2018 Annual Report, A.1.1.3 Organization and Reporting Structure, p. 7.](#) OSRAM employed a total of around 27.4 thousand people as of September 30, 2018 (previous year: 26.4 thousand)*.

In fiscal year 2018, we strengthened both organizationally and by way of acquisitions, equity investments and partnerships [» 2018 Annual Report, A.2.2.3 Other Significant Events Responsible for the Course of Business—'Diamond' Technology, Innovation, and Growth Initiative, p. 17.](#)

From the perspective of sustainability, the **following investments** are of particular significance under our growth strategy:

- Acquisition of **Fluence Bioengineering**: Fluence specializes in LED-based plant cultivation systems that can be used in a number of applications. One of these applications is vertical farming, in which produce destined for urban areas is grown in stacked layers that minimize the use of resources [» 4.3 Impact Measurement, p. 25.](#)
- Acquisition of **BAG electronics**: Innovative control systems for human centric lighting (HCL) are among the products supplied by this company. HCL, which mimics natural daylight, is used in offices and industrial buildings to create a balanced and motivating environment for people to work in.
- Investment in the horticulture start-up **Motorleaf**: A specialist in artificial intelligence for greenhouse and indoor farming solutions, this start-up delivers precise forecasts of harvest yields in commercial greenhouse facilities.

- Collaboration with **Nedap**: Thanks to the partnership between Nedap and OSRAM, customers can link up their LEDs to Nedap's online light management platform using the DEXAL interface. By providing performance data and energy data in real time, connected lighting is paving the way for 'lighting as a service' initiatives.

Further information can be found in chapter

- [» 4. Sustainable Products, p. 23.](#)

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Revenue by segment

in € million

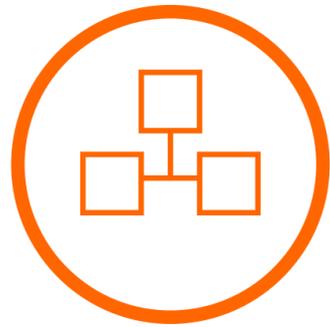
	2017	2018
Opto Semiconductors	1,685	1,725
Specialty Lighting	2,312	2,224
Lighting Solutions & Systems	989	973
Reconciliation to consolidated financial statements	-858	-807
OSRAM (continuing operations)	4,128	4,115

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Revenue by region (by location of customers)

in € million

	2017	2018
EMEA	1,553	1,514
of which Germany	664	659
APAC	1,445	1,469
of which China (including Hong Kong) and Taiwan	837	883
Americas	1,129	1,132
of which U.S.A.	880	904
OSRAM (continuing operations)	4,128	4,115



2.0

Sustainability Management

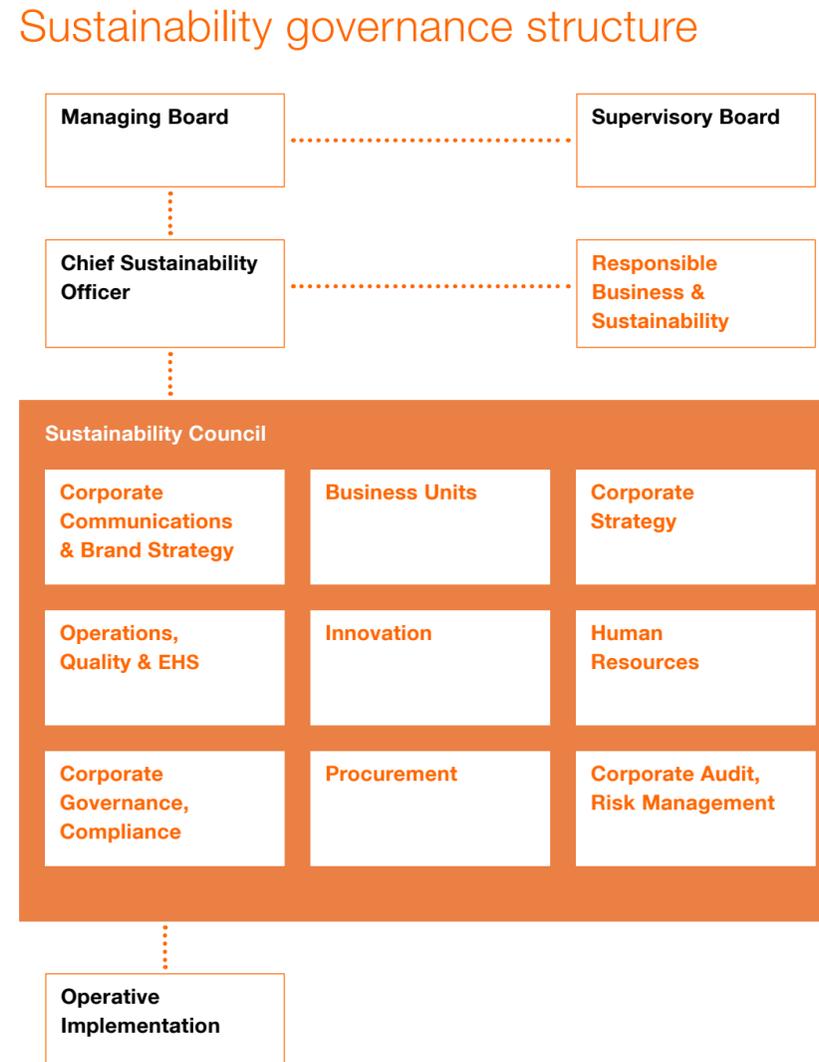
**Because we are an international business,
our responsibilities extend around the world.
Our sustainability strategy provides an overarching
framework for our actions and activities.**



2.1

Organization and Structures

The issue of sustainability touches on many aspects of the business, and responsibility for this area lies directly at Managing Board level in the form of the Chief Sustainability Officer. The Responsible Business & Sustainability department works with the relevant partners from functions throughout the Company to develop action plans and focal areas, which are then presented to the Sustainability Council. The latest trends and emerging economic, social, and environmental issues that could become relevant to OSRAM are discussed by the Council and embedded within the organization if appropriate. The Sustainability Council also approves the draft resolutions on sustainability to be submitted to the Managing Board.



The Sustainability Council comprises the Chief Sustainability Officer as well as the heads of the business units and the heads of those corporate functions that have sustainability-related issues. The Chief Sustainability Officer makes arrangements for other experts to be co-opted depending on the topics being dealt with. Other delegates from appropriate functions are also involved as necessary.

Our business activities and the impact that they have on the economy, the environment, and society mean that our responsibilities extend around the world. One of the ways in which we meet this responsibility is by continually enhancing our portfolio of products. Our objective is to keep pace with the competition and add value for our customers but also to contribute to society. Throughout the value chain, we put the emphasis on protecting the environment and resources and acting as a fair employer that looks after the health and safety of its employees and strives to fulfill its duty of care with regard to human rights. In all of these areas, we help to continually reduce negative impacts and strengthen positive effects using appropriate guidelines, management systems, and measures.

2.2

Materiality Analysis

The 2018 materiality analysis provides the basis for our reporting. It meets the requirements of both GRI and CSR-RUG. The following criteria have been defined on this basis:

- High relevance for stakeholders (GRI)
- Required to understand the impacts of the business activities (GRI and CSR-RUG)
- Required to understand the development and performance of the business and the position of the Group (CSR-RUG)

The materiality analysis process was divided into five phases:

1. The first step was to check that the materiality process met the requirements of GRI and CSR-RUG.
2. Potential topics were then identified on the basis of a media analysis, internal sources, a peer review, feedback from stakeholders, global standards, and supporting interviews.
3. In the next step, these topics were divided into five categories: Environment, Employees, Social, Human Rights, and Compliance.

4. For each of these categories, an assessment was carried out of the impacts and importance of the individual topics with regard to their significance for stakeholders and for the business.
5. Finally, a review was carried out to determine in which stages of the value chain these impacts occur. The topics were also prioritized according to their importance for stakeholders and for the development and performance of the business and the position of the Group.

The materiality analysis yielded the following list of topics, which was presented to and approved by the Managing Board.

The material topics for OSRAM in accordance with GRI are

Greenhouse gases and climate change
Energy efficiency
Raw materials and substances
Human rights
Fair working conditions
Occupational health and safety
Employee satisfaction and employer attractiveness
People development
Product safety
Privacy and data security
Customer relationships
Combating corruption and bribery

All topics that are considered to be material in accordance with CSR-RUG have already featured in the non-financial report, which is part of the annual report [» www.osram.com/annual-report-2018](http://www.osram.com/annual-report-2018).

For a comprehensive list of the material topics and equivalent GRI topics, see the appendix [» 8.1 List of Material Topics, p. 57](#). This Sustainability Report also covers topics that we consider relevant to our stakeholders and/or help to paint a broader picture of sustainability at OSRAM. Those topics that are not already referenced in the GRI standards have been included in the report as additional information.

- **GRI-Index**
- 102-40
- 102-42
- 102-43
- 102-44
- 102-46
- 102-47



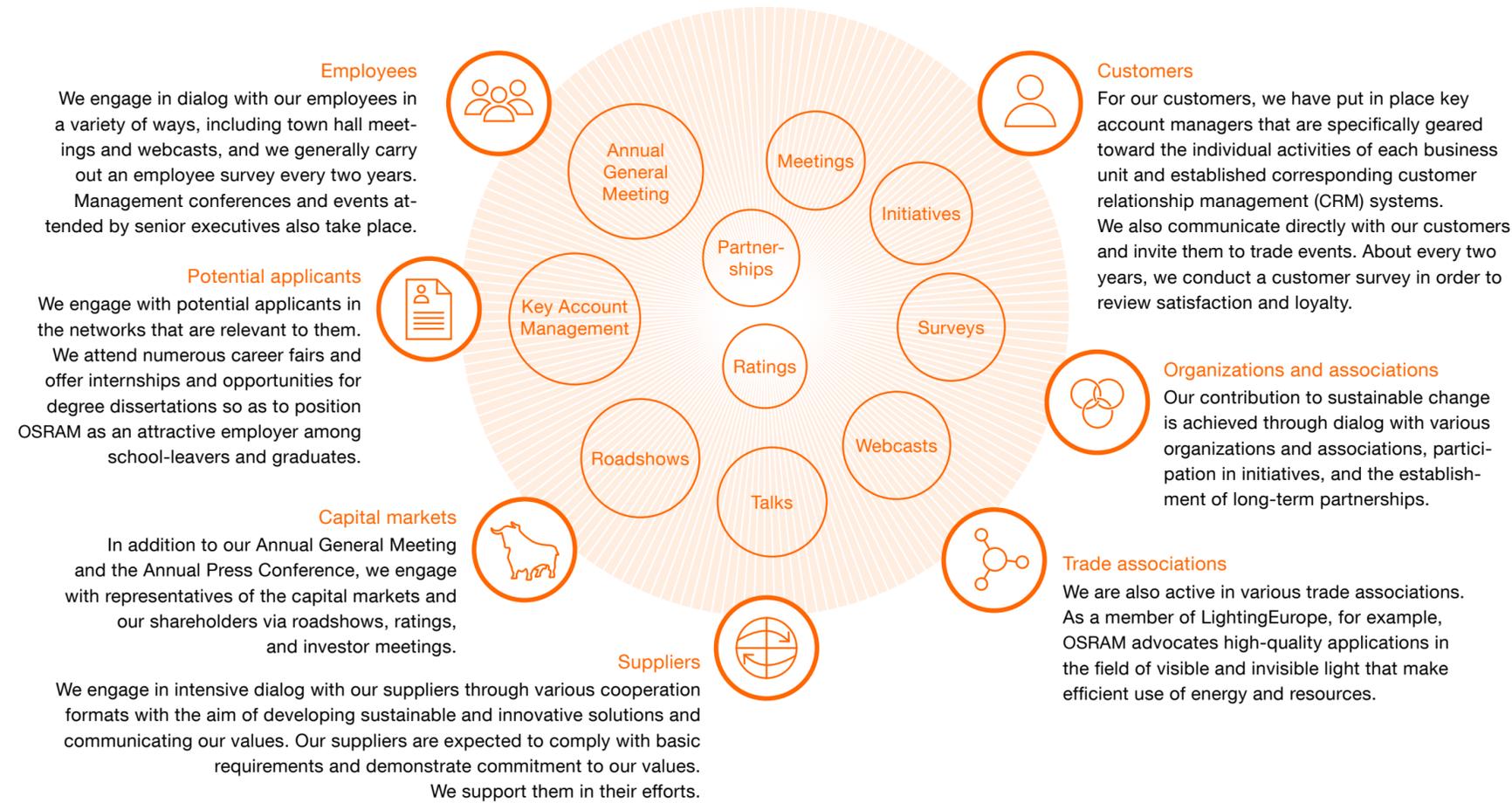
2.3

Dialog with Stakeholders

We look to improve the sustainability of our activities by engaging in dialog with our stakeholders. We use the feedback obtained in the process of communication to continuously improve our strategy and measures. In doing so, we also help to spread the word about sustainable practices.

We regularly engage in dialog with our stakeholders around the world: employees, customers, suppliers, analysts, investors, journalists, academics, neighbors, politicians, and representatives of non-governmental organizations, government agencies, and associations. We communicate at different management levels, at varying locations, and through a range of departments. The interests of key stakeholders such as employees, customers, and investors are also taken into account by the Supervisory Board, whose members—half of whom are employee representatives—have expertise in various fields. The Responsible Business & Sustainability department assesses the relevance of various topics for stakeholders once a year. The most recent assessment was carried out in May 2018 as part of our [2.2 Materiality Analysis, p. 10](#). The department also checks which communication channels are available for the individual groups, and documents which measures have been implemented. The results are reported to the Managing Board if there are any significant changes.

We communicate with our stakeholders in many different ways:



- GRI-Index
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- 102-42
- 102-43
- 102-44



3.0

Responsible Corporate Governance and Integrity

OSRAM would not be able to achieve its sustainable business success without the trust of its stakeholders such as customers, investors, and employees. We strengthen this trust by means of transparent and responsible corporate governance.



3.1

Corporate Governance

OSRAM Licht AG is governed by the German Stock Corporation Act (Aktiengesetz, AktG) and has a dual board system, comprising a Managing Board and a Supervisory Board [» 2018 Annual Report, C.4 Corporate Governance, p. 165](#). The Managing Board currently consists of three male members of German nationality. The members of the Managing Board and their areas of responsibility are determined by the Supervisory Board.

The Supervisory Board is made up of twelve members: six representatives of the shareholders, who are appointed by the Annual General Meeting, and six representatives of the employees, who are elected on the basis of the Co-determination Act (Mitbestimmungsgesetz). The personnel making up the Supervisory Board and its committees is set out in the Notes to the Consolidated Financial Statements in the Annual Report [» 2018 Annual Report, B.6.7 Other Disclosures, Note 37 | Supervisory Board and Managing Board, p. 144](#). The objectives for the composition of the Supervisory Board are published on the website [» www.osram.com/governance](#). The Supervisory Board strives to include a wide range of professional and international experience in its composition and in particular to have reasonable representation of both genders. On September 30, 2018, a total of five members of the Supervisory Board were women and three members were of a nationality other than German. The career profiles of the

members of the Managing Board and the Supervisory Board are published on the Company's website [» www.osram.com/management](#).

OSRAM Licht AG complies with all the recommendations of the German Corporate Governance Code included in the version dated February 7, 2017, the key regulations on the management and supervision of publicly listed German companies, and internationally and nationally acknowledged standards for good and responsible corporate governance. The Corporate Governance Declaration is updated annually and is published on the website of our Company [» www.osram.de/governance](#).

3.1.1 Functions and Responsibilities of the Governance Bodies

As the management body of OSRAM Licht AG, the Managing Board is obliged to act in the Company's interests and increase shareholder value on a sustainable basis. The members bear joint responsibility for the overall management of the business and decide on fundamental issues regarding business policy and corporate strategy, as well as on the Company's annual and multi-year planning.

The Managing Board is responsible for preparing the financial statements of OSRAM Licht AG and the OSRAM Group. It must also ensure that all legal and regulatory requirements and internal policies are complied with, and must work to ensure that all Group companies comply with them as well. In order to fulfill its duty in this regard, the Managing Board must ensure that an appropriate compliance management system (including data protection) is in place that takes into

account the risk situation of the Company [» 2018 Annual Report, C.4.3.2 Disclosures on Corporate Governance Practices—Company Values, Business Conduct Guidelines, and Compliance Management System, p. 183](#).

The Managing Board and Supervisory Board work closely together for the benefit of the Company. The Managing Board provides the Supervisory Board with regular, timely, and comprehensive information on all issues of importance to the Company in relation to strategy, planning, business performance, financial position, results of operations, and compliance, as well as on material business risks. The Managing Board considers diversity when filling managerial positions within the Company and, among other things, strives to increase the number of women in these roles (for detailed information on the relevant targets see [» 2018 Annual Report, C.4.3.4 Targets for the Proportion of Women on the Managing Board, Supervisory Board, and in Senior Management, p. 185](#)). The Supervisory Board has set a target for the proportion of women on the Managing Board to be achieved by June 30, 2022, at 25%.

The Supervisory Board oversees the Managing Board and advises it on the management of the business. It regularly discusses business performance, planning, strategy and the implementation of strategy. Important decisions by the Managing Board on issues such as major acquisitions, divestments, and financial actions require its approval. The Supervisory Board regularly reviews the efficiency of its work, involving external experts where required. This process entails identifying and acting on potential areas for improvement [» 2018 Annual Report, C.3 Report of the Supervisory Board, p. 157](#).

The annual report provides a comprehensive description of the working practices and functions of the Managing Board and the Supervisory Board, their relationship, and the composition and working practices of the committees of the Supervisory Board [» 2018 Annual Report, C.4 Corporate Governance, p. 165.](#)

3.1.2 Remuneration and Independence

The remuneration of the Managing Board is based on non-performance-based and performance-based components and is intended to provide incentives for sustainable corporate governance. When setting short-term variable remuneration, the Supervisory Board also took into consideration non-financial targets, particularly those related to progress in the company's strategic objectives, the development of a digitalization strategy, and the successful implementation of transformation projects. The Supervisory Board carries out regular reviews to ascertain that the level of remuneration for the Managing Board is appropriate. The remuneration for the members of the Supervisory Board is defined in the Articles of Association of the Company. The remuneration report describes in detail the structure of the remuneration system for the Managing Board and the remuneration principles, and it provides explanations of the structure and the level of remuneration for the members of the Managing Board and the members of the Supervisory Board [» 2018 Annual Report, C.4.2 Remuneration Report, p. 170.](#)

The Supervisory Board believes that all shareholders are independent within the meaning of the German Corporate Governance Code. No former members of the Managing Board are members of the Supervisory Board. At least three

of the shareholder representatives on the Supervisory Board are people with no potential conflicts of interest. Some members of the Supervisory Board work in senior positions at other companies with which OSRAM has business relationships or had done so in the preceding year. Transactions that OSRAM conducted with these companies were on an arm's-length basis. The Supervisory Board does not believe that these transactions compromise the independence of its relevant members. If any conflicts of interest arise in the course of routine business, they must be disclosed to the Chairman of the Supervisory Board. If the conflicts of interest are significant and not simply of a temporary nature, the affected member of the Supervisory Board must step down from his or her position.

You will find additional information in our Annual Report [» 2018 Annual Report, C.4 Corporate Governance, p. 165.](#)

3.1.3 Corporate Values

Mutual respect, honesty, and integrity create the trust that is needed to build strong relationships. These values are set out in our Business Conduct Guidelines (BCG) [» www.osram.com/bcg](#), which every new employee must sign at the start of a contract. Legal regulations and international treaties on human rights, sustainability, and the fight against corruption form the basis for the Business Conduct Guidelines: We respect the personal dignity, privacy, and personal rights of every individual, and we reject all forms of discrimination. [» 6.6 Diversity and Inclusion, p. 50.](#) The Business Conduct Guidelines set out how we meet our ethical and legal responsibilities as a Company. They apply both to our internal interactions and to our relationships with

suppliers and other external partners [» 3.4.1 Code of Conduct for Suppliers, p. 19.](#) In Germany, our Company-wide agreement on partnership in the workplace, whose scope was extended during the reporting period, states that all employees should be valued and treated with respect, regardless of their gender, ethnic origin, religion or beliefs, physical limitations, or sexual identity. [» 6.3 Fair Working Conditions, p. 44.](#)

3.1.4 Memberships and Political Engagement

The lighting sector is undergoing a transformation and we want to play our part in this. Collaborative initiatives at many levels are needed to push through the necessary changes—which is why OSRAM has established long-term links with a number of organizations and associations. [» 2.3 Dialog with Stakeholders, p. 11.](#)

Overall responsibility for our political engagement lies with the Managing Board, supported by the Public Affairs department. In line with our values, we are committed to not making any donations to politicians, political parties, or political organizations. Our Business Conduct Guidelines contain rules to this effect. Sponsorships are not considered donations, nor are contributions to industry associations or fees for memberships in organizations that serve business interests. However, sponsorships must meet certain transparency requirements and be documented in the form of a written agreement, be earmarked for legitimate business purposes, and commensurate with the consideration offered by the event host [» 7.2 Social Engagement, p. 55.](#)

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OSRAM is a member of LightingEurope, which represents leading lighting manufacturers and national trade associations. As a key member of the association, OSRAM is pushing for the new requirements to not only cater to the overarching objective of low-energy, resource-efficient, and high-quality lighting but also to take account of users' needs, as well as to be feasible for implementation by the industry. Within this framework, we make a contribution to discussions on the circular economy through topics such as the reparability of products [› 4.5 Take-back and Circular Economy, p. 28](#). We advise governments and authorities, for example on solutions for sustainable urban development. In addition, we are actively championing the introduction of globally harmonized substance restrictions, for example in connection with the implementation of the United Nations' Minamata Convention, which requires the signatory countries to refrain from using mercury. The European regulations RoHS and REACH, which carry global weight, are further important topics [›› 2018 Annual Report A.1.1.4 Legal and Sector-specific Conditions, p. 8](#).

Objectives and Results

We manage memberships of associations centrally in order to achieve Group-wide transparency. During the fiscal year, we paid membership fees totaling €3 million (previous year: €3.1 million). This included fees for the German Electrical and Electronic Manufacturers' Association (ZVEI), LightingEurope, the North American Electrical Manufacturers Association (NEMA), and Allied Security Trust (AST), as well as for employer and business associations.

3.2

Combating Corruption and Anti-Competitive Behavior

[OSRAM is committed to prevent corruption and bribery as well as to fair competition. We believe that sustainable business success can be achieved only through lawful and responsible practices. Bribery and corruption are an impediment to healthy markets and hold back economic growth.

Guidelines, Responsibilities, Structures, and Processes

OSRAM's compliance management system is designed to prevent possible violations of applicable anticorruption and antitrust laws. To this end, a compliance guideline supplements, and defines in more detail, the conduct rules on tackling corruption and dealing with competitors that are set out in the Business Conduct Guidelines. The compliance management system follows the management system methodology described in IDW AsS 980.

Company's rules in relation to anticorruption stipulate that no employee is permitted to offer, promise, grant, or approve any improper benefit to a government official or person in the private sector. Monetary payments or other benefits that



seek to influence business decisions or obtain undue advantages are also prohibited. All offers, promises, contributions, and gifts must be in compliance with applicable laws and our internal policies and procedures. Employees should avoid any appearance of dishonesty or inappropriateness.

OSRAM's compliance management system contains also specific rules that formalize its commitment to upholding antitrust law. Any form of arrangement with business partners or competitors that aims to unfairly influence the market or otherwise restrict competition is prohibited for all employees.

OSRAM has several IT tools at its disposal for dealing with corruption-related risks. For example, we classify our business partners according to particular criteria, such as the prevalence of corruption in the country in which the partner operates. A further tool-based process regulates the approval of entertainment events to which third parties are invited, including the payment of their accommodation and travel costs.

Our suppliers must sign the Code of Conduct for Suppliers (CoC), which prohibits corruption and bribery [▶ 3.4 Supply Chain Management, p. 19](#).

To achieve our compliance objectives, we conduct classroom-based and online training sessions focused on anti-corruption and antitrust law. The training courses are mandatory for all employees at certain functional levels and in

certain sensitive functions (particularly sales, purchasing, and marketing). Training is provided shortly after employees take up their positions, are promoted, or are seconded to a relevant function. Refresher courses are carried out every three years. Other training sessions are arranged as necessary for groups with particular requirements.

Compliance risk assessments focused on anticorruption and antitrust law are regularly carried out in selected entities and areas of the business in order to identify compliance risks and make continuous improvements to the Group-wide compliance management system. As part of the internal control system, management and the Compliance Organization conduct half-yearly respective yearly controls of the tool-based processes for dealing with business partners and entertainment events.

Another element of OSRAM's compliance management system is the whistleblowing system 'Tell OSRAM,' which employees and third parties can use to report violations of compliance rules. All reports are followed up. Internal compliance investigations are carried out if there are concrete indications of wrongdoing. Once an investigation is complete, the Compliance department recommends measures to address any identified deficiencies and monitors their implementation. In the event of misconduct on the part of our employees, OSRAM may take disciplinary action in accordance with labor law.

From an organizational perspective, the compliance management system consists of employees at the headquarters and in the regions. The Chief Compliance Officer reports to the Chairman of the Managing Board. As part of its remit to supervise management functions, the Supervisory Board monitors the effectiveness and appropriateness of the compliance management system. At OSRAM, this task is assigned to the Supervisory Board's Audit Committee, to which the Chief Compliance Officer reports on a quarterly basis and, if needed, incident-driven.

Action Taken and Results

During the fiscal year, 4,798 employees took part in compliance classroom-trainings focused on anticorruption and antitrust law. Online training courses (ending with a knowledge test) on both topics consolidated the content covered in the classroom-based sessions. In fiscal year 2018, a total of 3,867 employees completed the online training on antitrust law. At the end of September, 4,728 employees were invited to the online training on anticorruption.

As part of the ongoing restructuring of the Group in recent years, our compliance management system has also undergone changes to its organization and function. In fiscal year 2018, we therefore engaged an auditor to audit our compliance management system pertaining to anticorruption and antitrust law in accordance with the IDW AsS 980 audit standard. A significant part of the audit took place in the reporting

period (January 1 to June 30, 2018) and initially focused on OSRAM GmbH as the largest operating company and home of the corporate functions. OSRAM GmbH was certified without qualification in October 2018. The audit will resume in the period May to November 2019 so that audit certification can be obtained for the OSRAM Group as a whole.

In July 2018, the compliance management system was extended to cover the topic anti-money laundering. Targeted measures are now helping us to meet the requirements of anti-money-laundering law. In fiscal year 2019, we will be looking to implement training and communication measures to raise awareness among employees in sensitive functions concerning risks related to money laundering and terrorism financing. Via our internal whistleblowing system 'Tell OSRAM,' it will also be possible to report suspected breaches of anti-money laundering law to the Compliance department, which will alert the relevant authorities if necessary.

Compliance incidents ¹⁾

in total

	2017	2018
Reports on possible compliance violations	64	42
Compliance investigations (substantial)	16	20
Disciplinary consequences	4	3
Closed incidents from previous reportings	65	44

[1) Compliance incidents encompass especially all plausible allegations of a violation of criminal or administrative law related to OSRAM's business activities.]

In fiscal year 2018, no legal actions were brought against OSRAM for anticompetitive behavior, breaches of antitrust law, or monopolistic practices.]

3.3

Privacy and Data Security

[The ongoing digitalization of business processes also entails risks for the protection of privacy and security of data of our employees, customers, and business partners. To mitigate these risks, we take extensive preventive measures designed to comply with legal regulations regarding data privacy. We also see this as an opportunity to build trust among consumers and to positively influence purchasing decisions.

Data privacy encompasses the protection of personal data pertaining to employees and customers, but also to business partners and their customers. Our aim is to protect the privacy of these individuals in all our products and processes. Numerous technical and organizational measures are in place to help us achieve this objective.

Guidelines, Responsibilities, Structures, and Processes

OSRAM has embedded data privacy in its business principles and internal policies. It achieved its goal by introducing a data privacy management system (DPMS) on schedule in the reporting period. Our actions in this regard are guided by the requirements of national and international data privacy laws.



In addition to the internal data privacy officers appointed in the German Group companies, who monitor compliance with the data privacy principles, the Group Data Privacy department analyzes the data privacy requirements and initiates appropriate measures for the Group and its subsidiaries. For the implementation and adaptation to local requirements a Data Privacy Coordinator (DPC) is responsible in each local entity.

OSRAM has IT tools at its disposal for dealing with data privacy risks. For example, we maintain a record of all processes and procedures involved in the processing of data ('Processing Register'), which enables us to carry out, across the Group, the data privacy impact assessment required for certain procedures and to document it in a legally compliant manner.

The Chief Compliance Officer and the head of Group Data Privacy report regularly to the Managing Board on current developments. Data privacy is also routinely covered by compliance reporting to the Audit Committee of the Supervisory Board.

We require our employees to treat personal data and information confidentially. The specific rules are described in our data privacy guideline. We also provide web-based training on data privacy to all employees who have access to an

email account. This training helps employees to decide how they should deal with personal data, and is thereby consistent with the objective of protecting the personal data of staff, customers, suppliers, and business partners throughout the Company. All our business partners that handle sensitive data are required to train their employees accordingly. This applies in particular to service providers and suppliers. Should we become aware that a business partner is not complying with its data privacy obligations, we will take the necessary remedial action.

Despite the high technical and organizational security standards that we have in place, data breaches cannot be completely ruled out. Our Company is required by law to promptly notify the relevant regulatory authorities if it is believed that a personal data breach has occurred. In order to meet this requirement, a channel of reporting suspected data breaches was added to the existing whistleblowing system 'Tell OSRAM' during the fiscal year.

We believe it is important that we handle the data of our customers, partners, and employees in a responsible manner. That is why we do not disclose personal data to third parties unless we have the corresponding legal basis to do so. Our data privacy guideline describes, in a transparent way, how and for what purpose personal data can be used.

Objectives, Action Taken, and Results

Our objective is to avoid breaches of data privacy. In the period under review, the Group guideline on data privacy was drawn up and published, the processing register was updated and automated, and a Group-wide training concept was developed. Privacy policies and consent forms for employees, customers, and shareholders were also updated. At the same time, data privacy requirements were integrated into the product development processes.

We rolled out the web-based training on data privacy in the fourth quarter of the fiscal year. All employees in the EMEA region who have access to an email account (except temporary student employees) were invited to complete this training. Invitations to staff in the Americas and APAC regions will follow in due course. A total of 9,100 employees in EMEA were invited to this training, by the end of the fiscal year 1,950 employees had already completed the training. A further 253 employees attended classroom-training courses on data privacy issues specific to particular business units and departments.

During the fiscal year, we did not receive any complaints from customers or other inquiries related to data privacy from relevant supervisory authorities.]

3.4

Supply Chain Management

[As a global company with an extensive network of suppliers, OSRAM has a responsibility for the environment and society all along its supply chain. The way in which we select and work together with our international partners plays a key role in this. Generally speaking, we strive for long-term relationships with reliable and flexible partners. We also have internal and external control mechanisms in place. In particular, these enable us to fulfill our duty of care with regard to human rights in the context of conflict minerals [› 7.1.1 Conflict Minerals, p. 54](#).

Structures and Processes

OSRAM's procurement function is managed globally but is organized regionally with regard to certain raw material groups. For each raw material group, we have formulated specific requirements for suppliers. For example, they must provide evidence of certification, be compliant with RoHS/REACH ([› 5.6.1 Critical Substances, p. 38](#)), and undergo supplier audits. Strategic buyers check compliance and manage the suppliers in conjunction with the Quality Management, Logistics, and Research & Development depart-

ments. Together these functions form a sourcing team that is responsible for procurement strategy for a particular field of materials. For matters relevant to sustainability, for example training courses, conflict minerals, and the coordination of audits, the sourcing teams are supported by the Environment, Health, and Safety (EHS), Corporate Procurement, and Responsible Business & Sustainability departments.

Embedded within the supplier development and supplier qualification processes are various requirements that help us to fulfill our duty of care with regard to human rights ([› 7.1 Respect for Human Rights, p. 53](#)). The strategic buyers and the local procurement representatives are responsible for implementing these requirements. Corporate Procurement is responsible for compliance and for providing training on the individual steps involved in supplier management.

The expertise of our employees is a further cornerstone of our supplier management process. We regularly provide information and training to our global procurement teams and we offer guidance on matters relevant to human rights, for example at the town hall meetings that take place every two months for employees of the procurement organization. Moreover, each year, around 20 strategic buyers participate in an advanced training course lasting several days with the aim of raising awareness about the topic of sustainability. The training courses cover overarching topics such as the background to and importance of the Sustainable Development Goals for procurement at OSRAM, and on specific changes relevant to sustainability in our supply chains. During the fiscal year, our buyers were familiarized with the

new requirements introduced by CSR-RUG and the UK Modern Slavery Act ([› 7.1 Respect for Human Rights, p. 53](#)), for example, as well as how these are implemented in OSRAM's systems and processes. We have summarized the objectives and results at the end of this chapter [› p. 21](#).

3.4.1 Code of Conduct for Suppliers

We expect our suppliers to comply with all laws and regulations and with the values set out in our Business Conduct Guidelines. We therefore have a separate Code of Conduct for suppliers that takes account of our core beliefs as well as key international standards and conventions such as the principles of the UN Global Compact and the [› International Labour Organization \(ILO\)](#). This [› Code of Conduct \(CoC\)](#) covers topics such as

- compliance with all applicable laws,
- avoidance of corruption,
- observance of human rights of employees,
- compliance with laws prohibiting child labor,
- responsibility for employee health and safety,
- compliance with the relevant national laws and international standards on environmental protection, and
- the express demand that these values are implemented and complied with in the supplier's own supply chain.

In addition, the Code now contains an explicit ban on all forms of modern slavery, forced labor, and human trafficking. Suppliers must also ensure that no internal or external employee is affected by unethical practices in the recruit-

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ment of new workers. The CoC is mandatory for all suppliers with a procurement volume of €50,000 or higher. It also forms part of the qualification process that new suppliers must pass through. Irrespective of the procurement volume, each supplier receives notification of OSRAM's General Terms and Conditions and CoC when purchase orders are placed. By signing the CoC, suppliers join OSRAM in making a commitment to continuously improving their environmental measures and establishing an appropriate environmental management system. We give preference to ISO 14001-certified suppliers, particularly if their materials are incorporated directly into our products.

3.4.2 Review of Suppliers

OSRAM performs a continuous risk assessment of direct suppliers, i.e. those that supply product materials, which takes into account country risks and procurement market risks. Strategic suppliers, which include all preferred suppliers as well as innovation and integration partners, undergo a sustainability assessment. Before they are included in the supplier system, all suppliers are checked against restricted party lists (German, European, and U.S. sanctions lists). Updated lists are automatically uploaded into OSRAM's export monitoring systems so that appropriate checks are also made of existing suppliers when an order is submitted.

Suppliers from countries where social risks are more acute must also submit a self-assessment on relevant aspects of corporate responsibility. The selection is based on the country assessment of [Transparency International \(Transparency International Corruption Perceptions Index ≤ 40\)](#).

Regular reviews carried out by independent auditors are one of the many tools and processes that we use to fulfill our duty of care with regard to human rights and to check compliance with our CoC in the supply chains. Based on the analysis of our procurement volume with regard to social risks, a selection of existing suppliers are requested each year either to submit an up-to-date corporate responsibility (CR) audit or to have it carried out, or to prove compliance with CR requirements by means of equivalent certification in the social and environmental fields.

Our Code of Conduct (CoC) covers topics such as



The suppliers are selected according to the following criteria:

- High country risk: all suppliers from countries that score 40 points or less in Transparency International's Corruption Perceptions Index
- Social risk of the material group: categorized as low, medium, or high based on the Company-wide materiality analysis; highest risk: construction services, assemblies, and electronic components
- Procurement volume:
 - Up to €50,000: low risk
 - Up to €500,000: medium risk
 - > €500,000: high risk
- Supplier is set up for international business
- Previous self-assessments and/or on-site audits are available



The suppliers are assigned to one of five risk groups based on this risk assessment. The suppliers in the highest risk groups are invited to undergo the CR audit. This is valid for three years. The supplier is then eligible for selection again. The audits cover health and safety, wages and salaries, working hours, environmental protection, and management systems. ISO 14001 certificates are stored in our global purchasing system to verify environmental compliance and their validity is regularly checked. As part of the qualification process, new suppliers from which materials are to be purchased directly must undergo a process audit in accordance with VDA 6.3 (German Association of the Automotive Industry). The audit assesses the supplier's manufacturing processes and service processes. The results of the process audit are published in our global purchasing system and, as such, are integrated into the overall procurement process. On-site audits provide an assessment of the environmental and social situation.

Objectives, Action Taken, and Results

In the fiscal year, the most common cases of non-compliance were in the areas of working hours and health and safety. Action plans have been drawn up that are designed to remedy the identified failures and improve the performance of the supplier over the long term.

We strive to achieve a coverage rate for the CoC of 100% for our entire purchase volume. Increasing the proportion of our direct materials suppliers that hold ISO 14001 certification is a further aim. A joint campaign by the Environment, Health, and Safety, Quality, and Purchasing departments in fiscal year 2018 raised awareness of the relevance of environmental aspects in the supplier relationship.

In this fiscal year, we analyzed our entire procurement volume with regard to social risks. On the basis of the identified risk areas, we will initiate appropriate risk mitigation measures in the future. The results of the inspections are taken into consideration when selecting suppliers for the next CR audit.] ✓

Procurement

	2016	2017	2018
Number of suppliers	16,600	15,100	15,300
Procurement volume (goods and services purchased from third parties)	€2.7 billion (of which 58% is accounted for by local suppliers ¹⁾)	€2.8 billion (of which 56% is accounted for by local suppliers ¹⁾)	€2.7 billion (of which 58% is accounted for by local suppliers ^{1,3)})
Supplier Codes of Conduct signed	684 new CoCs (which covers 98% of our procurement volume)	472 new CoCs (which covers 98% of our procurement volume)	314 new CoCs (which covers 96% of our procurement volume)
Proportion of direct procurement volume covered by ISO 14001 ²⁾			68%

[1] Local suppliers are defined as those that are based in the same country as the purchasing OSRAM location.

2) Excluding capital spending on long-term capital assets, CAPEX; KPI reported for the first time in fiscal year 2018.

3) For system-related reasons, the purchases made by OSRAM CONTINENTAL in the fourth quarter have not been taken into account.] ✓

3.5

Customer Relationships

[As technology shifts toward LED-based lighting systems, customer requirements are also changing, and this is accompanied by a change from a pure product-related to a more solutions and project-oriented business. Therefore, an efficient, target group-oriented management of our customer relations, which utilizes the various opportunities of digitalization, is of utmost importance for us.

Structures and Processes

The OSRAM business units are the interface to our customers, and as such have operational responsibility for sales. They are specifically geared to the requirements of their customers and markets. To meet these requirements as effectively as possible, each business unit has its own individual sales structures and types of business.

OSRAM uses the relevant customer relationship management (CRM) systems and sales tools to meet specific business needs. Wherever possible, standardized platforms and systems covering all business units are used.

Objectives, Action Taken, and Results

In the second half of the fiscal year, we established the new Global Sales Excellence function, which reports directly to the Managing Board. The new function is intended to help further increase sales efficiency and strengthen customer



loyalty and to support and coordinate projects across all business units. The structures and processes have been designed not only to improve customer focus and customer satisfaction but also to identify and reap synergies between the business units. For example, we analyzed the customer structure and evaluated the degree of sales automation so that we can provide more specific support for each customer group. A centralized e-business project was launched during the reporting period. This is helping to open up further sales channels and to optimize and expand existing customer interfaces. Online ordering options tailored to specific customer groups are to be expanded, while newsletter functionalities will be enhanced.

OSRAM conducts a worldwide survey of selected representative customers approximately every two years. We measure the same key performance indicators for all business units. Previously, the results were summarized as a Net Promoter Score (NPS). Since fiscal year 2017, they have been aggregated in a Customer Loyalty Index (CLI). Both key figures express the degree of customer loyalty to OSRAM. 'Hot alerts' are triggered while the survey is still being carried out when a customer gives OSRAM a low score. The relevant sales representative must then get in touch with the customer as soon as possible to discuss the situation and come up with a solution. The surveyed performance indicators yield customer loyalty segments that show different strengths of relationship (e.g. loyal, stable, at risk). We use the findings to initiate measures for improvement. These include training sessions for our employees and customers that inform them

of changes in the lighting market, familiarize them with our products, and build customer loyalty. The customer satisfaction surveys are submitted to the OSRAM Managing Board for approval, which is informed on a case-by-case basis of the results and the measures taken by the business units. Once the survey has been completed and the results analyzed, the business units define measures specific both to particular customers and customers generally and monitor their implementation.

The NPS can be between -100% and +100%. In the last survey in 2017, the NPS was again at the high level of 35% (previous survey: 35%). This result corresponds to the target, which was also 35%. In the new CLI ratio, OSRAM scored a very high 82% out of a possible 100%, which is well above the average of its competitors of 67%*.] ✓

Customer relationship KPIs

	2016	2017	2018
Sales employees (FTEs)	2.3 thousand	2.5 thousand	2.5 thousand
Share of revenue of single biggest customer	5.2%	5.8%	6.6%
Share of revenue of top 50 customers	60.8%	57.2%	56.4%

*In each customer interview conducted as part of the survey, a value for OSRAM's best competitor is also recorded. Once the survey has been completed, the results of the individual 'best competitors per customer' are aggregated to a competitor value that is then compared with the OSRAM value (CLI).



4.0

Sustainable Products

OSRAM is undergoing a transformation from a lighting manufacturer to a high-tech photonics company. Many of the new and innovative applications are addressing global challenges such as climate change, resource scarcity, and urbanization, while also adding value to customers' businesses.



4.1

Added Value for Customers

OSRAM's energy-efficient products and solutions are helping to mitigate climate change. Lighting offers excellent opportunities for reducing greenhouse gas emissions. This is because artificial lighting accounts for around 15% of global power consumption and nearly 5% of greenhouse gas emissions. According to the United Nation's [» United for Efficiency \(U4E\) environmental initiative](#), if the whole world were to switch to energy-efficient lighting it would lower CO₂ emissions by 390 million metric tons a year and save consumers around US\$ 50 billion in annual energy costs.

However, the many new possibilities for LED lighting in combination with sensors and digital control are also paving the way for applications whose benefits extend well beyond energy savings. OSRAM is increasingly offering innovative products and solutions in which the color and intensity of light adapts dynamically to the needs of individual people (human centric lighting). Light can be used to enhance well-

being in the workplace, for example, or to raise levels of attention in learning environments or hazardous situations. It is also possible to use light to regulate the circadian rhythm, which is particularly helpful for older people or those suffering from jet lag. Biologically effective light can even be used to treat illnesses such as depression. Our lighting solutions are already helping to enhance safety in public spaces and on our roads—for example by means of intelligent dimming. We are also working closely with the automotive industry on lighting solutions and sensor systems for self-driving vehicles, which will be key to addressing the growing traffic problems in major urban centers.

Urban farming has an important role to play in the provision of fresh produce to populations in Asia's major cities. It focuses on greenhouses in which the spectrum of light that illuminates the plants is dynamically adjusted to optimize yield. This ties in with OSRAM's goal to transform itself from a manufacturer of LED components into a supplier of complete systems and digital platforms that can manage light, indoor climates, and irrigation in an intelligent way.

Our goal is to add value for our customers. We will only be able to achieve this if we successfully manage the topics that are addressed in this chapter. In the following section, we will explore the ways in which OSRAM is going about this.

4.2

Innovation Management

The product lifecycle management guideline describes how products and innovations are managed at OSRAM. It only provides a framework, however, and leaves plenty of scope for flexibility in line with changing market demands.

The Chief Technology Officer (CTO) is responsible for the innovation and technology strategy and the management of development activities. The corporate venture capital unit, Fluxunit, can provide support for innovations developed outside the Company—preferably by start-ups—that tie in with OSRAM's strategy.

A key aspect of the strategic management of our portfolio is to terminate projects and fields of activity that are unlikely to yield success before too much time and money have been invested. A stage-gate process incorporates regular reviews of the commercial and technical factors that determine the viability of the product in question.

We collaborate with a range of commercial partners and universities in order to optimize the efficiency of our innovation activities. This includes industry alliances, publicly funded collaborative projects to evaluate future technologies with uncertain economic prospects, bilateral partnerships in



which complementary areas of expertise are employed to come up with shared solutions, and standardization committees that safeguard the functionality of systems.

We protect our innovations at the earliest possible stage by means of patents and other industrial property rights. Strategic cross-licensing agreements and additional contracts on patent utilization with other players in the lighting industry help to secure our leading position in the lighting market [» 2018 Annual Report, A.1.1.2 Research and Development \(R&D\), p. 5.](#)

Objectives, Actions Taken, and Results

The following activities in this fiscal year are particularly notable with regard to sustainability:

- **Research project:** Together with the Fraunhofer Institute, TEMICON, and Continental, OSRAM Opto Semiconductors began working on the development of extremely compact and low-profile optical components for data visualization or illumination. The purpose of the IBELIVE project, which is being funded by the German Federal Ministry for Education and Research (BMBF), is to deliver universal processes for space-critical applications. Miniaturization means that less material is used and also improves energy efficiency.
- **Energy efficiency:** By reducing the forward voltage drop in green LEDs, it is possible to increase energy efficiency by around 40% and light output to 175 lm/W.

- **Vertical farming:** OSRAM expanded its activities in vertical farming in various directions. We are a market leader in LEDs for crop illumination and will be looking to offer complete smart farming solutions in the future. Extensive research partnerships were initiated, including one with NASA, to help us achieve this goal. Acquisitions (Fluence Bioengineering) and partnerships (Agri-lution) allowed us to bring initial solutions to the market. Smart farming is predicted to play a key role in supplying plant products to the human population in the future because of the efficient use of resources.

- **Human centric lighting:** A consortium comprising the University of Twente, the Vrije Universiteit Amsterdam, the real estate consultancy CBRE, and OSRAM proved the benefits of a human centric lighting solution to well-being and productivity under real-life office conditions.

- **IoT platform:** The Lightelligence IoT platform that OSRAM released during the fiscal year paves the way for a range of smart applications in buildings and outdoor environments by employing a network of sensors and lighting controls. Higher energy efficiency and improved lighting comfort are benefits of the solution.

Extensive up-to-date information on our R&D projects is available on our website [» www.osram.com/press](http://www.osram.com/press).

4.3

Impact Measurement

In 2017, the Responsible Business & Sustainability department and Innovation department set up a concept for impact measurement with the goal of being able to methodically measure the impact of our activities and products on the environment and society.

In a pilot project that was completed during the fiscal year, OSRAM measured the overall social and environmental costs and benefits of selected applications and then analyzed the findings. The applications encompassed a range of methods for growing lettuce for the city of New York. Four technology scenarios were evaluated during the reporting period:

1. conventional open field farming,
2. greenhouse using light based on traditional technology (high-voltage halogen),
3. greenhouse using LED illumination,
4. vertical farming (horticulture), i.e. a sterile, stacked indoor environment in which the plants' growth rate can be adapted to actual demand with the help of smart LEDs.

The impacts on energy and water consumption, land use, fertilizer and pesticide use, particulate emissions, actual yields, and food waste were investigated, as was the economic impact of the creation of jobs. The results yielded

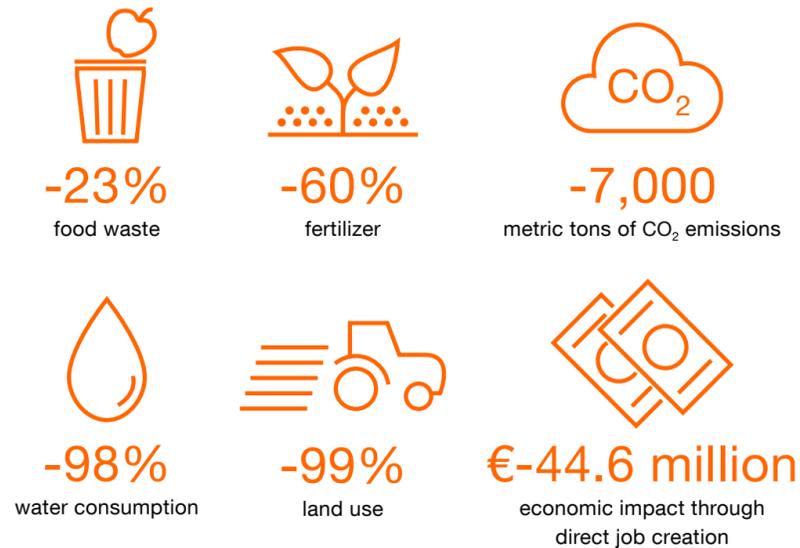


some impressive numbers. Society would benefit to the tune of €322 million every year if all citizens of New York City were to eat lettuce produced by vertical farms employing smart LEDs. Land use would go down by 99% and water consumption by 98%; food waste would fall by 23%. 60% less fertilizer would be used, 7,000 metric tons of CO₂ emissions would be prevented from entering the atmosphere. The study estimated that reduced direct employment would have an impact of up to €44.6 million in societal costs. These findings

have already influenced specific business decisions, and OSRAM is now reviewing the extent to which this methodology can be applied to other projects or capital spending activities.

We carried out a review to ascertain which of the United Nations' Sustainable Development Goals (SDGs) OSRAM can contribute to through its business model and what new opportunities for society, the environment, and the Company would result from this. As part of our corporate citizenship activities, we already use the SDGs in the evaluation of our most important projects and we are looking to do this in our core business as well in the future. In addition, we prepared lifecycle analyses for further selected OSRAM products in order to be able to assess their impact on the environment. We use these analyses to examine the environmental aspects and potential environmental impacts of specific products over the entire lifecycle. They highlight the level of energy consumption and therefore the environmental impacts in the different usage phases [› 5.2.2 Impacts in the Product Lifecycle, p. 32.](#)

Results of the Impact Measurement



€322 million annual total societal savings

4.4

Product Safety and Quality

Our customers expect the highest quality and durable, reliable products. Our 'quality first' initiative brings together a variety of measures that are applied to our products throughout their lifecycle, irrespective of whether the value is created in our own production facilities or beforehand at our suppliers. Individual countries often have specific regulations regarding product safety, lifespan, and labelling. In order to bring our products to market quickly while also complying with all rules and regulations, we need to coordinate these requirements at global level and integrate them into product development at an early stage.

External environmental influences can have an impact on the characteristics and functions of our products. By testing product performance through accelerated aging and environmental simulations, we can identify how long the products should last as well as shortcomings in their design or components, and then initiate improvements before failures occur in actual use. We believe that high-quality products can only be realized if the early stages of their development include



an analysis of safety requirements and an evaluation of expected product quality based on environmental simulations. Avoiding defects before they occur is essential for OSRAM.

Guidelines, Responsibilities, Structures, and Processes

[We are committed to complying with all legal requirements, standards, and norms relating to products and their safety, including labelling, that apply in the individual regions and countries in which we operate, and to implementing changes in good time. The objective is to avoid product safety violations.

At Managing Board level, responsibility for product safety and quality lies with the CTO. The CTO appoints the head of the corporate Quality Management department to act as a Group-wide control function who is responsible for setting up and maintaining the quality management system and has the authority to issue policies and instructions in this context. Operational responsibility for implementing statutory and internal regulations regarding product safety and quality lies with the individual CEOs of the business units.

The corporate Quality Management department draws up rules that are applicable to all units. Our core practices are described in the quality manual and quality guideline. Quality-related guidelines and processes cover, for example, product safety, product development, and the handling of defective products as well as the corresponding escalation steps.

Methods designed to safeguard quality are rigorously applied during the product design stage to meet the development milestones. We follow standardized checklists when approving products and take remedial action if relevant risks are identified. In addition, we regularly check our products regarding their impact on health and safety. All products for the automotive sector are tested in accordance with defined schedules in our environmental simulation laboratories, which are accredited to DIN EN ISO/IEC 17025. Accreditation of the laboratories allows us to achieve compliance with global standards.

Customers can return defective products at any time and will find the relevant information online. Employees can also report potential incidents. When a matter relevant to product safety is reported, we immediately check and assess risks using a risk assessment matrix. The EU General Product Safety Directive (GPSD, 2001/95/EC), which sets out a structured framework for risk assessment, provides the global basis within the Company for the evaluation of potential product safety violations and of action plans to remedy such violations. As soon as any product safety risks are identified, appropriate processes are triggered to contain and eliminate these risks as quickly as possible. Relevant internal and customer-oriented mechanisms have been specified and may result in information being provided to customers or even a product recall.

Our processes and management systems are regularly certified to ISO 9001 and, for automotive customers, also to IATF 16949. In addition, OSRAM conducts regular internal audits of its factories, processes, and suppliers in line with its continuous improvement approach. Regular reports are submitted to the CTO, who is informed immediately of any incident that has been classified as a critical quality issue by the responsible business unit.

Objectives, Action Taken, and Results

We achieved our goal of implementing new legal requirements, standards, and norms on schedule in fiscal year 2018. During the fiscal year, the Quality department received no reports of potential violations concerning the impact of our products on the health or safety of our customers.

In the reporting period, we had our processes and management systems recertified to ISO 9001. We also succeeded in converting the certification of all locations supplying automotive customers from ISO TS to IATF 16949. Individual measures were taken at business unit level as well.] ✓

During the fiscal year, the Specialty Lighting, Digital Systems, and Opto Semiconductors business units focused on implementing individual programs to improve product quality and customer satisfaction. The programs are already having



an impact: The number of customer complaints about the relevant products was reduced by a double-digit percentage figure. OSRAM also reduced the defect rate at our customers by a low double-digit percentage range in the fiscal year.

In fiscal year 2018, OSRAM consolidated its laboratories from an organizational perspective with the aim of harmonizing processes and standards. As part of this process, work also began on expanding laboratory capacities. At the Herbrechtingen center of excellence in southern Germany, laboratory space and the number of testing stations will almost double. This will make the location more attractive both within the Group and for external customers. OSRAM has a strategic interest in gaining additional external customers for its laboratories and thus building on its expertise. Digitalization and software compatibility are a key focus. Control units need to communicate with each other and require complex and partly automated testing methods. To meet these needs, OSRAM invested in expert staff and high-end equipment. Durable products and solutions are the goal, and that requires the development of secure and robust software.

4.5

Take-back and Circular Economy

As part of its contribution to the circular economy, OSRAM strives to continuously return used raw materials to the manufacturing process [» 5.6 Raw Materials and Substances, p. 38](#). Our focus on recycling and consistently improving recyclability starts right at the initial development stage. The aim of recycling is to recover as many unmixed materials as possible in order to conserve limited and valuable resources, and reduce our costs at the same time.

Since luminaires contain electronic components and valuable raw materials, it is important for us to repair products if this is possible and ideally at the user's location. We are committed to the principles set out in the [» LightingEurope white paper 'Serviceable Luminaires in a Circular Economy'](#) and have integrated these into our EHS checklists for product design.

A new addition to our portfolio is a streetlight for which no screw fixings or adhesives are needed except for the mounting to the post. Maintenance is much easier because the components can be assembled and disassembled without a tool. Where repair is not possible, OSRAM arranges for collection of returned products with its partners and recovers the materials or arranges for them to be professionally disposed of. For the latest generation of our Streetlight SL11

micro, we substantially reduced material use compared with the predecessor product (SL10 mini) while maintaining light output, increasing the lifespan, and improving energy efficiency. The new luminaire weighs only 5.7kg (SL11 micro) compared with 7.4kg as before (SL10 mini). This represents a 23% reduction in weight.

Together with its partners, OSRAM also looked for ways to use recycled instead of new plastic for certain components in its LED luminaires. Production began in January 2018. The successful development process and the validation in accordance with international standards means that recycled plastics can now also be used in critical components. In fiscal year 2018, OSRAM brought replaceable LED signal light sources that meet the ECE R128 standard to the automotive lighting market. In the case of a fault, it is now no longer necessary to replace the entire headlight but only the defective component.

In the European Union (EU), we are required by law to take back our products and recycle them. Since 2005, we have been working together with other manufacturers in the lighting industry to establish recycling service organizations. Specialist service providers collect and recover products so that waste from electrical and electronic equipment can be efficiently recycled when the products have reached the end of their operating life. Since the program is implemented by third parties and on a cross-brand basis—for example in Germany by the company Lightcycle—we are unable to provide any specific figures for the reuse, reprocessing, or recycling of OSRAM products and components. Outside the EU, statutory take-back obligations are very limited in extent.



5 . 0

Environment and Climate Protection

As a manufacturing company, we are aware of our responsibility to protect the environment, the climate, and nature, and are committed to environmental management practices that conserve resources and to developing progressive, energy-efficient products.



5.1

Environmental Management

[As well as the requirements of the law, we aim to meet the expectations of the capital markets, of our customers, and of civil society, and also to contribute to the success of OSRAM's business. As regulation increases, so do the demands made of our environmental management system
 » [2018 Annual Report, A.1.1.4 Legal and Sector-specific Conditions, p. 8.](#)

Guidelines, Responsibilities, Structures, and Processes

Overall responsibility for environmental protection and occupational health and safety lies with the Chief Technology Officer (CTO), who delegates tasks and managerial authority

to the head of the corporate Environment, Health, and Safety department (EHS). At regular intervals, the EHS department reports directly to the Managing Board on significant developments.

The EHS department coordinates environmental rules and guidelines, monitors performance, and continuously improves the environmental management system. In addition to the Group's overarching EHS policy, it issues guidelines that apply across the Company and cover industrial and product-related environmental protection, occupational health and safety, and the transportation of hazardous goods and fire safety. These guidelines clearly state that compliance with environmental laws and regulations at local, regional, and global level is mandatory.

All production facilities and the Group headquarters maintain environmental and energy management systems that are certified to the international standard ISO 14001, while all European locations are also certified to ISO 50001.

As part of its environmental reporting, OSRAM collects data on energy consumption, CO₂ emissions, water consumption, and waste generation*. We record more than 99% of our environmental impacts** and cover the locations at which 91% of all employees are based. These locations also calculate and report annual figures for their volatile organic compounds (VOC) emissions and waste water volumes.

Every year, OSRAM sets specific annual targets for energy consumption, CO₂ emissions, water consumption, and waste generation. Progress in these areas is shown in the relevant sections of this report.

Senior managers and their department heads implement specific measures at the individual manufacturing facilities. The corporate EHS department cooperates with government agencies and industrial associations on a variety of topics. It also regularly reviews implementation of the aforementioned policies at the locations by carrying out site visits, inspections, and internal audits.]

* The data covers all relevant manufacturing facilities (including Regensburg-West, Germany), the two head office buildings in Munich, and the R&D locations in Augsburg, Shenzhen (China), Beverly, and Wilmington (both in the U.S.A.). OSRAM CONTINENTAL's manufacturing facilities in Kunshan (China), Hendersonville (U.S.A.), and Treviso (Italy) have been included since the fourth quarter. The location in Panyu (China), which was closed in the first quarter, the luminaire production site in St. Quentin (France), which has negligible levels of production, and the companies acquired in the Philippines and the U.S.A. during fiscal year 2018 are all excluded from the data. The OSRAM CONTINENTAL R&D locations in Guadalajara (Mexico), Iasi (Romania), and Vienna (Austria) are also excluded.

** Estimates are made on the basis of energy consumption, which is seen as the most relevant metric here. The amount of water used and waste generated at non-production locations is, in relative terms, lower than at the manufacturing facilities because non-production locations produce only small amounts of household waste and grey water.



5.2

Energy Efficiency

[OSRAM's production activities use both primary and secondary energy. All OSRAM products also draw on energy resources when they are being used. The energy efficiency of our products is a key criterion in our customers' purchasing decisions and satisfaction.

5.2.1 Energy Consumption

To operate our production facilities, we utilize an energy mix that is both economical and environmentally friendly*. Group headquarters as well as all production and development sites that consume more than 1,400 MWh a year are pursuing energy efficiency programs in order to reduce their impact on the environment and to keep production costs competitive. The worldwide EHS management system controls energy use in our production processes. An energy management system is mandatory for the relevant OSRAM locations.

Objectives, Action Taken, and Results

Consumption targets are set annually at global, regional, and site level and are aggregated into a specific global target for energy consumption using the budgeted figures for production and revenue. At the individual locations—with

the exception of Kulim, Malaysia, and Regensburg-West, Germany—the energy targets that are adjusted to local production output are also extrapolated on the basis of pending energy-efficiency projects. At Group level, progress toward the targets is monitored and reviewed as part of the quarterly reporting cycle and the energy efficiency reviews conducted with the operational heads of the business units.

The target for energy consumption per unit in fiscal year 2018 was higher than in the previous fiscal year (see the table below). The increase compared with the previous year's target and level of target achievement as well as the increase in absolute energy consumption are attributable to the expansion of our environmental reporting system and the ramp-up of our new LED factory in Kulim, Malaysia. Expansion of the sites in Regensburg, Germany, and Wuxi, China, is another factor. This trend is expected to continue in the years ahead. Production at these locations requires controlled climatic conditions, but we are also seeing a clear shift toward the use of secondary energy due to the manufacturing technology that is needed. Whereas the consumption of energy from primary sources, especially natural gas, is holding more or less constant, we are increasingly drawing electricity from local grids.

The global scaled target for the reporting period was missed by 2%. This was mainly because production capacities were utilized to a lesser extent than planned, which had a negative impact on energy efficiency. Only seven out of the total of

30 locations that are included in our environmental reporting failed to achieve their local energy targets either entirely or by more than 10%.

During the fiscal year, around 147,800 MWh (previous year: 114,100 MWh) of the electricity used at OSRAM in Germany came from renewable energy sources. This increase was reflected in the proportion of total electricity consumption accounted for by renewable energies, which rose to 28% (previous year: 25%) even though the share of renewable energies in the electricity product that we purchase fell as of January 1, 2018 [▶ 5.3 Greenhouse Gases and Climate Change, p. 33.](#)

Energy savings were achieved in the reporting period by means of a large number of individual projects at the different sites. In Penang, Malaysia, for example, older air-cooled compressors were replaced by more efficient water-cooled models. An older chiller was replaced in Herbrechtingen, Germany. In addition, modern LED-based lighting systems were installed in office and production areas in Penang and at Clay Paky, Italy.]



Energy consumption

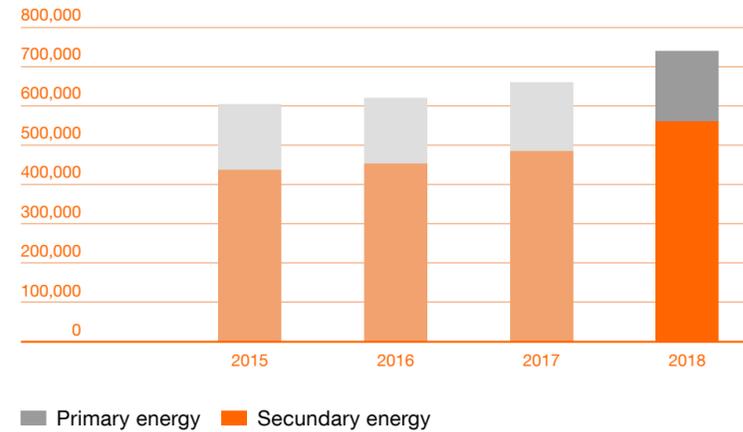
in MWh

	2015 ¹⁾	2016 ¹⁾	2017	2018
Primary energy	167,400	168,700	175,800	180,300
Natural gas	138,300	140,700	146,100	147,300
Liquefied petroleum gas, diesel for on-site use, heating oil, hydrogen	29,100	28,000	29,700	33,000
Secondary energy	436,300	451,400	482,800	559,000
Electricity	414,200	429,700	454,700	531,100
District heating and steam	22,100	21,700	28,100	27,600
Renewable energy generated inhouse				300
Total	603,700	620,100	658,600	739,300
Target for energy consumption in MWh per €1 million revenue			167	176
Energy consumption in MWh per €1 million revenue	169	165	160	180

[1] Discontinued operations as a result of the sale of LEDVANCE were deducted from the data in the fiscal years 2015 and 2016—in contrast to the relevant Annual Report for this period. In the case of sites where both OSRAM and LEDVANCE were active, the proportion of the total energy consumed by each was professionally estimated.]

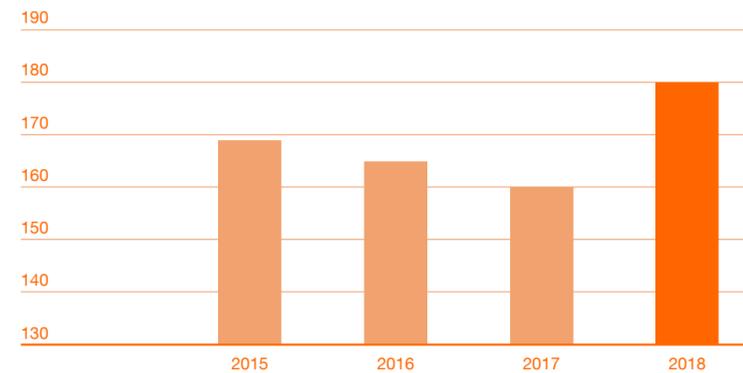
Absolute energy use

in MWh



Specific energy use

in MWh/M€ revenue



5.2.2 Impacts in the Product Lifecycle

[OSRAM conducts lifecycle assessments (LCAs) on selected products that are representative of product families and makes the results of these assessments, which are based on the ISO 14040 and 14044 standards, available to our customers and the public online at www.osram.de/lca. The LCAs cover the majority of our product portfolio. Across all product families, it is evident that the phase of the life-cycle in which the product is being used by the customer has the greatest impact on the environment.

Less than 4% of energy consumption in main product groups is attributable to manufacturing, distribution, and disposal. Around 96% is accounted for by the usage phase. Reducing the amount of energy that is consumed when the product is being used therefore represents the most effective means of reducing the overall environmental impact.

A recent analysis of the product lifecycle of the LED-based SL10 streetlight shows that it was possible to increase efficiency by up to 39% [4.5 Take-back and Circular Economy, p. 28.](#)



5.3

Greenhouse Gases and Climate Change

[The direct and indirect emissions that result from our use of energy contribute to climate change and mainly take the form of CO₂. Greenhouse gas emissions also occur in our upstream supply chain and when our products are being used.

OSRAM bases its documentation on the recognized standard of the Greenhouse Gas Protocol (GHG) when recording CO₂ emissions under Scope 1 (direct emissions from owned or controlled sources), Scope 2 (indirect emissions resulting from the use of secondary energy sources such as electricity or district heating), and Scope 3 (emissions that occur in the value chain that are attributable to the company). Measurements of energy consumption are used to manage efforts to reduce Scope 1 and Scope 2 emissions. Absolute figures are documented at site level, and at regional and global level they are scaled in relation to revenue and the corresponding conversion factors. Since only a few locations emit volatile organic compounds (VOCs) and only in small amounts, we are striving to achieve a general reduction without any specific targets.

CO₂ emissions

in metric tons

	2015 ¹⁾	2016 ¹⁾	2017	2018
GHG Scope 1 emissions	33,800	33,300	32,500	32,900 ✓
Natural gas	30,000	30,000	29,600	29,700 ✓
Liquefied petroleum gas, diesel for on-site use, heating oil	3,800	3,300	2,900	3,200 ✓
GHG Scope 2 emissions (market-based²⁾)	224,400	229,000	207,500	238,500 ✓
Electricity	218,700	223,200	201,200	232,200 ✓
District heating and steam	5,700	5,800	6,300	6,300 ✓
GHG Scope 2 emissions (location-based²⁾)			270,500	290,100 ✓
Total GHG Scope 1 and 2 emissions (market-based²⁾)	258,200	262,300	240,000	271,400 ✓
Target for metric tons of CO ₂ emissions from own activities per €1 million revenue			64	67 ✓
Target for metric tons of CO₂ emissions from own activities (Scope 1 and 2) per €1 million revenue	72	70	58	66 ✓
GHG Scope 3 emissions				
Purchased goods and services ³⁾		1,098,600	1,099,000	1,065,700 ✓
Capital goods ³⁾	Not yet systematically recorded	86,500	174,900	153,500 ✓
Upstream transport and distribution ⁴⁾			81,000	104,600 ✓
Business travel ⁵⁾			18,400	15,900 ✓
Use of sold products			22,000,000	19,100,000
Absolute savings in metric tons of CO₂ resulting from the use of OSRAM products				
Low-carbon products		Not yet systematically recorded	1,490,000	1,327,000
Emissions avoided			4,940,000	4,495,000
VOC emissions⁶⁾ in metric tons	31	31	28	30 ✓

[1] Discontinued operations as a result of the sale of LEDVANCE were deducted from the data in the fiscal years 2015 and 2016—in contrast to the relevant Annual Report for this period. In the case of sites where both OSRAM and LEDVANCE were active, the proportion of the total energy consumed by each was professionally estimated.

2) We adopt the 'market-based approach' when calculating indirect CO₂ emissions, i.e. we explicitly request information on the specific emission factors for the secondary energy supplied to us by utilities. This tells us how much CO₂ is released as a result of our requirements. Where this is not possible—primarily in Asia but also in North America—we prefer to use local or, if necessary, national information on the electricity grids that is obtained from publicly accessible sources. We also calculate the 'location-based' emission values in conformity with the GHG Protocol. Here we use national and, wherever possible, local data for the electricity grids, drawing on the statistics published by the International Energy Agency.

3) Excluding OSRAM CONTINENTAL in the fourth quarter.

4) Data on CO₂ emissions generated from transport paid for by OSRAM is based, wherever possible, on information from our forwarding agents. In the Opto Semiconductors business unit, no reliable information is available for land-based transport in Malaysia and China and so this is not included in the reporting. In the other business units, estimates for the Latin America region as a whole and for road transport in Asia are made using average figures for comparable regions. In the EMEA region, we only record data for transport that is paid for by OSRAM GmbH. Smaller units such as Traxon and Clay Paky are excluded from the reporting, as are the activities of OSRAM CONTINENTAL since the fourth quarter of 2018. Overall, based on an estimate on freight costs, we estimate that despite the aforementioned limitations more than 90% of the greenhouse gas emissions resulting from our transport activities are included in the calculation.

5) Emissions generated by business travel encompass worldwide flights, rail travel in Germany, and trips made in hire cars and leased vehicles. We obtain the data on European hires from our hire car partners and we make professional estimates for the rest of the world, which for vehicle hire is mainly the U.S.A. OSRAM mostly leases vehicles in Germany. We have the data on the actual greenhouse gas emissions up to and including August 2018. An estimate for vehicles leased outside Germany was added to create a worldwide figure, which we then extrapolated over the fiscal year as a whole using a linear method.

6) OSRAM locations are only included in VOC reporting if they are required by local laws or regulations to register as an emitter of VOCs.] ✓



Objectives, Action Taken, and Results

During the reporting period, OSRAM continued to be guided by the EU targets of an absolute reduction of CO₂ emissions by 20% from 1990 to 2020.

In absolute terms, CO₂ emissions (Scope 1 and 2, market-based method) rose in fiscal year 2018. Because of the changes that our industry and also our Group are undergoing, OSRAM does not look at absolute emissions but instead at the amount of emissions relative to the revenue generated. Although we fell just short of the relative energy target, the CO₂ target was achieved, because the emission intensity of local power grids was better than had been assumed when the targets were set.

As well as lowering energy consumption by raising efficiency at the individual locations—resulting in a saving of 6,800 metric tons of CO₂ in Germany—the measures taken to reduce our impact on the environment again included the targeted purchasing of energy obtained from renewable sources. > [5.2 Energy Efficiency, p. 31](#). This prevented 66,100 metric tons of CO₂ from being emitted into the atmosphere.

Opportunities to protect the climate are also emerging outside Germany. In Kulim, Malaysia, for example, OSRAM draws its electricity from a gas turbine installed in the technology park where its manufacturing plant is located. The local emissions factor is therefore much lower than the value that would be typical for the country.

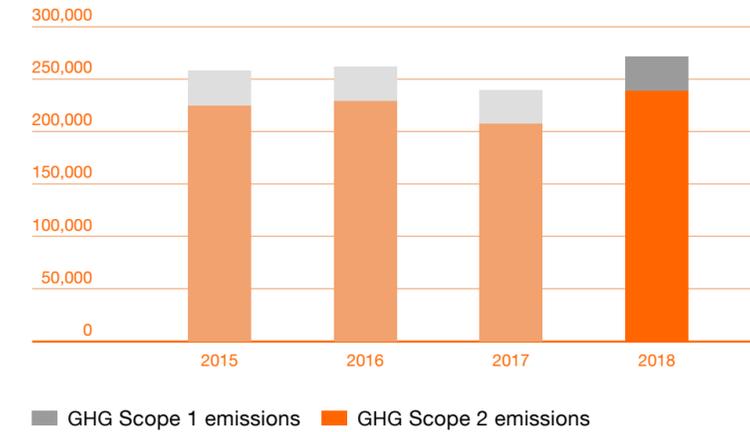
In fiscal year 2018, OSRAM reported figures for Scope 3 for the first time (a retrospective set of figures for fiscal year 2017) and published them as part of the CDP. The categories were purchased goods and services, capital goods, upstream transport and distribution, business travel, and the use of sold products.

As part of the upstream value creation process, greenhouse gas emissions associated with purchased goods and services and with capital goods were estimated based on the purchasing volume per category and country using a model that is recognized within the industry*. For the upstream transport and distribution, and business travel categories, we obtained the underlying data from our business partners and service providers.] ✓

The use of sold products is the only category that is considered relevant in the downstream value chain. The amount of emissions produced during operation is heavily dependent on how the electricity used was generated, and we have only limited influence over this. The figures are based on an internal model that helps us to estimate, in absolute terms, how many metric tons of CO₂ were saved by our low-carbon products and our emission avoidance solutions. We do not yet have any targets for the reduction of Scope 3 emissions.

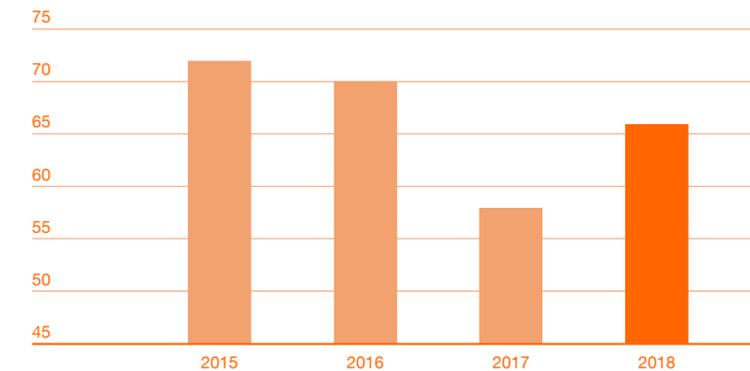
Absolute CO₂ emissions

in metric tons



Specific CO₂ emissions

in metric tons/M€ revenue



*estell, developed by Sustain Consulting, measures environmental impacts based on an input-output analysis >> www.sustain.com.



5.4

Water

[Water is an important resource for OSRAM that is used for cooling in production, as a processing medium in the manufacture of LEDs, and for sanitary purposes. Rationing water at our locations would compromise our productivity.

In order to minimize our impact, we manage water use at all locations with the aim of conserving water resources and keeping water consumption as low as possible. We take water mainly from the public drinking water supply and from groundwater. We are aware of sensitive sources and reservoirs that are close to our production sites and these are protected as appropriate.

OSRAM does not currently regard the availability of water at any of its locations as critical. However, we are aware that the Monterrey, Mexico, location may be deemed to have a scarcity of water according to certain criteria of the World Business Council for Sustainable Development's Global Water Tool » www.wbcscsd.org. Our absolute water use there is quite low and is mainly driven by the requirements of the production site (air conditioning) rather than the type of manufacturing (final electronics assembly). Most of the water we use is drawn from easily accessible and renewable groundwater.

Objectives, Action Taken, and Results

As in the case of energy consumption, the consumption and withdrawal of water are recorded locally as absolute figures and then scaled to revenue to generate regional and global figures. Location-specific targets for the reduction of water use in production are based on action plans set out in the environmental protection programs and in some cases are aligned to production output. Locations that use water only for sanitary purposes have absolute reduction targets that take into account increases or decreases in headcount.

The global target for water consumption per unit for the reporting period was higher than both the target figure for the previous fiscal year and the figure that was actually achieved for that year. This trend is being driven by the water-intensive process steps involved in the expansion of front-end production in Penang, Malaysia, the introduction of new technologies in Wuxi, China, and the ramp-up of our new location in Kulim, Malaysia. The global target was missed by 3%. The biggest deviations from the targets were reported in Kulim, where the amount of water required in the first year of operation was underestimated, and in Monterrey, Mexico, where the air conditioning system was refurbished and drinking water was included for the first time.

Data on the amount of waste water produced at the individual locations is collected every year. Some of this waste water is hazardous and so has to be professionally treated by external companies. Some of it is released into the atmosphere by evaporative coolers.] ✓

Where quality has been compromised by our production processes, we purify the water before it is discharged. This process is in compliance with the relevant legislation. All locations have the necessary licenses from government authorities. Most of the groundwater we use is returned in a chemically unchanged form.

[There are no specific targets for the discharge of chemically unchanged cooling water. Nevertheless, key figures are recorded and monitored within the framework of EHS management. During the reporting year, water quality checks carried out for the local authorities did not identify any breaches of officially prescribed thresholds.

During the reporting period, OSRAM disclosed its levels of water withdrawal and waste water from the previous fiscal year as part of the CDP Water Security Initiative.

At the plant in Wuxi, China, a project was realized in the fiscal year that saved 4,000 m³ of water by recycling condensate. Smaller projects also ran at the locations in Treviso, Italy, and in Kulim, Malaysia: In Treviso, the water installations were modernized, which reduced water consumption; in Kulim, around 30 m³ of rainwater per month is being collected for use in toilets.] ✓



Water consumption

in cubic meters

	2015 ¹⁾	2016 ¹⁾	2017	2018
Local-authority water supply	1,895,900	2,005,300	2,098,800	2,578,400
Groundwater from own supply	365,300	355,000	366,800	305,000
Other water	9,400	15,400	18,400	18,200
Total	2,270,600	2,375,700	2,484,000	2,901,600
Target for water consumption in cubic meters per €1 million revenue			627	683
Water consumption in cubic meters per €1 million revenue	635	632	602	705

[1) Discontinued operations as a result of the sale of LEDVANCE were deducted from the data in the fiscal years 2015 and 2016—in contrast to the relevant Annual Report for this period. In the case of sites where both OSRAM and LEDVANCE were active, the proportion of the total water consumed by each was professionally estimated.]

Waste water

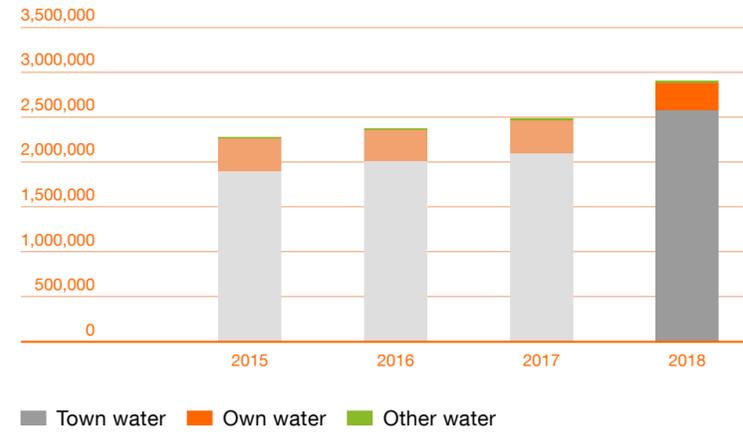
in cubic meters

	2015 ¹⁾	2016 ¹⁾	2017	2018
Chemically unchanged waste water from cooling processes	269,100	286,300	266,700	194,400

[1) Discontinued operations as a result of the sale of LEDVANCE were deducted from the data in the fiscal years 2015 and 2016—in contrast to the relevant Annual Report for this period. In the case of sites where both OSRAM and LEDVANCE were active, the proportion of the total waste water produced by each was professionally estimated.]

Absolute water consumption

in cubic meters



5.5

Waste

[OSRAM uses numerous materials in production that have an impact on people and the environment as a result of their procurement, transport, usage, and disposal. We see to it that valuable raw materials are recycled. Our aim is to minimize negative impacts on the environment or avoid them entirely. This helps to safeguard our reputation. We follow the guiding principle at all our locations of avoiding waste in production or recycling the waste, or if neither is possible arranging for its professional disposal.]

Specific water consumption

in cubic meters/M€ revenue



We record locally the amounts of material that are recycled or sent away for disposal. A distinction is drawn in these categories between hazardous and non-hazardous waste. Reduction of the waste requiring disposal is a priority. Employees who work with waste are trained in the locally applicable regulations. The locations are set targets that are based either on the output of the plant or on the annual production forecast. Revenue-related targets are defined at regional and global level.



Objectives, Action Taken, and Results

The target for the level of waste disposal per unit was set at a much higher level than the figure achieved in the prior year, but also takes account of the increased levels of production. More hazardous waste requiring disposal is being produced, particularly in the front-end manufacture of LEDs. This includes sewage sludge and water that is contaminated with solvents. Waste levels rose as expected in fiscal year 2018. However, the prior estimate for Regensburg, Germany, and the calculations for Penang, Malaysia, and Monterrey, Mexico, included special items that have been fully identified and in some cases already corrected.

Professional service providers recycle and dispose of our hazardous waste with the necessary care and in accordance with local regulations. We have established an internal monitoring system for the transport of hazardous goods, both for waste and for products. In the reporting year, we received no notification of any failure to comply with relevant laws and requirements.]

Waste

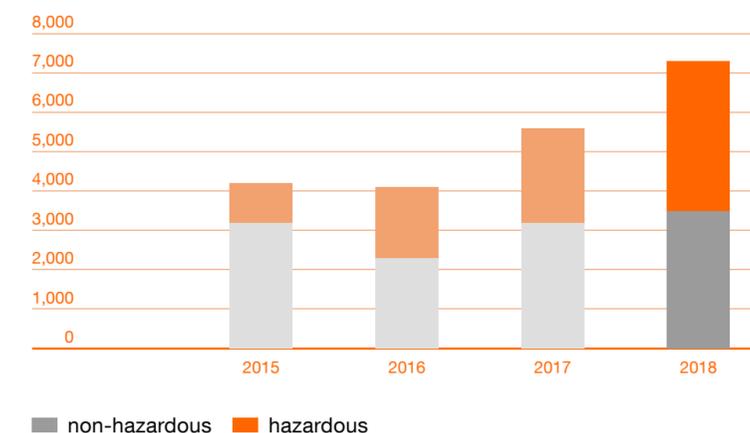
in metric tons

	2015 ¹⁾	2016 ¹⁾	2017	2018
Waste for disposal				
hazardous	1,000	1,800	2,400	3,800
non-hazardous	3,200	2,300	3,200	3,500
Total	4,200	4,100	5,600	7,300
Target for waste for disposal in metric tons per €1 million revenue			1.18	1.60
Waste for disposal in metric tons per €1 million revenue	1.19	1.10	1.36	1.78
Waste for recycling				
hazardous	1,500	1,200	1,400	1,400
non-hazardous	8,000	8,200	7,600	8,400
Total	9,500	9,400	9,000	9,800

[1] Discontinued operations as a result of the sale of LEDVANCE were deducted from the data in the fiscal years 2015 and 2016—in contrast to the relevant Annual Report for this period. In the case of sites where both OSRAM and LEDVANCE were active, the proportion of the total waste produced by each was professionally estimated.]

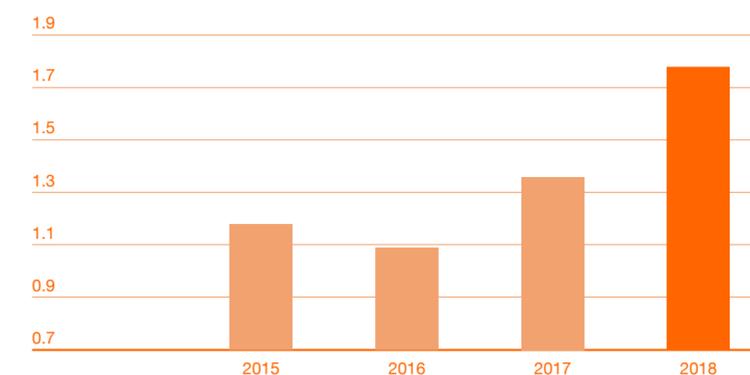
Waste for disposal

in metric tons



Specific waste for disposal

in metric tons/M€ revenue





5 . 6

Raw Materials and Substances

[OSRAM focuses on monitoring and reducing the hazardous, critical, and valuable substances used in parts of its portfolio] ✓ ➤ [5.6.1 Critical Substances, p. 38](#). However, it is also important generally for OSRAM that it uses materials in a way that conserves resources. In addition, OSRAM has clear guidelines for the design and procurement of packaging and for the product information provided on the packaging. This approach has a positive impact on the environment, reduces costs, and makes our products more acceptable to customers.

Our objective is to act in accordance with the law wherever we operate in the world. Raw materials are subject to increasing regulation that is relevant for the many areas of business in which OSRAM is active ➤ [2018 Annual Report, A.1.1.4 Legal and Sector-specific Conditions, p. 8](#). We anticipate this regulation by keeping a close eye on the market and by participating in trade associations ➤ [3.1.4 Memberships and Political Engagement, p. 14](#).

Our activities in various trade associations mean that we find out in good time about new and anticipated regulation and are able to make plans accordingly. This regulation aims, among other things, to make it easier to recycle products, to avoid hazardous materials or to provide a framework for declaring them, and to safeguard and improve the level of

protection offered to customers and the people who use our products ➤ [4.4 Product Safety and Quality, p. 26](#). It is therefore essential that we are able to reliably obtain and communicate relevant information and declarations within the supply chain.

Action Taken and Results

In accordance with our business model, responsibility for initiatives aimed at improving the use of materials lies either within individual business units or in the corporate Research and Development department. Here are two examples: Within the framework of the Federal Ministry of Education and Research's (BMBF) ORCA funding project, OSRAM is working with partners to develop alternatives to the use of rare earth elements in white LEDs. The aim is to determine whether organic luminescence conversion bodies can fully replace conventional sources of color and to dramatically reduce the need for rare earth elements by combining traditional sources of color with the organic compounds. By miniaturizing and making changes to the circuitry of the LED driver, OSRAM has also succeeded in reducing the size of the LEDs, saving on material in the process. And in the reporting period, the Digital Systems business unit launched a new generation of ultraflat electronic ballasts for dimmable and non-dimmable luminaires. Their height has been reduced from 16 mm to 11 mm, which has cut the amount of material needed by 35% (Ultraflat: 180g, predecessor product: 275g).

Our portfolio of products also requires the use of materials that are classified as conflict minerals due to their potential origin. We have put in place appropriate due diligence processes for procurement in order to properly discharge our responsibilities with regard to the protection of human rights. ➤ [7.1.1 Conflict Minerals, p. 54](#).

5.6.1 Critical Substances

[With regard to the substances contained in OSRAM products, we work on the basis that it should be possible to market our products anywhere in the world. For this reason, the world's strictest regulations apply as the global standard. We deviate from this approach in local markets in only a handful of cases but always still comply with local law. We are also able to declare critical substances contained in our products. The status of the availability of the necessary information and declarations can be included in the quarterly reporting and the management review.]

Guidelines, Responsibilities & Structures

In line with the OSRAM EHS policy and our Group guideline on product-related environmental protection, we are committed to responsible environmental management and the efficient use of resources and energy, and to the development of eco-friendly processes and advanced products. The relevant rules and guidelines are issued by the corporate EHS department; our business model dictates that responsibility for operational implementation lies with the business units themselves. Each business unit is responsible for ensuring that its products are designed in an environmentally compatible way and that resources are used efficiently both in production and use. At the product development stage, mechanisms are built into the processes to improve products continuously and meet legal requirements and customer specifications. The EHS department advises the units on legal requirements and monitors compliance.

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Our suppliers are required to promptly provide the necessary declarations and information for the qualification of new parts as well as for changes in relevant laws. Against a backdrop of ever stricter requirements, we use a special IT application that allows us to monitor the use of critical substances at component level and to achieve legal compliance of our electrical and electronic devices. We refine the application continually.

The OSRAM Index List Environment (ILE) contains information on prohibited, restricted, and declarable substances. Our own developers and the suppliers of materials employed in our products use this information to help avoid, reduce, and declare the use of hazardous substances. All suppliers are required to comply and keep up to date with the regulations that are relevant to our markets.

Mechanisms are built into the development processes to comply with legal regulations on the use of substances in products and with customer and market requirements that go beyond the legal minimum.

Action Taken and Results

Further efforts were made during the reporting period to increase the quantity and quality of data. We were thus able to significantly improve the completeness of the information, data, and declarations provided electronically by our suppliers.

This will enable us to assess risks and product conformity more quickly in the future and react promptly and appropriately.]

5.6.2 Packaging and Labelling

OSRAM has clear guidelines for the design and procurement of packaging. Packaging should be made from environmentally sustainable materials that can be easily recycled or disposed of. In addition, its volume and weight should be limited to that required to protect the contents. Packaging is even incorporated into the design process, which makes a significant contribution to waste prevention. To avoid waste, we use folding boxes as the primary packaging medium for the majority of our products and corrugated cardboard boxes for transit packaging.

Responsibility for the development and specification of packaging at OSRAM lies with the Packaging department, which serves all business units and monitors compliance with the guidelines. In the EU, Directive 94/62/EC on packaging and packaging waste aims to minimize the complexity of packaging and the amount of material used in packaging.

OSRAM uses a software tool to consolidate and evaluate data on packaging materials. The tool can calculate recycling charges for a particular country and select an appropriate

service provider, for example. It collects data that covers 80% of revenue generated in the EMEA region and extrapolates this to 100%. Since no figures are available in other regions, the packaging weight is estimated based on revenue. We work on the assumption that product groups are packaged in a similar way in all regions.

OSRAM has set itself the target of increasing the proportion of its packaging that uses paper-based and reusable materials (returnable packaging). Relevant quantifiable data is available only on a project-by-project basis. In fiscal year 2018, 6,853 metric tons of paper-based packaging materials (e.g. folding boxes, blister cards, and corrugated cardboard) and 5,499 metric tons of plastic packaging (e.g. thermoformed shells, injection-molded components, foam, and corrugated plastic) were used.*

During the fiscal year, we optimized the packaging of LED longboards by simplifying the packaging components, increasing the packaging density, and reducing the amount of material used.

OSRAM is committed to responsible practices both in relation to the packaging material used and to the information that is provided on the packaging [▶ 4.4 Product Safety and Quality, p. 26](#). Our product labelling complies with the relevant legislation. We provide additional information on energy



consumption and product lifespan either on the packaging itself or on a separate data sheet. The labelling of our products is subject to country-specific regulations. A system is in place to manage these requirements on a global basis so that our newly launched products meet all local requirements and to ascertain whether new regulation necessitates any changes to our products. OSRAM uses a 'market access conditions awareness' platform, a centralized database that includes requirements relating to the labelling of products. If there are changes to regulatory requirements in the countries where we are active, the companies concerned will report any changes. The business units are then informed and can take appropriate measures.

5.7

Compliance in Environmental Protection

[Employees, customers, and society rightly expect companies to adopt legislation, legal requirements, and standards on a proactive and comprehensive basis. OSRAM is therefore committed to complying with regulations and legislation. We meet this objective through our EHS policies. We are also expressly committed to strict compliance with environmental legislation and to striving to achieve our targets. The policies are therefore mandatory for all locations.

The EHS policies also take into account the relevant chemicals legislation that regulates the use of specified hazardous substances in electrical and electronic equipment. They regulate the use and handling of substances and preparations at all our locations and thereby improve the level of protection afforded to people's health and the environment both inside and outside the Company. OSRAM is not content to simply apply the substance bans and threshold limits that are set locally. For example, it uses lower proportions of lead and mercury in its products than those prescribed by law.

In our supply chain, we use the OSRAM Index List Environment (ILE) and the Code of Conduct (CoC) for Suppliers to communicate our expectations relating to the environment and climate protection and to request that these are met

› [3.4.1 Code of Conduct for Suppliers, p. 19.](#)

Our policies dictate that all new OSRAM employees shall receive an induction on EHS-related issues and then be given further training at regular intervals. The aim is not just to raise awareness of such matters but also to point out the consequences for OSRAM of any regulatory breaches.

To meet its environmental goals, OSRAM strives for matrix certification to the standards ISO 14001 and ISO 50001. During the 2018 calendar year, ten locations were inspected as part of eleven external certification audits (7 x ISO 14001 and 4 x ISO 50001). The corporate EHS department carried out a further eleven corporate EHS audits to check that the EHS management system is being applied worldwide. These combined audits are based on the standards ISO 14001 and OHSAS 18001 and in Europe also on ISO 50001.

During the reporting period, no relevant penalties or fines amounting to more than €10,000 for breaches of environmental legislation were imposed.]



6.0

Employees

We believe that our employees are the key to our success as a business and to adding the value that we want to offer our customers.



6.1

Responsibility to Employees

[We are tackling demographic challenges such as the shortage of skilled workers through strategic measures to develop talented individuals and skill sets and by offering attractive and fair working conditions. At the same time, we are working on reducing illness-related absences and creating workplaces that motivate.]

Guidelines and Responsibilities

Human Resources (HR) is responsible for the key topics covered in this chapter, with the exception of occupational health and safety > 6.2 Occupational Health and Safety, p. 42. HR is organized globally at OSRAM. Overall responsibility for HR matters and HR organization lies with the Chief Human Resources Officer (CHRO), who reports to the CEO. OSRAM's global HR guideline aims to establish worldwide standards in the area of HR. It contains firm rules for employees and managers on the hiring process, talent acquisition, diversity, people development, training, remuneration, and benefits.

Employees by region

in thousand FTEs ¹⁾

	September 30, 2016	September 30, 2017	September 30, 2018
EMEA	9.6	10.3	11.1
of which Germany	6.4	6.7	7.0
APAC	12.1	13.1	13.1
of which China (including Hong Kong) and Taiwan	5.3	4.6	4.3
of which Malaysia	6.3	8.0	8.0
Americas	2.9	3.0	3.2
of which NAFTA	2.8	2.9	3.1
OSRAM (total)	24.6	26.4	27.4

[1) The figures relate to all consolidated companies of OSRAM with the exception of Fluxunit GmbH.]

You will find additional information in the >> [2018 Annual Report, B.6.7 Other Disclosures, Note 29 | Personnel Costs, p. 132.](#)]

6.2

Occupational Health and Safety

[OSRAM endeavors to offer its employees a safe and healthy working environment. Minimizing the risk of occupational illnesses and accidents at work forms part of this. In this way, we not only fulfill our responsibility to society as a whole but also reduce economic losses.]

Guidelines, Responsibilities, Structures, and Processes

Overall responsibility for occupational health and safety lies with the CTO, who has delegated tasks and managerial authority to the head of the corporate EHS department > 5. Environment and Climate Protection, p. 29. The occupational health and safety guideline applies across the Company, and appropriate monitoring processes and training have been implemented for its compliance.

The locations in Wuxi, Kunshan, and Foshan, all China; Chennai, India, Penang and Kulim, both Malaysia; Bergamo, Italy, and the headquarters in Munich, Germany, have been externally certified according to OHSAS 18001. Our internal guidelines require the other production facilities to also

(P) Page <29>
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maintain a management system for occupational health and safety in accordance with the OHSAS 18001 standard. Compliance is monitored by internal audits. Larger development and sales locations operate a reduced management system and contribute data to the health and safety indicators*. This means that we cover 96% of our employees. The plant in Chennai is additionally certified to SA8000, an internationally recognized standard for social accountability.

At the aforementioned locations, the responsible managers must carry out a risk assessment for each area of activity in accordance with internal guidelines and with the support of trained safety officers. We have also established occupational health and safety committees in accordance with local legal requirements or on a voluntary basis. Furthermore, all OSRAM employees have an obligation and responsibility to be mindful of safety at all times, wherever they are.

OSRAM strives for matrix certification to the standard OHSAS 18001. During the 2018 calendar year, five locations were inspected as part of external certification audits. In

addition, two external audits were carried out to the SA8000 standard in Chennai, India. This international standard is designed to improve working conditions.

Objectives, Action Taken, and Results

The Lost Time Injury Frequency Rate (LTIFR) and Severity Rate (SR) are the internationally recognized key metrics for our occupational health and safety management system. We attained our global target for LTIFR (see following table). The rate achieved was below that of the previous year. This is consistent with the absolute number of accidents at work resulting in lost days. We were unable to maintain the severity rate at the previous year's level, however, and missed our target. The rate also increased compared with the prior year.

In fiscal year 2018, we carried out a special project with the European locations, as the situation here was identified as being more critical than in the other regions. The corporate department helped to analyze the challenges in occupational health and safety at each specific location, and local programs were developed on this basis. These included special work

safety days and video demonstrations aimed at raising safety awareness, as well as optimization of personal safety equipment. Although we made progress in terms of accident frequency, in all regions we did have to register some accidents resulting in long-term absences. Since we cannot directly influence medically justified absences, we will continue to work on reducing the overall accident rate.

There were no work-related deaths at OSRAM in fiscal year 2018. During the reporting period, we became aware of one recognized case of occupational illness from fiscal year 2017. Five cases were reported for fiscal year 2018.

During the reporting period, no relevant penalties or fines amounting to more than €10,000 were imposed on OSRAM for breaches of occupational safety regulations.] ✓

*In addition to the locations that are already covered by the environmental reporting, these include the sites in Shanghai (China), Traxon (Hong Kong), Alphaville (Brazil), Markham (Canada), Tultitlan (Mexico), Sunnyvale (U.S.A.), Gurgaon (India), Yokohama (Japan), GSS Penang (Malaysia), Taipei (Taiwan), Seoul (Korea), Paderborn/Cologne (Germany), Molsheim (France), Langley (United Kingdom), Milan (Italy), and Poznan/Warsaw (Poland). The location in Panyu (China), which was closed in the first quarter, the luminaire production site in St. Quentin (France), which has negligible levels of production, and the companies acquired in the Philippines and the U.S.A. during fiscal year 2018 are all excluded from the data. The OSRAM CONTINENTAL R&D locations in Guadalajara (Mexico), Iasi (Romania), and Vienna (Austria) are also excluded.

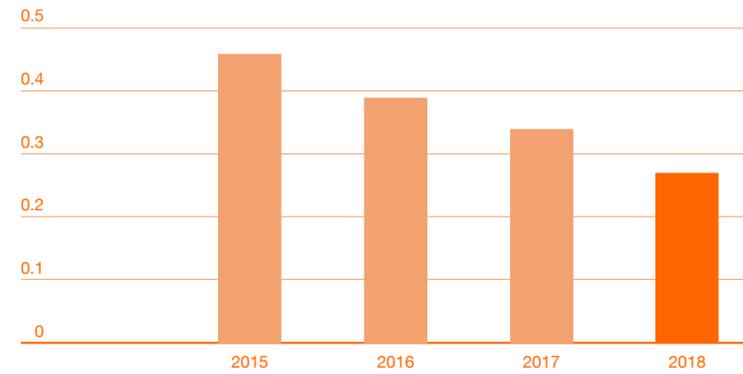


Key performance indicators for occupational health and safety¹⁾

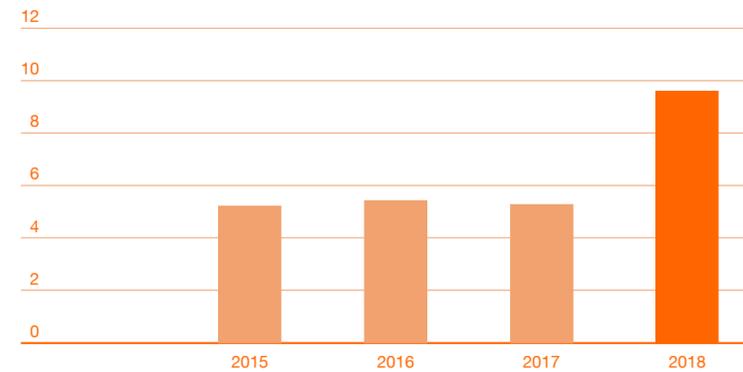
	2015 ²⁾	2016 ²⁾	2017	2018 ³⁾	Target 2018 ⁴⁾
Global LTIFR³⁾	0.46	0.39	0.34	0.27	0.34
LTIFR EMEA	0.85	0.69	0.70	0.56	0.60
LTIFR APAC	0.29	0.27	0.15	0.10	0.22
LTIFR AME	0.26	0.07	0.18	0.17	0.16
Global SR³⁾	5.25	5.44	5.31	9.62	4.45
SR EMEA	10.69	10.73	12.74	18.35	8.95
SR APAC	2.35	2.64	1.52	3.90	2.06
SR AME	4.17	2.23	2.21	9.15	2.75
Number of accidents resulting in absence from work	119	104	87	76	

[1) Excluding accidents on the way to or from work.
 2) Discontinued operations as a result of the sale of LEDVANCE were deducted from the data in the fiscal years 2015 and 2016—in contrast to the relevant Annual Report for this period. In the case of sites where OSRAM and LEDVANCE were active, accidents at work attributable to OSRAM were added. Comparability is also limited because of improvement in the data quality resulting from adjustments to the survey methodology during the reporting period.
 3) All LTIFR (Lost Time Injury Frequency Rate) and SR (Severity Rate) figures are scaled to 200,000 working hours.
 4) The targets for LTIFR and SR are based on the averages for the last three years minus 5% per year.]

Lost Time Injury Frequency Rate (LTIFR)



Severity Rate (SR)



6.3

Fair Working Conditions

[We aim to offer our employees a working environment in which each person is respected as an individual and that is conducive to good and fair working relationships. This includes the right to freedom of association and fair, non-discriminatory pay. When restructuring, we endeavor to strike an appropriate balance between the interests of employees and employer. Information on working conditions in our supply chain can be found in chapter [3.4 Supply Chain Management S. 19.](#)

Guidelines, Structures, and Processes

We are committed to giving our employees the right to freedom of association and the possibility of concluding collective agreements. These principles are set out in our Business Conduct Guidelines (BCG).

Collective agreements are in place at our largest European companies* in terms of number of employees. We work closely with these companies' employee representatives (whether works councils or trade unions). In Germany, for example, this has resulted in a large number of works agreements.



Around the world, we make use of international frameworks such as those provided by the International Labour Organization (ILO) and the UN Global Compact. Our commitment to these frameworks and our understanding of the values they uphold are set out in our BCG, which every new employee must sign at the start of a contract: We respect the personal dignity, privacy, and personal rights of each individual and do not tolerate any discrimination. These principles apply both to internal working relationships and to conduct toward external partners such as suppliers. In Germany, our Company-wide agreement on partnership in the workplace expressly states that all employees should be valued and treated with respect, regardless of their gender, ethnic origin, religion or beliefs, physical limitations, or sexual identity.

Violations of the values set out in the Business Conduct Guidelines can be reported to the HR organization, the whistleblowing system ‘Tell OSRAM’ or where available, to the employee representatives. Reported incidents are dealt with on a case-by-case basis. The Compliance department is immediately called in if there is a suspicion of activity that may constitute a crime and/or may incur a fine; other matters are initially dealt with locally and then escalated if necessary until a solution is found.

Objectives, Action Taken, and Results

Our objective is to comply with national labor laws.

During the reporting period, an initiative was launched to develop OSRAM’s new cultural values and leadership principles and roll-out was commenced. This initiative focuses on how employees should work together and how leadership at OSRAM should be structured. It also encourages employees to treat each other with respect.

In the reporting period, we also created a mechanism that in the future will allow violations of human rights to be reported via the whistleblowing system ‘Tell OSRAM.’ This also includes incidents that are in breach of our principles on fair working conditions. Integration into the existing system was implemented at the beginning of fiscal year 2019 [3.2 Combating Corruption and Anti-Competitive Behavior, p. 15.](#)

In the reporting year, 88% of our employees within the main European companies* were covered by collective bargaining agreements. In Germany, more than 97% of employees are covered by collective bargaining agreements.

* These are Germany, Italy, Slovakia, the Czech Republic, and Bulgaria.

Employees ^{1, 2)} by contract type ³⁾

Male and female

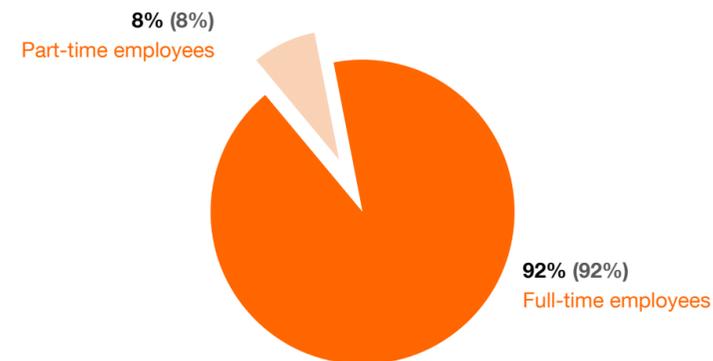
	September 30, 2017	September 30, 2018
Temporary employees	Approx. 16%	Approx. 23%
of which female	66%	59%
Permanent employees	84%	77%
of which female	45%	43%

[1) Headcounts
 2) The figures relate to the consolidated companies of OSRAM with the exception of Fluxunit GmbH (2017 and 2018), BAG electronics GmbH, BAG electronics, Inc. (both 2018), OSRAM CONTINENTAL Austria GmbH, OSRAM CONTINENTAL Romania S.R.L., OSRAM CONTINENTAL France SAS, and OSRAM CONTINENTAL Mexico Services S de RL de CV (all 2018). These exceptions amount to 632.4 FTEs.
 3) Figures are not exactly comparable as the calculation method was improved in fiscal year 2018.]

• GRI-Index 102-41

Full-time and part-time employees ^{1, 2)}

in Germany 2018 (figure for previous year in brackets)



[1) Headcounts
 2) The figures relate to the consolidated companies of OSRAM with the exception of Fluxunit GmbH (2017 and 2018).]

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6.3.1 Pay and Participation

[We value our employees and treat them with respect, and part of this includes offering them fair pay and a motivating working environment. Our remuneration system is designed so that pay is commensurate with performance and does not discriminate on the basis of gender or other characteristics. It is our responsibility to comply with local legal requirements, for example in relation to pay. In Germany, the collectively agreed remuneration system forms the basis for equal pay among workers covered by this scheme. Roles that are above the pay scale are also treated equally, with non-discriminatory criteria used to determine the level of remuneration. In addition, OSRAM uses a clearly defined incentive system to boost employee performance.

Depending on the national rules and regulations, OSRAM offers discretionary benefits over and above the legal requirements in areas such as health and accident insurance, occupational pension provision and other forms of deferred compensation, parental leave, maternity rights, and in Germany also an employee share program. We also offer our employees various means of providing feedback and engaging in dialog with us [› 6.4 Employee Satisfaction and Employer Attractiveness, p. 47.](#)

At its German locations, OSRAM will in future be looking to continuously review whether and to what extent the level of remuneration differs by gender.

6.3.2 Reorganization of the Company and Restructuring Measures

The restructuring of traditional areas of business is one of the consequences of the technology shift. Restructuring is an essential step in OSRAM's transformation into a high-tech company. Where job cuts are unavoidable, OSRAM makes every effort to minimize the social impact and to consult its employees at the earliest stage possible.

People strategy has an important role to play in the restructuring of the Group. An approach for strategic workforce planning has been set up to this end. The pilot phase focused on Germany, where in fiscal year 2018 the Research & Development (R&D) department was analyzed to compare the existing roles with the roles that are required from a strategic perspective and to identify where action needs to be taken. Future placements of employees and evaluations of the established methodology are discussed with the relevant departments on an ongoing basis. When required OSRAM also conducts reviews on the extent to which the strategic plan can be incorporated into larger restructuring measures.

OSRAM succeeded in agreeing a future concept for the German sites with the employee representatives in Germany during fiscal year 2018. The primary goal is to preserve these locations and to focus the Company on high-tech products and solutions. Over the coming years, OSRAM will invest a sum in the triple-digit millions of euros range in research and development and in the further development of the plants in Berlin, Herbrechtingen, Regensburg, and Schwabmünchen, all Germany. The transformation will also mean that some roles will be eliminated. A redundancy scheme and a social compensation plan were agreed for these. The agreed elimination of around 600 jobs by 2020 will be achieved by means of pre-retirement part-time employment, voluntary redundancies, and a retraining program. The latter is intended to equip employees affected by the job losses with skills that will allow them to fill new roles within the Company.]



6.4

Employee Satisfaction and Employer Attractiveness

[Our employer attractiveness, i.e. how we are perceived internally and externally as an employer, is a key determinant of the long-term success of the organization. By creating a motivating working environment, we can retain employees and minimize the costs that result from employee turnover. For OSRAM's transformation into a high-tech company to be successful, it is important, depending on the country and labor market, to be seen as an attractive employer so that we can recruit and retain the experts that are needed. Our approaches are designed to mitigate the risks presented both by the loss of high performers and by the difficulties in recruiting skilled workers.]

Guidelines, Structures, and Processes

We have defined an employer positioning that is aligned with our corporate goals and that provides a strategic framework for our HR work. This is set out in an employer branding guide in order to maintain uniform standards across the Group. We operate recruitment centers in Germany, China, Malaysia, and the U.S.A. In these countries, we analyze best practice and conduct image surveys in order to assess how we are perceived by our target demographics and to evaluate what we offer as an employer.

'Light is what you make it.' This is our promise. By giving many bright minds a framework in which they can continuously build on their expertise, we are able to combine modern technologies with the perspectives of new markets to create innovative lighting solutions. In this way, we want to inspire our employees and future talents and to express the trust and value that we place in them. We use the 'Light is what you make it' claim to reach out internationally to specific groups of applicants in the relevant networks.

We attend numerous career fairs around the world and offer internships and opportunities for degree dissertations so as to position OSRAM as an attractive employer among school-leavers and graduates. A key element of our employer profile is the career page on the OSRAM website. We use this to provide information to prospective employees, to help them in their search for a job, and to give them a means of getting in contact with us. Our social media presence on Facebook, LinkedIn, and Xing complements our website and enables us to communicate directly with our target groups.

Employee motivation and satisfaction are also enhanced by intangible benefits such as flexible working hours and the option to work remotely as well as a good work-life balance. Employee satisfaction in the form of engagement is usually measured every two years by means of a global survey*. To obtain further feedback from employees, we use dialog events such as town hall meetings, 'Meet the CEO/CTO/CFO' sessions, and webcasts with the Managing Board. As part of a defined follow-up process, action plans are drawn up on the basis of the survey results and progress on implementing the plans within the Company is continuously monitored. The

results of the survey, the actions plans, and updates on the follow-up process are presented to the Managing Board. These are not global measures, but individual measures at divisional, departmental, and team level, or for individual locations.

Objectives, Action Taken, and Results

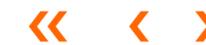
The results of the most recent employee survey showed an improvement: Engagement** has improved from 79% since the last survey in 2014 to 83% in 2017. This result is higher than the average recorded among other companies in the high-tech sector (79%). Retention*** was also examined: 66% of OSRAM employees felt that they were committed to the Company in 2014; the most recent survey, for 2017, showed that 73% of employees now feel this way.

We achieved our objective for fiscal year 2018 of obtaining certification under the [» Top Employer Germany](#). This year's [» 'UNIVERSUM Student Survey'](#) evaluates the popularity of employers among students in Germany: OSRAM was ranked 62nd for students of the natural sciences and 82nd for engineering students.]

*The survey is carried out on behalf of HR by [» Willis Towers Watson](#)

**By engagement we mean not only the willingness of employees to dedicate themselves to the Company's mission, but also whether they think that their working conditions and working environment are productive and inspiring enough for them to be able to carry out their tasks successfully. The results are not completely comparable as two questions were dropped from the 2017 survey.

***Retention is a measure of how likely an employee is to recommend OSRAM as an employer and to what extent the employee is considering leaving the Company. The results are not completely comparable as the 2017 survey included an additional question.



New hires in 2018 by age category, gender, and region^{1) 2)}

(absolute figure and proportion of workforce)

	EMEA		Americas		APAC		OSRAM (total)	
	Headcount	%	Headcount	%	Headcount	%	Headcount	%
Male								
< 30	324	43	142	71	1.278	70	1,744	63
30–49	399	10	157	20	749	22	1,305	16
≥ 50	65	4	57	10	7	3	129	5
Total	788	12	356	23	2,034	37	3,178	23
Female								
< 30	254	67	140	47	1.316	36	1,710	40
30–49	435	19	128	18	575	15	1,138	17
≥ 50	190	18	39	10	3	1	232	13
Total	879	23	307	22	1,894	25	3,080	24

[1] The figures relate to the consolidated companies of OSRAM with the exception of Fluxunit GmbH, BAG electronics GmbH, BAG electronics, Inc., OSRAM CONTINENTAL Austria GmbH, OSRAM CONTINENTAL Romania S.R.L., OSRAM CONTINENTAL France SAS, and OSRAM CONTINENTAL Mexico Services S de RL de CV. The figures represent the total number of all new hires during the relevant fiscal year.

2) Figures are not exactly comparable with those of the previous year as the calculation method was improved in fiscal year 2018.]

Employee turnover in 2018 by age category, gender, and region¹⁾

(absolute figure and proportion of workforce)

	EMEA		Americas		APAC		OSRAM (total)	
	Headcount	%	Headcount	%	Headcount	%	Headcount	%
Male								
< 30	194	26	75	38	1,062	59	1,331	48
30–49	328	8	120	15	719	21	1,167	14
≥ 50	144	8	112	19	25	12	281	11
Total	666	10	307	20	1,806	33	2,779	20
Female								
< 30	140	37	130	44	1,353	37	1,623	38
30–49	292	13	136	19	947	25	1,375	20
≥ 50	117	11	74	19	30	12	221	13
Total	549	15	340	24	2,330	31	3,219	25

[1] The figures relate to the consolidated companies of OSRAM with the exception of Fluxunit GmbH (2017 and 2018), BAG electronics GmbH, BAG electronics, Inc. (both 2018), OSRAM CONTINENTAL Austria GmbH, OSRAM CONTINENTAL Romania S.R.L., OSRAM CONTINENTAL France SAS, and OSRAM CONTINENTAL Mexico Services S de RL de CV (all 2018). The figures represent the total number of all resignations during the relevant fiscal year.]

6.5

People Development

[We firmly believe that nurturing and developing our employees is key to improving their long-term engagement and therefore also driving the success of our Company. This is why we offer all employees opportunities for personal and professional development, which also allows us to establish ourselves as an employer of choice in the market.

In order to remain competitive in a changing industry, we need to develop our staff on an ongoing basis. Skills that the Company will need in the future must be identified at an early stage so that wherever possible we are able to fill vacancies internally.

Structures and Processes

We provide both employees and managers with development opportunities such as general further training courses (for all employees), schemes for high-potential individuals, and defined career paths with dedicated development programs*. The many courses and activities offered as part of the general training program are available across all locations and can be tailored to individual needs. The program is reviewed once a year and modified if necessary. Employees are nominated for our high-potential programs and for

* Participants in the development programs who transferred to OSRAM CONTINENTAL on July 1, 2018, will complete the program that has already been started.



the career paths and accompanying development programs via a performance management process. The high-potential programs are used to develop our most talented individuals at global and local level. The emphasis is on specific development plans and regular dialog with experienced mentors. We also offer high-potential employees a wide range of development opportunities. A standardized global approach was developed in fiscal year 2018 and will be rolled out in the next fiscal year.

Objectives, Action Taken, and Results

OSRAM wants to focus even more on the strengths and potential of its employees, which is why we set ourselves the goal for fiscal year 2018 of establishing a new process for performance management and development of potential development.

The new development process, called GROW, was launched on schedule at start of fiscal year 2019. It places greater emphasis on dialog between managers and employees and on greater freedom and personal responsibility. In fiscal year 2018, we launched the Talent Management and Career Models project and carried out a detailed review of the existing development programs. To complement our global high-potential program, we will establish local high-potential programs in Germany, China, Malaysia, and the U.S.A. in the coming year in order to develop high-performing and high-potential individuals on a decentralized basis. The Managing Board is regularly informed about the programs and progress of our talent management system and also meets with high-potential individuals from around the world several times a year.

This offering is complemented by an array of training courses, e-learning modules, and career development programs designed to support our employees in their specific roles and in their personal development > [6.6 Diversity and Inclusion, p. 50](#). We make our learning programs available on the 'Learning at OSRAM' platform.

In addition to training focused on personal development, we also offer specialist training for employees in purchasing, sales, marketing, and finance. At production sites with a high proportion of non-salaried staff, around 90% of technical and job-specific training is organized via our learning management system.]

We offer our employees a range of development opportunities under the Leadership, Key Expert, and Project Management global career paths. The employees who follow these paths are thus able to focus on tasks that correspond to their individual skills profile.

- Leadership: The OSRAM Leadership career path helps our managers to more effectively overcome the challenges that they will face in their work. The focus is on performance management, nurturing talent, change management, entrepreneurship, innovation, and strategic decision making. In fiscal year 2018, there were 2,373 employees on this career path.
- Key Expert: This career path gets the best out of employees with outstanding technical expertise so that they can drive innovation and technology trends within the Company. In fiscal year 2018, there were 89 employees on this career path.

- Project Management: The Project Management career path enables employees who are 100% project managers and have the necessary expertise to develop similarly to a leadership career. The Project Leader Development Programs (PLDP) contribute to the professionalization of our project manager skill profiles, are tailored to the various levels within the Company, and strengthen the project management community at OSRAM. In fiscal year 2018, there were 124 employees on this career path.

[A total of 220 employees worldwide are currently enrolled in the high-potential programs; 336 are enrolled in the career path development programs.

Regular meetings are held between employees and managers at which expectations are discussed and targets agreed. Opportunities for career development are discussed and suitable programs are selected from the options available. In addition, an individual development plan (IDP) is available to all employees that can be used to structure and track their personal development.

Our Open Mentoring program, in which employees get to choose a mentor who meets their own particular needs, fosters the sharing of experiences across hierarchical and international boundaries. The program enables any employee worldwide to act either as advisor and mentor or mentee.



During the reporting period, the recruitment process was changed in order that high-potential individuals from around the world are considered both in succession planning and in the filling of vacant positions. The changes will be implemented in the next fiscal year.

We also successfully launched our global trainee program LightUp! during fiscal year 2018, which will be providing training to new recruits and make us even more appealing to graduates. The ten trainees currently undergoing the 18-month program are benefiting from a comprehensive range of career development opportunities. They are supported and encouraged in their personal and professional development by experienced mentors.

Our apprenticeships play a major role in securing the next generation of employees. We provide training in 14 recognized occupations in Germany and a dual study program. 161 students were employed at OSRAM in Germany for apprenticeships or our dual study program (previous year 170).]

6 . 6

Diversity and Inclusion

[As a global company, we have to be flexible enough to thrive in different markets. This can only succeed if we are committed to diversity in our workforce, not only with regard to employees' cultural background, age, sexual identity, gender, disability, religion, and beliefs, but also in terms of the skills that they possess. To put this principle into practice, OSRAM has signed the Charter of Diversity, a voluntary commitment by German companies under the patronage of the Federal Chancellor.

Guidelines, Structures, and Processes

The Business Conduct Guidelines, which apply across the Group, are intended to exclude the possibility of any individual being discriminated against because of one of the aforementioned characteristics [» www.osram.com/bcg](http://www.osram.com/bcg). Furthermore, diversity is anchored in the HR guideline as an integral part of the HR strategy.

Diversity is one of a number of factors that are used at OSRAM in recruitment and making internal appointments.

Our Diversity Program is designed to firmly establish diversity in the corporate culture and encompasses various initiatives. The Employee Groups, for example, give all OSRAM

employees a forum for discussing specific topics and aspects of diversity. They include the Flexwork Community, which advocates flexible working time models at OSRAM, and the PRIDElight Community, which champions an open and tolerant working environment and facilitates contacts between LGBT* colleagues and people close to them. In fiscal year 2018, we also held a successful Diversity Day. Further examples of how we promote diversity can be found on the OSRAM website [» www.osram-group.com/careers](http://www.osram-group.com/careers).

OSRAM participates in the annual Girls' Day in Regensburg, Germany, to help increase the proportion of women in technical and scientific professions. In Germany, the Company also exhibits at special career fairs and events for women, runs the 'Frauen in Führung' (women in leadership) 'Frauenkompass' (women's compass) and Female Leaders Cross Mentoring programs, organizes a Women in Leadership Forum, and provides management training specifically for female employees. 'Frauenkompass' offers a structured development process for individual career paths, while the Female Leaders Cross Mentoring Program gives women employed in different companies a means of sharing experiences [» 6.5 People Development, p. 48](#) and [» 3.1.1 Functions and Responsibilities of the Governance Bodies, p. 13](#). In recognition of this program, OSRAM was awarded the Margarethe Runtinger Prize by the city of Regensburg, Germany, for being a particularly female-friendly company.



OSRAM also makes it easier to combine work and family life, for example by offering flexible working models such as the option of working part-time or from home. In Germany, support is also provided with childcare.]

Results

Percentage of female and male employees at OSRAM^{1) 2)}

	Management positions (2017)	Management positions (2018)	Senior management positions (2017)	Senior management positions (2018)	Total workforce 2017	Total workforce 2018
Female	19%	20%	13%	15%	48%	47%
Male	81%	80%	87%	85%	52%	53%

[1] The figures relate to the consolidated companies of OSRAM with the exception of Fluxunit GmbH (2017 and 2018), BAG electronics GmbH, BAG electronics, Inc. (both 2018), OSRAM CONTINENTAL Austria GmbH, OSRAM CONTINENTAL Romania S.R.L., OSRAM CONTINENTAL France SAS, and OSRAM CONTINENTAL Mexico Services S de RL de CV (all 2018). These exceptions amount to 632.4 FTEs.

2) Managers are employees who are non-tariff; senior managers are managers who belong to the executive level of the organization.]

Percentage of senior management positions¹⁾ filled by local managers²⁾

For countries where OSRAM employs more than 1,000 people, the following table indicates the percentage of senior management positions that were filled by local candidates:

	2017	2018
Germany	90%	89%
Bulgaria		100%
China	31%	31%
Malaysia	29%	31%
Mexico	100%	100%
USA	95%	95%

[1] Local managers is understood to mean all managerial roles that are filled by local employees.

2) The figures relate to the consolidated companies of OSRAM with the exception of Fluxunit GmbH (2017 and 2018), BAG electronics GmbH (2018), and OSRAM CONTINENTAL Mexico Services S de RL de CV (2018).]



7.0

Society

OSRAM sees itself as being part of society, which means that our responsibility also extends beyond the confines of the Company: for the future-compliant development of the communities in which we operate and for a sustainability-oriented design of society.



7.1

Respect for Human Rights

If human rights violations were to occur within OSRAM or at an external partner it would not only harm the people involved, it would also be contrary to our beliefs and could damage our reputation. In terms of human rights, it is important to OSRAM that it fulfills its duty of care toward its own employees and toward suppliers. As an international company with diverse products and complex global value chains, we know that our business relationships present the risk of human rights violations, especially for potentially more vulnerable groups such as migrant and temporary workers.

Companies are increasingly expected to do more about human rights. This is reflected in legislation such as the UK Modern Slavery Act and policy initiatives such as the German government's National Action Plan for Business and Human Rights (NAP). We are also increasingly being called upon by investors, customers, and the general public to identify and mitigate any adverse impacts that our business activities and business relationships might have on human rights.

Guidelines, Responsibilities, Structures, and Processes

HR coordinates our duty of care with regard to human rights. The department provides support to operational functions in their efforts to incorporate this into new and existing processes across the Company. For example, work is currently under way on the introduction of a mechanism for reporting human rights violations and any concerns that employees or third parties may have. We are committed to the principles of the United Nations (UN) Human Rights Charter and, as member of the UN Global Compact, we support its principles [» UN Global Compact](#).

Human rights with regard to our employees are embedded internally through our Business Conduct Guidelines and with regard to our suppliers through our Code of Conduct [» 3.1.3 Corporate Values, p. 14](#), [» 3.4.1 Code of Conduct for Suppliers, p. 19](#) and [» 3.4.2 Review of Suppliers, p. 20](#). The standards and regulations referred to are based in part on the Universal Declaration of Human Rights and the fundamental conventions of the International Labour Organization (ILO), as well as the related legal provisions.

In fiscal year 2018, HR formalized our duty of care in terms of human rights at organizational level. We also worked on a comprehensive human rights policy that is set to provide the overarching framework for our human rights engagement in the future. The [» policy](#) was published at the beginning of 2019. Internally, this was fleshed out into a Group-wide human rights guideline that has been adopted at the end of 2018. The integration of human rights-related risks into OSRAM's risk management system was also initiated.

Action Taken and Results

Based on a human rights risk and capacity analysis conducted in fiscal year 2017, we implemented further measures to strengthen our human rights due diligence processes in fiscal year 2018. In May 2018, OSRAM drew on external support to organize an internal, interdisciplinary workshop with the aim of updating the existing human rights action plan and setting future strategic priorities. Among the topics discussed by the participants were the impact of digitalization on human rights, the ways in which internal and external stakeholders can be made aware of human rights issues, and the integration of human rights aspects into existing processes and systems. As a result of the workshop, existing measures were adapted and new measures identified. We began implementing the new measures in fiscal year 2018. This includes supplementing our human rights policy with an internal human rights guideline that sets out roles and responsibilities.

To further strengthen our human rights due diligence processes in the supply chain, we published a revised Code of Conduct for Suppliers in April 2018 [» 3.4.1 Code of Conduct for Suppliers, p. 19](#). OSRAM maintains a global network of suppliers—even in countries where compliance with human rights principles cannot be regarded as a given [» 3.4.2 Review of Suppliers, p. 20](#).

The procurement of construction services for our new production building in Kulim, Malaysia, and the volume of materials ordered for use in our electronic components and assembly, particularly in Asia, resulted in an increase in

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human rights risk in fiscal year 2018. We are mitigating this risk by focusing our corporate responsibility (CR) audits on the regions concerned and by obtaining additional information from suppliers in high-risk countries. By choosing to work only with quality-focused partners and suppliers, especially in the field of optoelectronic components, we attempt to mitigate potential negative effects from the outset.

We are putting in place a mechanism for reporting human rights violations and concerns related to OSRAM's business activities and business relationships. The mechanism will be accessible to employees and any third party that may be adversely affected by our operations, or those of our suppliers or business partners. It is being introduced in fiscal year 2019. We are also working tirelessly on integrating human rights aspects into our existing processes, for example into our risk management system. Integration into our internal control system (company level control questionnaire) was completed in fiscal year 2018.

Details on how we deal with the risks of modern slavery in our business activities and our supply chain are set out in the OSRAM Modern Slavery Statement 2017 » www.osram.com/modern-slavery-statement.

7.1.1 Conflict Minerals

Certain products in our portfolio necessitate the use of conflict minerals. We are aware of the associated risks in the supply chain.

Guidelines, Responsibilities, Structures, and Processes

OSRAM is committed to the objective of a conflict-free supply chain and aims to achieve full transparency with regard to the origin of potential conflict minerals. In order to fulfill our responsibility in terms of human rights here, we have put due diligence processes for procurement in place. Responsibility for the issue of conflict minerals lies with the Purchasing department, which is assigned to the Chief Technology Officer (CTO) and reports directly to him. OSRAM has been a member of the Responsible Minerals Initiative (RMI) since 2017. The sharing of information and insights within the RMI is helping us to continuously improve our due diligence on conflict minerals. RMI training documents are available to our suppliers free of charge via an online training portal. When purchasing raw materials, OSRAM avails itself of the RMI CMRT (Conflict Mineral Reporting Template) to make sure that it uses qualified sources. For example, all our directly commissioned smelters for conflict minerals are RMI certified. We also request that all suppliers of products that contain conflict minerals use the latest version of the RMI CMRT to identify the smelting plants in their supply chain.

OSRAM identified at an early stage all material groups that may contain conflict minerals. All suppliers of these material groups are required to provide evidence of the plants that

they use, which must be certified as conflict-free. In fiscal year 2018, we also began to use special software to obtain and verify information from our suppliers concerning conflict minerals.

To complement our Code of Conduct, we have implemented a Conflict Minerals Code for relevant suppliers, which prohibits them from using or selling minerals that contribute to ongoing conflict in the affected countries.

Objectives, Action Taken, and Results

OSRAM is committed to addressing the issue in accordance with the OECD guidelines and the US Dodd–Frank Act. For a number of years, we have been working on investigations into country of origin and on due diligence checks of the smelters used in our supply chains. To date, we have not yet fully succeeded in establishing, together with our suppliers, the conflict-free status of all products within the portfolio. Our target is to achieve 100% transparency across our supply chain by the end of fiscal year 2019. Although this target has not yet been attained, the level of transparency and the number of smelters and refineries certified as conflict-free in our supply chain have increased in recent years. We are already able to state that our OSRAM Opto Semiconductors portfolio is conflict-free. For other products, our current level of transparency is 97%.

We support industry-wide multi-stakeholder initiatives that are aimed at preventing conflicts, human rights abuses, and violations of labor and environmental laws in our supply chain.]

7.2

Social Engagement

Wherever OSRAM is active, we want to assume responsibility for the world outside our business, to exert a positive impact, and to be perceived accordingly. We therefore engage at local level across the globe in initiatives that foster sustainable development and a prosperous society. Our social engagement activities follow a clear strategy and are aligned with our corporate values.

OSRAM is committed to many different forms of social engagement, from cash, product and in-kind donations, support and sponsorship of cultural, social, educational and sports events or institutions, through to membership in associations, organizations and clubs. We have appointed one individual to take responsibility for each of the categories referred to. Rules relating to corporate citizenship are integrated in our Business Conduct Guidelines and are supported by policies covering specific topics [3.1.4 Memberships and Political Engagement, p. 14.](#)

An online tool assists us in measuring the costs and success of our projects and where appropriate leads to adjustments. We also support the social engagement of our employees when they engage in volunteering or donation campaigns.

In fiscal year 2018, as part of its social engagement activities, OSRAM provided a total of around €3.2 million (previous year: €2.6 million) in donations, sponsorship, and membership fees to citizenship projects, initiatives, organizations, and events.

All volunteering activities qualify as a citizenship activity if they contribute to an enriched social environment where society, employees, customers, suppliers, and the company

itself benefit equally. The criteria of the London Benchmarking Group (LBG) define the framework for this.

Action Taken and Results

The following selection of projects from fiscal year 2018—focused on science, education, art, culture, and society—give an insight into the broad scope of our engagement in terms of both content and international reach:

Examples of our social engagement



Education category

- In 2018, OSRAM again funded a number of scholarship programs worldwide. We also provide the educational institutions with equipment for teaching and practical research.
- In the U.S.A., OSRAM works with the Hillsboro-Deering High School in New Hampshire to award scholarships to students looking to further their education in science, technology, engineering or mathematics.
- OSRAM has sponsored the Welker Award, which recognizes outstanding global research in the field of compound semiconductors, since 1976.
- In fiscal year 2018, OSRAM Regensburg, Germany, hosted a further edition of its annual Girls' Day for schoolgirls.
- In fiscal year 2018, OSRAM again participated in TECHFEST MUNICH as the main partner. Candidates were able to use our Lightelligence software to develop innovative and forward-looking applications.



Arts and culture category

- OSRAM, the market leader in entertainment lighting, put on a spectacular light show featuring audience participation for the 2018 Eurovision Song Contest in Lisbon, Portugal, having previously done so for the events in Vienna, Austria; Stockholm, Sweden, and Kiev, Ukraine.
- Since 2013, OSRAM and ARRI have been presenting the ARRI/OSRAM Award at the annual Munich Film Festival to the best international film in the Cinema Masters category.



Social category

- As an official corporate partner of the German Red Cross since 2016, OSRAM has been promoting an innovative approach to foresighted humanitarian aid in natural catastrophes: Forecast-based Financing (FBF) uses weather forecasts in order to provide selective financial and humanitarian aid in regions particularly at risk before the occurrence of catastrophes.
- OSRAM is working with Boston Children's Hospital to support young patients and their families.
- At our site in Wuxi, China, we are actively committed to combating poverty in local communities. Financial support from OSRAM has enabled 18 pupils to receive a high-quality school education.
- OSRAM is involved in the United Nations U4E (United for Efficiency) environmental initiative that advocates for energy-efficient lighting solutions around the world.



8.0

Appendix

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8.2	Independent Auditor's Limited Assurance Report regarding Sustainability Information	58
8.3	GRI Content Index	60
8.4	Imprint and Contact	66



8.1 List of Material Topics

Material Topics	GRI Topics	Potential Impact by OSRAM on the GRI Topics	Location of Impacts in the Value Chain
Greenhouse gases and climate change	Emissions	Direct and indirect	Within OSRAM, and downstream
Energy efficiency	Energy	Direct	Within OSRAM, and downstream
Raw materials and substances	Materials, Environmental compliance	Direct and indirect	Within OSRAM
Human rights	Child labor, Forced or Compulsory Labor Human Rights Assessment, Procurement Practices, Supplier Social Assessment	Direct	Upstream and within OSRAM
Fair working conditions	Employment, Diversity and Equal Opportunities, Freedom of Association and Collective Bargaining	Direct	Upstream and within OSRAM
Occupational health and safety	Occupational Health and Safety	Direct	Upstream and within OSRAM
Employee satisfaction and employer attractiveness	Employment, Training and Education	Direct	Within OSRAM
People development	Training and Education	Direct	Within OSRAM
Product safety	Customer Health and Safety, Marketing and Labelling	Direct and indirect	Upstream, within OSRAM, downstream
Privacy and data security	Customer Privacy	Direct	Downstream
Customer relations		Direct	Downstream
Combating corruption and bribery	Anti-Corruption, Anti-Competitive Behavior, Procurement Practices, Socioeconomic Compliance	Direct and indirect	Upstream and within OSRAM

Details and further information are available on our website [» www.osram.com/sustainability](https://www.osram.com/sustainability).



8.2

Independent Auditor's Limited Assurance Report regarding Sustainability Information

The assurance engagement performed by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft (EY) relates exclusively to the German PDF version of the Sustainability Report 2018 of OSRAM Licht AG. The following text is a translation of the original German Independent Assurance Report.

To the Managing Board of OSRAM Licht AG, Munich

We have been engaged to perform a limited assurance engagement on information marked with the symbol “[...] ⊗” in the Sustainability Report of OSRAM Licht AG for the reporting period from 1 October 2017 to 30 September 2018 (hereafter “the report”).

Our engagement is exclusively limited to the information marked with the symbol “[...] ⊗” in the German PDF version of the report. Our engagement did not include any

prospective statements or information for previous years. The report is published as a PDF version at www.osram.com/sustainability.

Management's responsibility

The legal representatives of OSRAM Licht AG are responsible for the preparation of the report in accordance with the criteria as set out in the Sustainability Reporting Standards of the Global Reporting Initiative (hereafter “GRI criteria”) and for the selection of the information to be assessed.

This responsibility includes the selection and application of appropriate methods to prepare the report and the use of assumptions and estimates for individual sustainability disclosures that are reasonable under the circumstances. Furthermore, the legal representatives are responsible for internal controls that they deem necessary for the preparation of a report that is free from - intended or unintended - material misstatements.

Auditor's statement regarding independence and quality

We are independent from the entity in accordance with the provisions under German commercial law and professional requirements, and we have fulfilled our other professional responsibilities in accordance with these requirements.

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft applies the national statutory regulations and professional pronouncements for quality control, in particular the by-laws regulating the rights and duties of Wirtschaftsprüfer and vereidigte Buchprüfer in the exercise of their profession [Berufs-

satzung für Wirtschaftsprüfer und vereidigte Buchprüfer] as well as the IDW Standard on Quality Control: Requirements for Quality Control in audit firms [IDW Qualitätssicherungsstandard: Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis (IDW QS 1)].

Auditor's responsibility

Our responsibility is to express a conclusion on information marked with the symbol “[...] ⊗” in the report based on our work performed.

We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): “Assurance Engagements other than Audits or Reviews of Historical Financial Information” published by the IAASB. This standard requires that we plan and perform the assurance engagement to obtain a limited level of assurance to preclude that the information marked with the symbol “[...] ⊗” in the report for the reporting period from 1 October 2017 to 30 September 2018 has been prepared, in all material respects, in accordance with the relevant GRI criteria.

We do not, however, issue a separate conclusion for each sustainability disclosure which is marked with the symbol “[...] ⊗.” In a limited assurance engagement the evidence gathering procedures are more limited than for a reasonable assurance engagement and therefore significantly less assurance is obtained than in a reasonable assurance engagement. The procedures selected depend on the auditor's judgment.



Within the scope of our work we performed amongst others the following assurance and other procedures:

- Inquiries of employees concerning the sustainability strategy, sustainability principles and sustainability management of OSRAM Licht AG,
- Inquiries of employees responsible for the preparation of information marked with the symbol “[...] ⊕” in the report in order to assess the sustainability reporting system, the data capture and compilation methods as well as internal controls to the extent relevant for the limited assurance engagement,
- Inspection of the relevant documentation of the systems and processes for compiling, analyzing and aggregating sustainability data in the reporting period and testing such documentation on a sample basis,
- Inquiries and inspection of documents on a sample basis relating to the collection and reporting of sustainability data at the corporate headquarters in Munich,
- Analytical measures at group level and on the level of selected sites regarding the quality of the reported data,
- Critical review of the draft report to assess plausibility and consistency with the information marked with the symbol “[...] ⊕.”

Conclusion

Based on our limited assurance engagement, nothing has come to our attention that causes us to believe that the information marked with the symbol “[...] ⊕” in the Sustainability Report of OSRAM Licht AG for the reporting period from 1 October 2017 to 30 September 2018 has not been prepared, in all material respects, in accordance with the GRI criteria.

Intended use of the assurance report

We issue this report on the basis of the engagement agreed with OSRAM Licht AG. The assurance engagement has been performed for the purposes of the Company and the report is solely intended to inform the Company as to the results of the assurance engagement and must not be used for purposes other than those intended. The report is not intended to provide third parties with support in making (financial) decisions.

Engagement terms and liability

The “General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften [German Public Auditors and Public Audit Firms]” dated 1 January 2017 are applicable to this engagement and also govern our relations with third parties in the context of this engagement ([» www.de.ey.com/general-engagement-terms](http://www.de.ey.com/general-engagement-terms)). In addition, please refer to the

liability provisions contained there in no. 9 and to the exclusion of liability towards third parties. We assume no responsibility, liability or other obligations towards third parties unless we have concluded a written agreement to the contrary with the respective third party or liability cannot effectively be precluded.

We make express reference to the fact that we do not update the assurance report to reflect events or circumstances arising after it was issued unless required to do so by law. It is the sole responsibility of anyone taking note of the result of our assurance engagement summarized in this assurance report to decide whether and in what way this result is useful or suitable for their purposes and to supplement, verify or update it by means of their own review procedures.

Munich, January 17, 2019

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Nicole Richter
Wirtschaftsprüferin
(German Public Auditor)

ppa. Dr. Patrick Albrecht

8.3

GRI Content Index



This report has successfully undergone a Materiality Disclosures service which confirms that at the time of publication of the report, the disclosures GRI 102-40 to GRI 102-49 from the GRI Standards were correctly located in both the content index and in the text of the final report.

DISCLOSURES	PAGE	COMMENTS	UNGC
GRI 101 Foundation 2016			
GRI 102 General Disclosures 2016			
Organizational Profile			
GRI 102-1 Name of the organization		OSRAM Licht AG	
GRI 102-2 Activities, brands, products and services	7		
GRI 102-3 Location of headquarters	7		
GRI 102-4 Location of operations	7		
GRI 102-5 Ownership and legal form	13		
GRI 102-6 Markets served	7		
GRI 102-7 Scale of the organization		» 2018 Annual Report, p. 68	
GRI 102-8 Information on employees and other workers		We are not publishing this information (permanent/temporary employees by region and numbers of part-time/full-time workers by gender) as it is not relevant to our management of this topic.	
GRI 102-9 Supply chain	19		
GRI 102-10 Significant changes to the organization and its supply chain		» 2018 Annual Report, p. 17	
GRI 102-11 Precautionary principle or approach		» 2018 Annual Report, p. 41	
GRI 102-12 External initiatives	14/15		
GRI 102-13 Membership of associations	14/15		
Strategy			
GRI 102-14 Statements from senior decisions-makers	4–5		
GRI 102-15 Key impacts, risks and opportunities	14/15		
Ethics and Integrity			
GRI 102-16 Values, principles, standards and norms of behaviour	14		10
GRI 102-17 Mechanisms for advice and concerns about ethics	14		10



DISCLOSURES	PAGE	COMMENTS	UNGC
Management Approach			
GRI 102-18 Governance structure	13		
GRI 102-19 Delegating authority	9		
GRI 102-20 Executive-level responsibility for economic, environmental and social topics	9		
GRI 102-21 Consulting stakeholders on economic, environmental and social topics	10		
GRI 102-22 Composition of the highest governance body and its committees	14	» 2018 Annual Report, p. 165	
GRI 102-23 Chair of the highest governance body	13		
GRI 102-24 Nominating and selecting the highest governance body	13	» 2018 Annual Report, p. 165	
GRI 102-25 Conflicts of interest	14		
GRI 102-26 Role of highest governance body in setting purpose, values and strategy	13		
GRI 102-27 Collective knowledge of highest governance body	9		
GRI 102-28 Evaluating the highest governance body's performance	14		
GRI 102-29 Identifying and managing economic, environmental and social impacts	10		
GRI 102-30 Effectiveness of risk management processes		» 2018 Annual Report, Risk and Opportunity Management	
GRI 102-31 Review of economic, environmental and social topics		» 2018 Annual Report, p. 41	
GRI 102-32 Highest governance body's role in sustainability reporting		This report was reviewed and approved by the Managing Board.	
GRI 102-33 Communicating critical concerns		» 2018 Annual Report, p. 66	
GRI 102-34 Nature and total number of critical concerns		» 2018 Annual Report, p. 66	
GRI 102-35 Remuneration policies	14		
GRI 102-36 Process for determining remuneration	14		
GRI 102-37 Stakeholders' involvement in remuneration		» 2018 Annual Report, p. 170	
GRI 102-38 Annual total compensation ratio		We are not publishing this information because it is not relevant to our management of this topic.	
GRI 102-39 Percentage increase in annual total compensation ratio		» 2018 Annual Report, p. 170	
Stakeholder Engagement			
GRI 102-40 List of stakeholder groups	10/11		
GRI 102-41 Collective bargaining agreements	45		
GRI 102-42 Identifying and selecting stakeholders	10/11		
GRI 102-43 Approach to stakeholder engagement	10/11		
GRI 102-44 Key topics and concerns raised	10/11		
Reporting Approach			
GRI 102-45 Entities included in the consolidated financial statements		» 2018 Annual Report, p. 141	
GRI 102-46 Defining report content and topic boundaries	10		
GRI 102-47 List of material topics	10		
GRI 102-48 Restatements of information	3		



DISCLOSURES	PAGE	COMMENTS	UNGC
GRI 102-49 Changes in reporting	3		
GRI 102-50 Reporting period		10/01/2017–09/30/2018	
GRI 102-51 Date of most recent report		March 20, 2018	
GRI 102-52 Reporting cycle		annually	
GRI 102-53 Contact point for questions regarding the report	66		
GRI 102-54 Claims of reporting in accordance with the GRI standards	3		
GRI 102-55 GRI content index	60–65		
GRI 102-56 External assurance	58–59		
Material Topics			
GRI 201 Economic Performance 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	7		1–6/10
GRI 201-1 Direct economic value generated and distributed	7		
GRI 201-2 Financial implications and other risks and opportunities due to climate change		In the Report on Risks and Opportunities in the Annual Report (p. 41), we describe risks that could have particularly adverse effects on our business and on our net assets, financial position, and results of operations, or that are highly likely to occur. We also describe the opportunities that may arise for OSRAM. Climate change is not included.	7
GRI 201-3 Defined benefit plan obligations and other retirement plants		» 2018 Annual Report, p. 109	
GRI 202 Market Presence 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	7		
GRI 202-2 Proportion of senior management hired from the local economy	51		6
GRI 203 Indirect Economic Impacts 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)			6
GRI 203-1 Infrastructure investments and services supported	7		
GRI 203-2 Significant indirect economic impacts	7		
GRI 204 Procurement Practices 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	19–21		
GRI 204-1 Proportion of spending on local suppliers	21		
GRI 205 Anti-corruption 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	15/16		
GRI 205-1 Operations assessed for risks related to corruption		All Group companies are subject to regular reviews of corruption risk as part of compliance risk assessments. Objective criteria are used to assign the Group companies to risk categories that determine whether they will be selected for review in a particular year.	10
GRI 205-2 Communication and training about anti-corruption policies and procedures	16/17		10
GRI 205-3 Confirmed incidents of corruption and actions taken	17		10



DISCLOSURES	PAGE	COMMENTS	UNGC
GRI 206 Anti-competitive Behaviour 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	15/16		
GRI 206-1 Legal actions for anti-competitive behaviour, anti-trust and monopoly practices	17		
GRI 301 Materials 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	36–39		
GRI 301-1 Materials used by weight or volume		This information is not relevant to us in this degree of detail and so is not collected.	7/8
GRI 301-3 Reclaimed products and their packaging materials	28	Because of the high number and diversity of materials groups, the information required under 301-3 is not relevant for us.	8/9
GRI 302 Energy 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	30/31		
GRI 302-1 Energy consumption within the organization	31		7/8
GRI 302-3 Energy intensity	31		8
GRI 302-4 Reduction of energy consumption	31/32		
GRI 303 Water 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	30, 35		
GRI 303-1 Water withdrawal by source	35/36		8
GRI 303-2 Water sources significantly affected by withdrawal of water		We have not identified any significantly compromised sources within the meaning of 303-2.	8
GRI 305 Emissions 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	30, 32/33		
GRI 305-1 Direct (Scope 1) GHG emissions	33/34		7/8
GRI 305-2 Energy indirect (Scope 2) GHG emissions	33/34		7/8
GRI 305-3 Other indirect (Scope 3) GHG emissions	33		
GRI 305-4 GHG emissions intensity	33		8
GRI 305-5 Reduction of GHG emissions	33/34		8/9
GRI 305-6 Emissions of ozone-depleting substances (ODS)		OSRAM does not emit any ozone-depleting substances.	8
GRI 305-7 Nitrogen oxides (NO _x), sulphur oxides (SO _x) and other significant air emissions		OSRAM does not generally emit nitrogen oxides and sulfur oxides, but where it does the amounts are so negligible that we do not need to collect data on them.	8
GRI 306 Effluents and Waste 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	30, 35/36		
GRI 306-1 Water discharge by quality and destination		We collect this information but do not report on it as it is not relevant to the management of this topic.	8
GRI 306-2 Waste by type and disposal method	37		8
GRI 306-3 Significant spills of harmful substances		There were no significant releases of hazardous substances in fiscal year 2018.	8
GRI 306-5 Water bodies affected by water discharges and/or runoff	35	We discharge waste water into bodies of water in only a handful of cases. Where we do so we hold the necessary licenses.	8



DISCLOSURES	PAGE	COMMENTS	UNGC
GRI 307 Environmental Compliance 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	30, 40		8
GRI 307-1 Non-compliance with environmental laws and regulations	40		8
GRI 308 Supplier Environmental Assessment 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	21		
GRI 308-1 New suppliers that were screened using environmental criteria	21		7–9
GRI 401 Employment 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	44/45		
GRI 401-1 New employee hires and employee turnover	48		
GRI 403 Occupational Health and Safety 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	42/43		
GRI 403-2 Types of injury and rates of injury, occupational diseases, lost days and absenteeism, and number of work-related fatalities	43	We do not publish this information because the number of incidents is so small that a statistical breakdown would not add any significant value.	
GRI 404 Training and Education 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	46/47		
GRI 404-1 Average hours of training per year per employee	49	During the reporting period, this information was not yet collected in a structured manner. Roll-out of a new learning management system will commence in fiscal year 2019 for selected countries. Once the new system has been successfully implemented, we will examine when it will be possible to begin collecting this information.	6
GRI 404-2 Programmes for upgrading employee skills and transition assistance programmes	49		
GRI 405 Diversity and Equal Opportunity 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	46/47, 50/51		
GRI 405-1 Diversity of governance bodies and employees		Information on the age and gender of the members of the governance bodies can be found at www.osram.com/management .	6
GRI 405-2 Ratio of basic salary and remuneration of women to men		There are no indications that people are treated unequally because of their gender. In fiscal year 2019, we plan to review whether and to what extent the level of remuneration differs by gender in Germany.	6
GRI 407 Freedom of Association and Collective Bargaining 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	44/45		
GRI 407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk		As part of the planned expansion of our reporting on human rights, we also intend to collect information on this indicator in the medium term.	1/3
GRI 408 Child Labour 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	19/20		
GRI 408-1 Operations and suppliers at significant risk for incidents of child labour		As part of the planned expansion of our reporting on human rights, we also intend to collect information on this indicator in the medium term.	1/5
GRI 409 Forced or Compulsory Labour 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	19/20		
GRI 409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labour		As part of the planned expansion of our reporting on human rights, we also intend to collect information on this indicator in the medium term.	1/4



DISCLOSURES	PAGE	COMMENTS	UNGC
GRI 412 Human Rights Assessment 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	19–21, 53/54		
GRI 412-1 Operations that have been subject to human rights reviews or impact assessments	53		1/2
GRI 412-2 Employee training on human rights policies or procedures	19	During the reporting period, this information was not yet collected in a structured manner. Roll-out of a new learning management system will commence in 2019 for selected countries. Once the new system has been successfully implemented, we will examine when it will be possible to begin collecting this information.	1/6
GRI 413 Local Communities 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	55		
GRI 413-1 Operations with local community engagement, impact assessments and development programmes	25/26, 55		
GRI 413-2 Operations with significant actual and potential negative impacts on local communities		There are no OSRAM facilities which have or could have significant negative impacts on local communities.	
GRI 414 Supplier Social Assessment 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	20/21		2
GRI 414-1 New suppliers that were screened using social criteria	21		2
GRI 415 Public Policy 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	14/15		
GRI 415-1 Political contributions	14/15		10
GRI 416 Customer Health and Safety 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	26–28		
GRI 416-1 Assessment of the health and safety impacts of product and service categories	27		1
GRI 416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	27		
GRI 417 Marketing and Labelling 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	21/22, 39		
GRI 417-1 Requirements for product and service information and labelling	39		
GRI 418 Customer Privacy 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	17/18		
GRI 418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	18		
GRI 419 Socioeconomic Compliance 2016			
GRI 103 Management Approach 2016 (including GRI 103-1, 103-2, 103-3)	13–17		
GRI 419-1 Non-compliance with laws and regulations in the social and economic area	17		



8.4

Imprint and Contact

8.4.1 Editorial Notes

This report is published online in German and English. The editorial deadline was January 14, 2019.

The Annual Report and the Sustainability Report are available in German and English and are available for download at [» www.osram-group.com](http://www.osram-group.com).

8.4.2 Forward-looking Statements

In addition to a retrospective analysis, this report contains forward-looking statements and information, i.e. statements about events that lie in the future rather than the past. These are based on information available today and on assumptions based on current forecasts, which means they are subject to various risks and uncertainties. Accordingly, forward-looking statements should not be relied upon as a prediction of actual results.

Due to rounding, numbers presented in this and other reports may not add up precisely to the totals provided and percentages may not precisely reflect the absolute figures to which they relate.

8.4.3 Publisher and Contact Details

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