

Explanatory notes to the information reported in the report “Sustainability at Infineon” – supplementing the Annual Report 2016

These explanatory notes refer to the sustainability information and data published in the report “Sustainability at Infineon” (hereinafter called Report). KPMG AG Wirtschaftsprüfungsgesellschaft has provided independent limited assurance on this information in accordance with the International Standards on Assurance Engagements 3000 and International Standard on Assurance Engagements 3410. The independent assurance report can be found here www.infineon.com/CSR_reporting¹.

Reporting standards

Infineon Technologies (hereinafter called Infineon) applies the Sustainability Reporting Guidelines (G4) of the Global Reporting Initiative, according to the “Core” option and as reporting criteria for the sustainability information published in the Report. This reporting standard is supported by internal guidelines too.

For the determination of the Infineon CO₂ footprint we have developed an own approach which became further refined during the 2016 fiscal year. This approach is generally oriented towards ISO 14000 and substantiated by PAS (Publicly Available Specification) 2050:2008, a guideline for product carbon footprints, issued by the BSI (British Standards Institution).

For external reporting we follow the “Greenhouse Gas Protocol” classification of Scope 1, Scope 2 and Scope 3 emissions. The Scope 2 Protocol has been considered too.

For the determination of the indicator “CO₂ savings enabled through our products” we have used internal criteria.

Organizational boundaries

Our reporting includes all our own production sites and corporate headquarters, R&D sites, sites for service functions, sales centers and small production sites.

The information reported on the chapters “Responsibility for our employees” and “Environmental sustainability” as well as on the section “The Infineon CO₂ footprint” of the chapter “Contribution through sustainable products” includes all our own production sites and corporate headquarters, which are part of our certified IMPRES² management system, and the sites “Temecula” and “Tijuana” of Infineon Americas Corp (former International Rectifier). This scope was selected based on the impact of the activities performed on those sites and comprises 97% of the total Infineon employees worldwide.

External companies operating at some of our sites, in which Infineon has no operational control, and which have no influence in Infineon’s production, are not included in the reported KPIs data.

Determination of the Key Performance Indicators (KPIs)

We continually strive to improve the data quality of our KPIs. The data from the Infineon Americas Corp (former International Rectifier) sites mentioned above are included in our KPIs from the fiscal year 2015 onwards.

¹ Selected information and key data in the chapter “Human resources management” are also part of the Combined Management Report as of 30 September 2016 of Infineon Technologies AG.

² Infineon Integrated Management Program for Environment, Energy, Safety and Health

a. Energy

Infineon gives electricity and district heating to external consumers.

Energy consumption per revenue:

As a reference for the calculation of this KPI we have used the GRI G4 definitions. We have taken into account the following energy sources: Electricity, district heating, firewood, natural gas, LPG, gasoline/petrol, diesel and heating oil. The revenue figures used for the calculation are taken from the respective annual reports of the last years.

Total energy consumption:

As a reference for the calculation of this KPI we have used the GRI G4 definitions. We have taken into account all our energy sources:

- Infineon's energy consumption is made of electricity, district heating, firewood, natural gas, LPG, gasoline/petrol, diesel and heating oil.
- The individual energy consumption of our production sites is included in our reporting tool quarterly and automatically converted into the energy reference unit by the tool itself. The conversion factors included in our reporting tool in order to calculate the final energy consumption originate from the following sources:
 - UK Carbon Trust
 - National Energy Board, Government of Canada
 - Claverton Energy Research Group
 - FNR (Fachagentur Nachwachsende Rohstoffe) - German central coordinating institution for research, development and demonstration projects in the field of renewable resources.
 - UK Ministry - Department for Environment, Food & Rural Affairs (Defra)
- The numbers development on the table disclosed on page 22 of the Report derives from the reallocation of the cars fuel consumption from diesel to petrol.

Specific energy consumption:

Based on the normalization factor "cm² manufactured wafer", the electricity consumption's benchmark reported by the World Semiconductor Council (WSC) includes only the data of the worldwide Frontend sites included in IMPRES as well as Temecula.

Energy consumption outside the organization:

Information is reported in CO₂ equivalents. The reporting was based on the definitions of the indicator G4-EN4:

- Upstream emissions are the ones incurred in connection with the provision of materials.
- Downstream emissions are the ones directly derived from production processes as well as and from internal and external transport.

b. Water

Water consumption:

In the water consumption are taken into consideration the reporting of both; water sourced by Infineon and water provided by third-parties (e.g. municipal water). Water which is used as cooling water or process water is included, too.

In the water consumption benchmark reported by the World Semiconductor Council (WSC), cooling water is not considered. Based on to the normalization factor "cm² manufactured wafer", such benchmark includes only the data of the worldwide Frontend sites included in IMPRES as well as Temecula.

Water reused and recycled:

Infineon defines water reused or recycled as the water which is used either without or with further treatment and which can be used in order to meet the water demand without using fresh water:

- Following water types are considered within reused wastewater:
 - Recovered wastewater for recycling in the same process
 - Recovered wastewater from a different process, but within the same facility
 - Wastewater, which is reused in another Infineon site
- Following water types are considered within reused ultrapure water:
 - Recovered ultrapure water for recycling in the same process
 - Recovered ultrapure water from a different process, but within the same facility
 - Ultrapure water, which is reused in another Infineon site

Water discharge:

The KPIs and targets related to water discharge include wastewater and other water discharges. Municipal wastewater and evaporated water are excluded.

Wastewater is classified as follows:

- Direct discharge: effluent discharged by the site without the need of prior-external treatment.
- Indirect discharge: water which is not allowed to be directly discharged or which needs prior treatment.

Water-stressed areas:

The determination of which sites are placed in water-stressed areas was made by using the definition according to the WBCSD (World Business Council for Sustainable Development): “a water shortage exists when the total volume of renewable water resources available in a given area per capita is lower than 1,700 cubic meters per year”. We performed a country-based analysis in April 2016 based on the so-called „Global Water Tool 2015” of the WBCSD³.

c. PFCs⁴

PFCs are essential for the production of semiconductors in the Frontend sites. These are used in wafer-etching processes for structuring wafers as well as for cleaning production equipment. This includes Perfluorinated Compounds (PFCs), namely fluorinated and polyfluorinated carbon compounds, sulfur hexafluoride (SF₆) and nitrogen trifluoride (NF₃). These greenhouse gases cannot be replaced by another class of substances and account for around 87 percent of Scope 1 emissions. The reported PFCs figures refer to the amounts consumed during the respective fiscal year by Infineon.

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The conversion of PFCs in CO₂ equivalents is based on a worldwide predetermined algorithm which must be used within the semiconductor industry. The conversion to CO₂ equivalents is based on a globally predetermined algorithm that must be applied within the semiconductor industry. Its calculation methodology is based on the scientific assessments of the IPCC⁵ and the calculations for GWP⁶. The distribution of this algorithm is carried out annually by the competent organizations.

The calculation of the NER (normalized emission rate) is carried out as a normalization of PFC emissions in CO₂-equivalents divided by the manufactured wafer area.

d. Other emissions

Under „other emissions“ we considered the following emission-sources:

- Sulphur oxide (SOx): SO₂ and SO₃ expressed as SO₂-equivalent
- Nitrogen oxide (NOx): NO and NO₂ expressed as NO₂-equivalents
- Volatile Organic Compounds (VOC): organic compound having an initial boiling point exceeding 250°C at a standard pressure of 101.3 kPa (Directive 2004/42 / EC)
- Persistent Organic Pollutants (POPs): according to Stockholm Convention
- Fine particulate matter (PM): Particles with a diameter of 10 or less micrometers (PM₁₀)

Only direct emissions (derived from Infineon activities) have been included in the reporting of this indicator. Resulting from a change in the calculation model, the data basis and the reported emissions were improved.

³ Status as of September 2015

⁴ Perfluorinated compounds

⁵ Intergovernmental Panel on Climate Change

⁶ Global Warming Potential - GWP is relevant for 100 years long

e. CO₂ footprint

We assessed the net ecological benefit on our CO₂ footprint considering both: environmental burden and environmental benefits.

Environmental burden - CO₂ emissions:

This includes the direct emissions such as PFC, emissions occurring during the deployment process of raw materials, consumables and process, energy and water supply as well as waste and wastewater treatment. Furthermore, it considers the transport of the products to other sites and to distribution centers, as well as flights and Infineon-function cars. Direct and indirect emissions are based on source data from fiscal year 2016.

Not included here is the CO₂ emitted during the use-phase of the products and their disposal. Those CO₂-emissions are not determined due to the varying applications and fields of use Infineon products are subject to.

The Scope 2 Guideline requires that companies calculate two values for their Scope 2 emissions and that they must identify: the so-called "market-based accounting", based on the provider-specific emission factor, and the so-called "location-based accounting" on the basis of regional or national network average. Considering the regional or national network average the Scope 2 emissions of Infineon amounted 691,383 tons CO₂. However, when considering the provider or product-specific emission factors, the Infineon Scope 2 emissions amount to 607,360 tons CO₂.

Infineon has calculated its final Scope 2 emissions taking into account provider-specific emission factors of the energy sources used. This approach was selected in order to illustrate the implementations achieved so far in terms of regenerative energy supply.

The following official sources were used as data sources for CO₂-conversion factors:

- DEFRA Carbon Factors (energy, transport, waste, water)
- International Energy Agency – Carbon conversion factors (Electricity)
- ProBas Substance Database (Raw materials and supplies)
- IPCC (PFCs)

Environmental benefit - CO₂ emissions:

Up to date, there is no established external framework or standard defining rules applicable for accounting and reporting of CO₂-savings enabled through products in the use phase. Therefore we have developed an own methodology to determine the indicator CO₂-savings enabled through our products. The calculation of the environmental benefit is based on the calendar year 2015, because the products sold in the calendar year 2015 enable reductions just in the use-phase of the end product (after being sold), and are then relevant for the CO₂ footprint 2016.

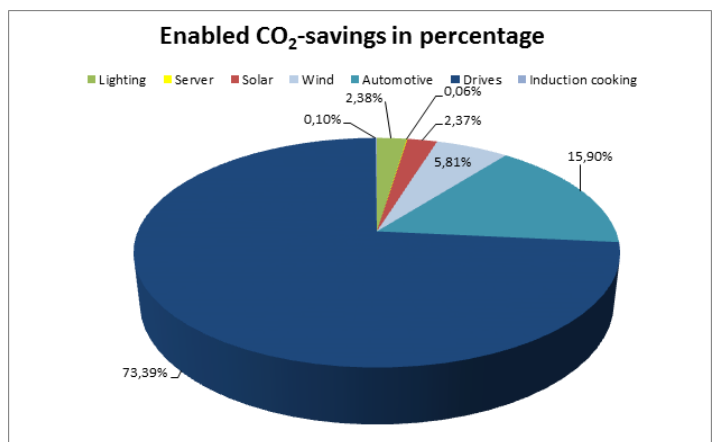
The methodology for the determination of the CO₂-emission reductions enabled is based on the framework conditions described here:

-Consideration of the following Infineon products: Automotive electronics, industrial drives, servers, lighting, photovoltaic and wind energy as well as induction cookers.

-The calculation is based on the potential energy savings our semiconductors enable in the end technologies where they are installed.

- For the calculation, we consistently worldwide average emission factors of the calendar year 2015.
- For the calculation we considered the market share of Infineon as well as the percentage of semiconductors in the end-products and the lifetime of the technologies which was based on internal and external expert estimations.

Life-cycle assessments can be subject to imprecision due to the complex issues involved. We continually strive to refine and improve our carbon footprint methodology.



f. Waste

Reported waste is classified in the categories hazardous/non-hazardous as defined by the local/national regulations in that context.

The information reported in the Environmental sustainability chapter is based on the officially communicated treatment methods by the waste management companies. Per our definition waste is reported independently whether it is compensated or not.

Based on the normalization factor “cm² manufactured wafer”, the waste generation’s benchmark reported by the World Semiconductor Council (WSC) includes just the worldwide Frontend sites included in IMPRES as well as Temecula.

g. Accidents

The calculations of the Injury Rate (IR) and the Lost Day Rate (LDR) are based on the GRI G4 definitions in LA6.

Only work-related accidents with at least one day work-absence are considered. The day of the accident is not counted. The base for the determination of lost days is “calendar days”.

The working hours are the weekly hours as stipulated in employee contracts. This includes holidays and public holidays.

The reporting of lost days concludes at the end of each fiscal year.

h. Product sustainable value

- Example “PrimePACK™.XT IGBT5”:
 - IGBT5 our latest chip generation with 25K higher maximum operation junction temperature (T_{vjop} = 175°C).
 - Higher power densities can be achieved in 1200V and 1700V applications, reaching up to 25% increase.
 - PrimePACK™.XT also fulfills future lifetime demands. Thanks to its interconnection technology which replaces aluminum bonds by copper bonds.
 - The system soldering was improved, and sintering in IGBT and Diodes is used.
 - The design becomes more flexible, where system designers can either increase power by 25% or lifetime at same power conditions.
- Example “HybridPACK™ DSC”:
 - Dual in-line Package designed for double sided cooling, enabling high power density inverters.
 - The package presents very low stray inductances and the chips with increased blocking voltages, paving the way for higher efficiency systems.
 - Thermal contact isolated, which permits thus direct attachment of customer cooling.
 - Integrated current sense for IGBT and temperature diode sense.
 - Main technology for hybrid and electrical vehicles.

Data Quality

We continually strive to improve the quality of our data via the implementation of policies, systems, procedures and internal controls at Group and site level.

In case of business acquisitions/sales, the figures of those would be adjusted in conformity with the organizational boundaries mentioned above. In those cases the numbers will not be retroactively included in the Report.

In case during the compilation of the quarterly data for the Report some official information for any of the reporting periods were not available, those figures would be adequately estimated based on the previous months’ values and any other meaningful comparable values.

In case a significant error in the fiscal year (meaning greater than 5 percent at a Group level) was found, it would be corrected. In case a significant error which does not indeed affect the reporting period but still affects the information of the previous years was found, it would be corrected.

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