# Explanatory notes to the information reported in the Sustainability Chapter of Infineon Technologies Annual Report 2015.

These explanatory notes refer to the information published in the Sustainability chapter of the Infineon Technologies AG Annual Report 2014. KPMG AG Wirtschaftsprüfungsgesellschaft has provided independent assurance on these 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_reporting).

## 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 Infineon Annual Report 2015. This reporting standard is supported by internal guidelines too.

For the determination of the Infineon $CO_2$ footprint we have developed an own approach which became further refined during the 2015 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 new Scope 2 Protocol has been considered too.

For the determination of the indicator "$CO_2$ savings enabled through products" we have used internal criteria.

## Organizational boundaries

Our reporting includes all our own production sites and corporate headquarters, which are part of our certified IMPRES[1] management system, as well as our production site in Morgan Hill, and the sites "Temecula" and "Tijuana", which have become part of the Company in the frame of the acquisition of International Rectifier Corporation ("international Rectifier").

On January 13, 2015, Infineon has completed the announced acquisition of International Rectifier. The data from the abovementioned International Rectifier sites which are then reported in the sustainability chapter are registered as of this acquisition date. In the sections of the sustainability chapter in which the data from International Rectifier are included, this has been explicitly stated.

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.

### A . Energy

The energy KPIs and targets of Infineon include the above mentioned sites for the respective Infineon fiscal year:

#### Energy consumption per revenue:

As a reference for the calculation of this KPI we have used the GRI 4 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, diesel and heating oil.

The revenue figures used for the calculation are taken from the respective annual reports of the last years. The individual energy consumption of our production sites is included in our reporting tool quarterly and automatically

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[1] Infineon Integrated Management Program for Environment, Energy, Safety and Health

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 come 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.

**Specific energy consumption:**

Due to the normalization factor is $cm^2$ manufactured wafer, the electricity consumption's benchmark reported by the World Semiconductor Council (WSC) includes just the worldwide Frontend sites included in IMPRES.

**Energy consumption outside the organization:**

It includes the consumption of the abovementioned sites during the respective Infineon fiscal year. Information is reported in $CO_2$. 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:**

Included in the water consumption are the consumption of the above mentioned sites, taking 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 benchmark water consumption reported by the World Semiconductor Council (WSC) cooling water is not included. Due to the normalization factor is $cm^2$ manufactured wafer, this benchmark includes just the worldwide Frontend sites included in IMPRES.

**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
  - Waste water, 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 waste water and other water discharges. Municipal wastewater and evaporated water are excluded.

Waste water 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 place 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 September 2015 based on the so-called „Global Water Tool" 2015 of the WBCSD. Status as of September 2015: analysis is only possible under a country perspective.

## C. PFCs[2]

PFCs are essential for the production of semiconductors in the Frontend sites. They are used in etching processes for patterning of wafers and cleaning of production equipment for CVD processes (the so-called "chemical vapor deposition").

The reported PFCs figures refer to the amounts consumed during the respective fiscal year by Infineon.

The conversion of PFCs in $CO_2$ equivalents is based on a worldwide predetermined algorithm which must be used within the semiconductor industry. The conversion to $CO_2$-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 IPCC and the calculations for GWP. 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 $CO_2$-equivalents divided by the manufactured wafer area.

## D. Other emissions

Under „other emissions" we considered the following emission-sources from the abovementioned sites:

- Sulphur oxide (SOx): $SO_2$ and $SO_3$ expressed as $SO_2$-equivalent
- Nitrogen oxide (NOx): $NO$ and $NO_2$ expressed as $NO_2$-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 ($PM_{10}$)

Only direct emissions (derived from Infineon activities) have been included in the reporting of this indicator.

## E. $CO_2$ footprint

We assessed the net ecological benefit on our $CO_2$ footprint considering both: Environmental Burden and Environmental Benefits.

**Environmental Burden - $CO_2$ 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 waste water 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 2015.

Not included here is the $CO_2$ emitted during the use-phase of the products and their disposal. Those $CO_2$ emissions are not determined due to the varying applications and fields of use Infineon products are subject to.

The new 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 627,546 tons $CO_2$. However, when considering the provider or product-specific emission factors, the Infineon Scope 2 emissions amount to 533,921 tons $CO_2$. 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 $CO_2$ conversion factors:

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

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2 Perfluorinated compounds

**Environmental Benefit - $CO_2$ emissions:**

Up to date, there is no established external framework or standard defining rules applicable for accounting and reporting of $CO_2$ savings enabled through products in the use phase. Therefore we have developed an own methodology to determine the indicator $CO_2$ savings enabled through our products. The calculation of the environmental benefit is based on the calendar year 2014, because the products sold in the calendar year 2014 enable reductions just in the use-phase of the end product (after being sold), and are then relevant for the $CO_2$ footprint 2015.
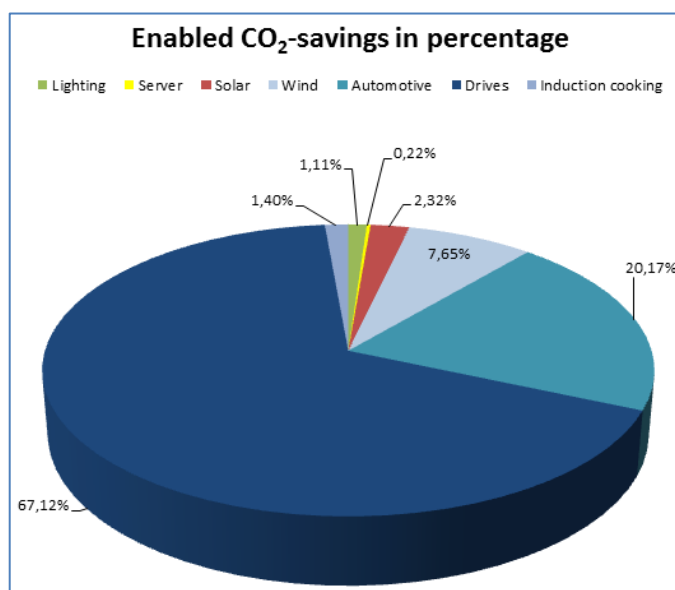
The methodology for the determination of the $CO_2$ emission reductions enabled is based on the framework conditions described here:

- Consideration of the following Infineon products: automotive electronics, industrial drives, servers, lighting, photovoltaic and wind energy.

- 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 used the emission factors relevant for Germany in the calendar year 2014.

- 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.



Enabled $CO_2$-savings in percentage

Legend: Lighting, Server, Solar, Wind, Automotive, Drives, Induction cooking

1,11%  0,22%  1,40%  2,32%  7,65%  20,17%  67,12%

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 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.

Due to the normalization factor is $cm^2$ manufactured wafer, the waste generation's benchmark reported by the World Semiconductor Council (WSC) includes just the worldwide Frontend sites included in IMPRES.

Included in the waste data are all above mentioned sites.

## G. Accidents

The calculations of the Injury Rate (IR) and the Lost Day Rate (LDR) are based on the GRI 4 definitions in LA6.

Accidents are reported for the sites mentioned in the organizational boundaries. 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 end of period date for the calculations is the official end of the each fiscal year quarter.

## H. Collective agreements

The employees working on the above mentioned sites as well as those working in R&D sites, service functions, sales and those working on small production sites are included in the percentage reported in the Sustainability Chapter.

**I. Business Ethics – Reports to possible compliance breaches**

The values reported on the Graphic 37 of the 2015 Annual Report refer to the fiscal year 2015 and reflect on the one hand the Infineon values and on the other the sum of Infineon and International Rectifier values. The cases derived from International Rectifier are worldwide relevant and collected as of the designated date of acquisition onwards.

**J. Product sustainable value**

- 600-Volt-Serie CoolMOS™ C7 Superjunction (SJ)-MOSFETs:
  - The new CoolMOS™ C7 family (600 V) series offers a 50 percent reduction in turn-off losses compared to the CoolMOS™ CP.
  - Efficiency gains of 0.3 percent to 0.7 percent in PFC (Power Factor Correction) and 0.1 percent in LLC topologies can be achieved, leading to significant total cost of ownership benefits. In the case of a 2.5 kW server PSU, for example, using C7 600 V MOSFETs can result in energy cost reductions of around 10 percent for PSU energy loss.
  - The CoolMOS™ devices deliver lowest losses and higher frequencies up to 200 kHz in an established and proven technology being available in high volume.

- OptiMOS™ 5 25V and 30V Product Family
  - This improved performance is based for example on the reduction of switching losses by 50 percent compared to the previous OptiMOS technology. It is used in the Power Block product family which offers a source down low-side MOSFET for improved thermal performance, with a reduction by 50 percent of the thermal resistance in comparison to standard package solution, such as SuperSO8.
  - The newly introduced OptiMOS 25V and 30V product family offers solutions with efficiency improvements of around 1 percent across the whole load range compared to its previous generation

# 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 Annual Report.

In case during the compilation of the quarterly data for the Annual 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.