Paving the way for a CO2-neutral future with semiconductor technology

Infineon Technologies AG
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Senior Vice President Green Industrial Power

Infineon is a global leader in power systems and IoT

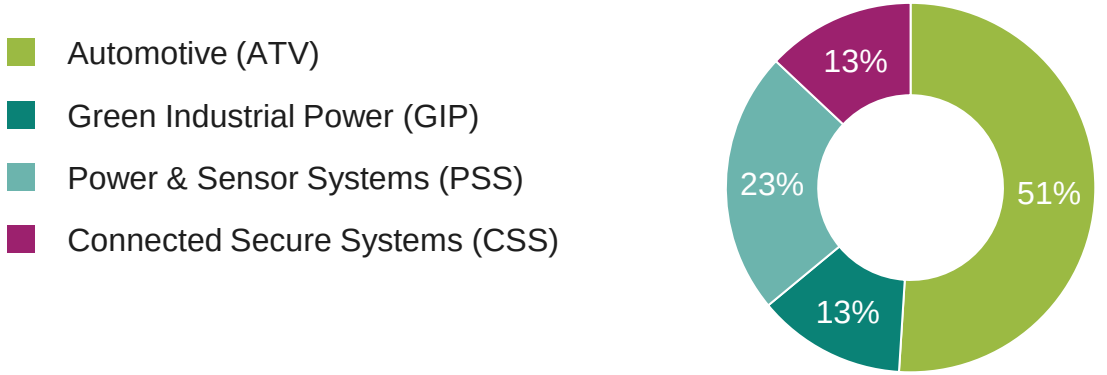
Growth areas

Energy
green and efficient

Mobility
clean and safe

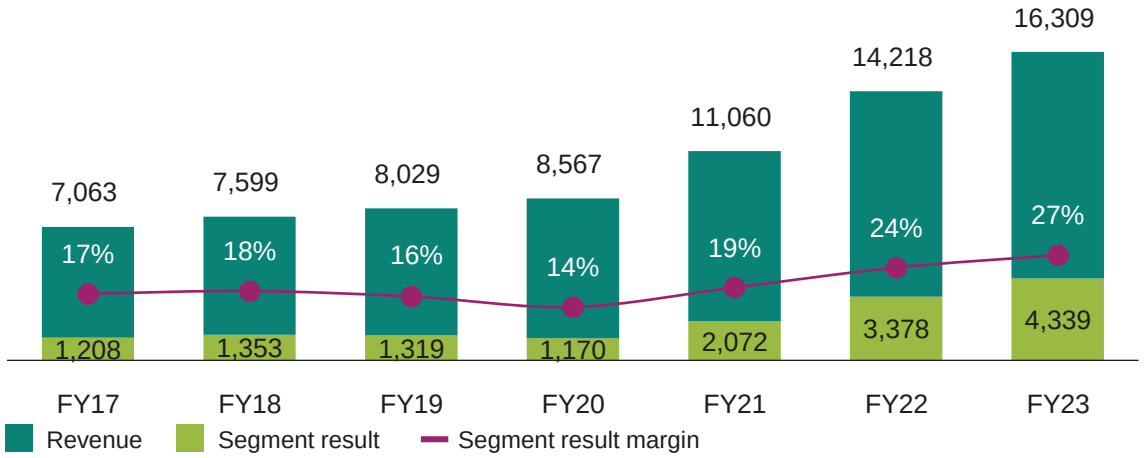
IoT
smart and secure

FY23 revenue by segment[1]



Financials

[EUR m]

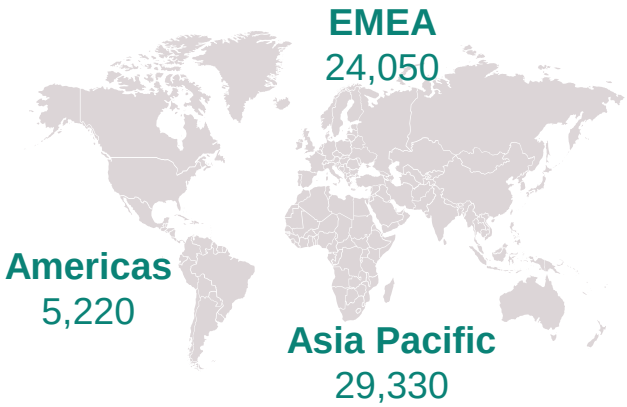


Employees[2]

58,600
employees worldwide

69
R&D and

17
manufacturing locations[2]

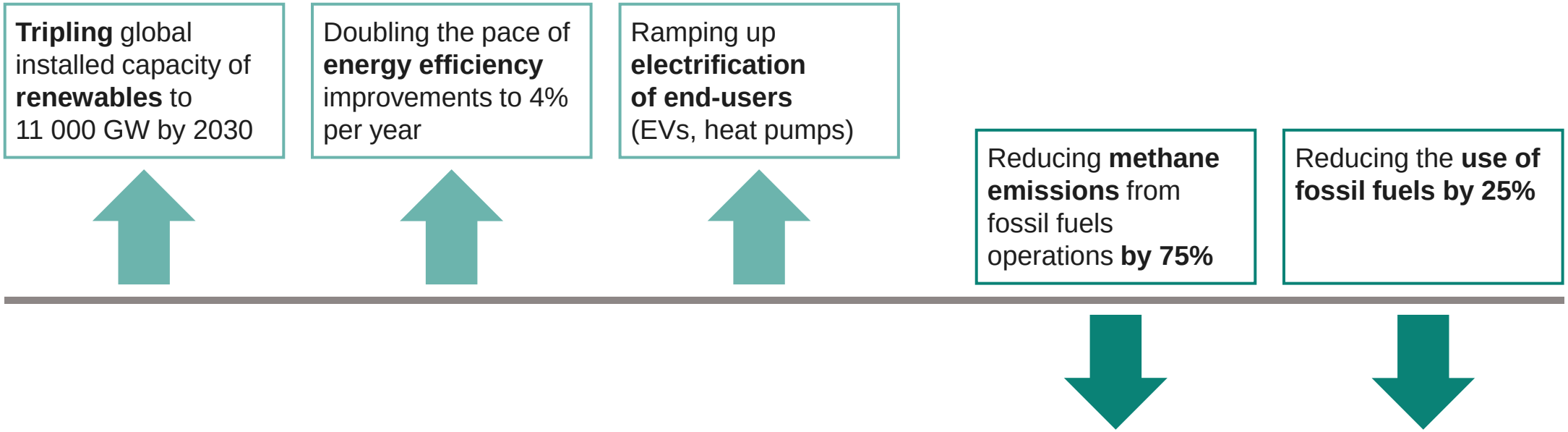


For further information: Infineon Annual Report.

[1] 2023 Fiscal year (as of 30 September 2023) | [2] As of 30 September 2023

To achieve the 1.5 °C target, the pace of change must be accelerated

According to IEA, a global strategy with **key actions by 2030** is needed to bend the emissions curves downward and put the energy sector **on a path to limit global warming to 1.5 °C**



https://www.iea.org/reports/world-energy-outlook-2023/executive-summary
IEA (2023), World Energy Outlook 2023, IEA, Paris https://www.iea.org/reports/world-energy-outlook-2023,
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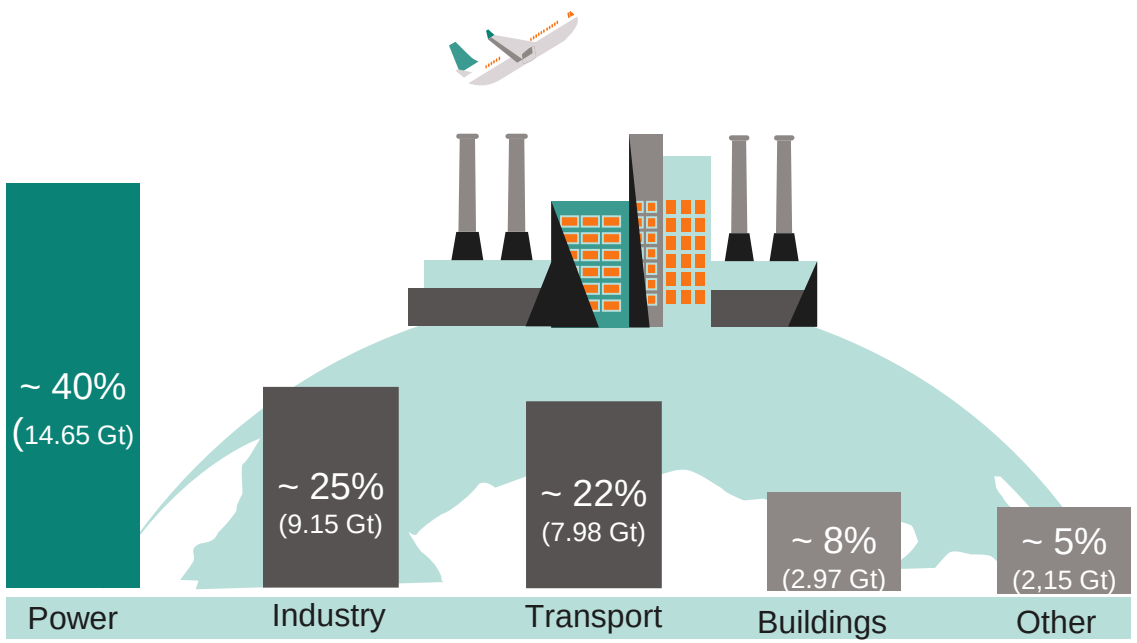
Power generation and industry account for over two thirds of CO_2 emissions – decarbonization of these sectors is essential

Global CO2 emissions by sector in 2022



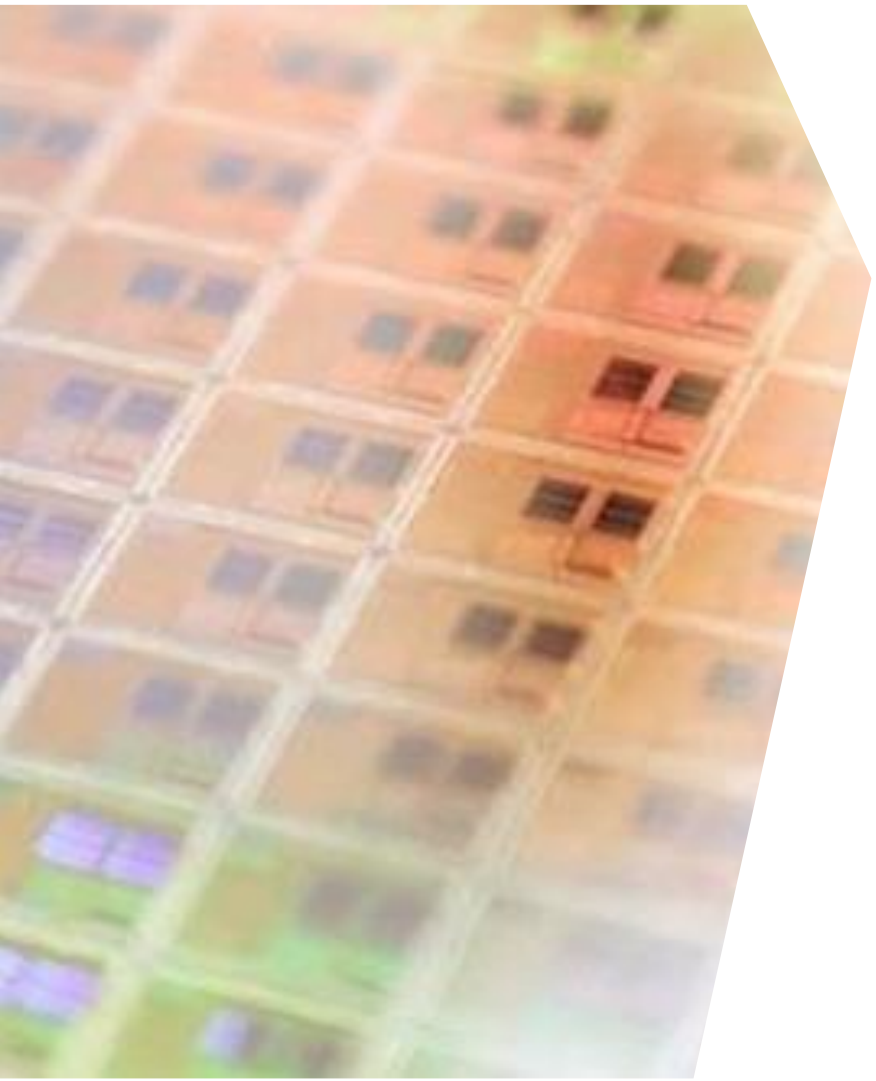
(Electricity and heat producers)

Key levers of decarbonization

- Decline of energy generation from fossil sources like coal, oil or gas
- Expansion of renewable energy technologies like solar and wind
- Balance of supply and demand with energy storage systems

IEA (2023), CO2 Emissions in 2022, IEA, Paris https://www.iea.org/reports/co2-emissions-in-2022, License: CC BY 4.0
https://www.iea.org/data-and-statistics/charts/global-co2-emissions-by-sector-2019-2022

Microelectronics – a key lever for electrification and CO_2 reduction



Green energy

Replacement of fossil fuels in power generation with renewable, clean and secure sources.

Digitalization of conversion chain

Optimization of the entire energy chain through connectivity and smart control.

Clean electrification

Electrification of consumption areas previously dominated by fossil fuels – with renewable energies.

Energy efficiency

Promoting of energy efficiency technologies like wide-bandgap for higher power density and lower losses.

Decarbonization

Energy generation – Getting more out of photovoltaic with advanced semiconductors

We make solar inverters smaller, lighter and more powerful

Our power solutions convert direct current (DC) produced by solar panels into alternating current (AC) that can be fed into a public grid or used in industrial, consumer, and mobility applications – with highest efficiency and less conversion loss.

CoolSiC™ MOSFETs allow for higher currents and reduced heat loss, enabling higher power density and smaller form factors for inverters, massively reducing cost in $/Wp!

2008
90 W/kg
η_{max} 97.1%

2011
330 W/kg
η_{max} 97.8%

2016
710 W/kg
η_{max} 98.5%

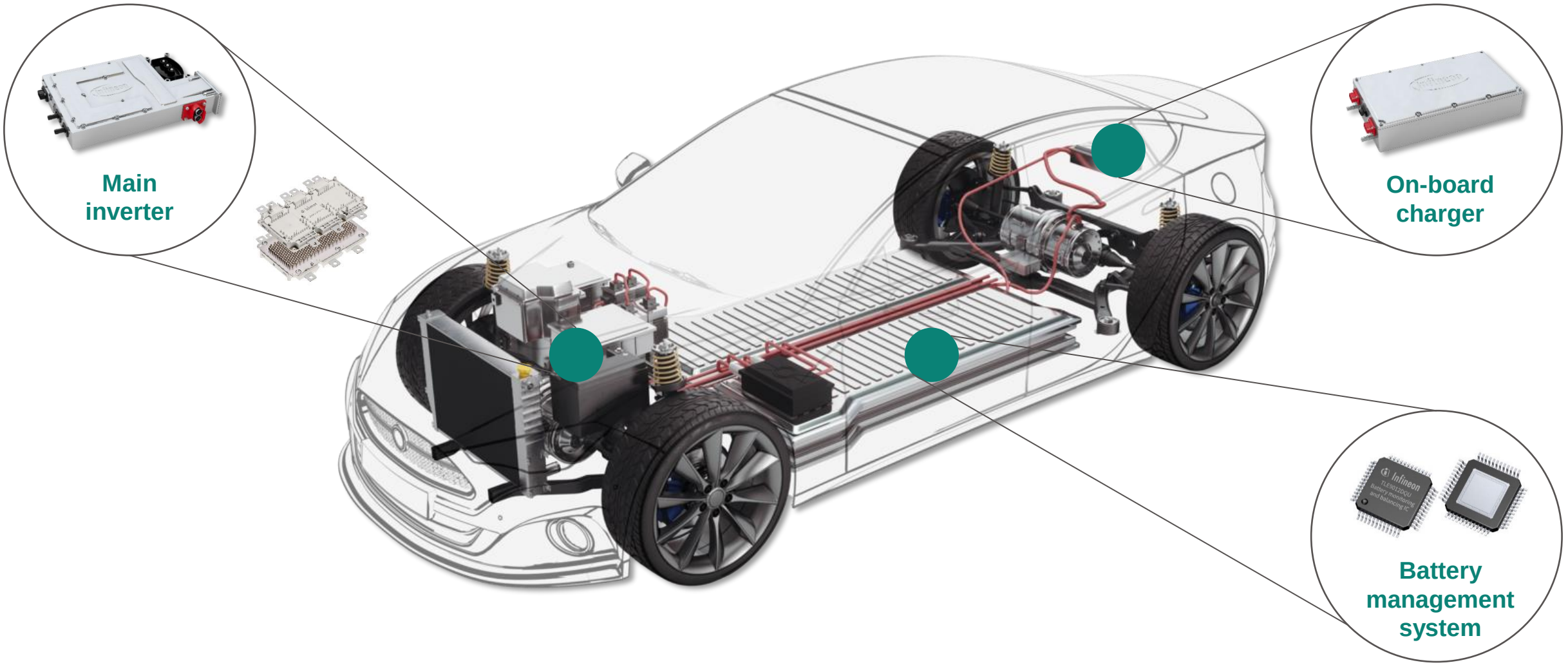
2020
~2100 W/kg
η_{max} 99.2%

2023
~3000 W/kg
η_{max} 99%

Courtesy: Kaco new energy GmbH

Courtesy: Sungrow

Going electric - Semiconductors enable the shift towards green mobility



Many households will be self-sufficient: 3-in-1 solution with inverter, bi-directional charging and car as storage device

Solar inverter

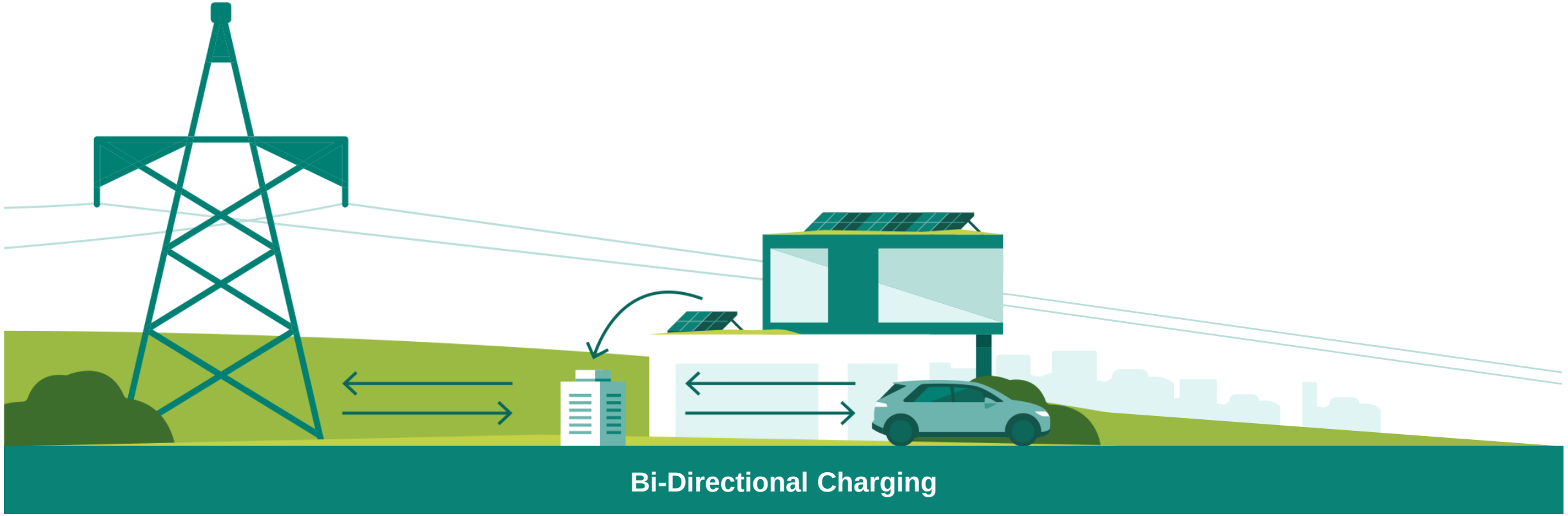
CoolSiC™ modules with operating driver ICs convert DC into AC, complemented by microcontrollers, security and connectivity solutions

EV charging bi-directional

Smaller and lighter SiC-based charging systems offer faster charging times at a lower system cost

Energy storage

Power semiconductors and microcontrollers enable highly efficient power conversion and battery management



We empower a world of unlimited GREEN energy
Did you know?

*All figures correspond to CY22

Solar Systems

IFX products were installed into 2.5m new solar systems

Wind Systems

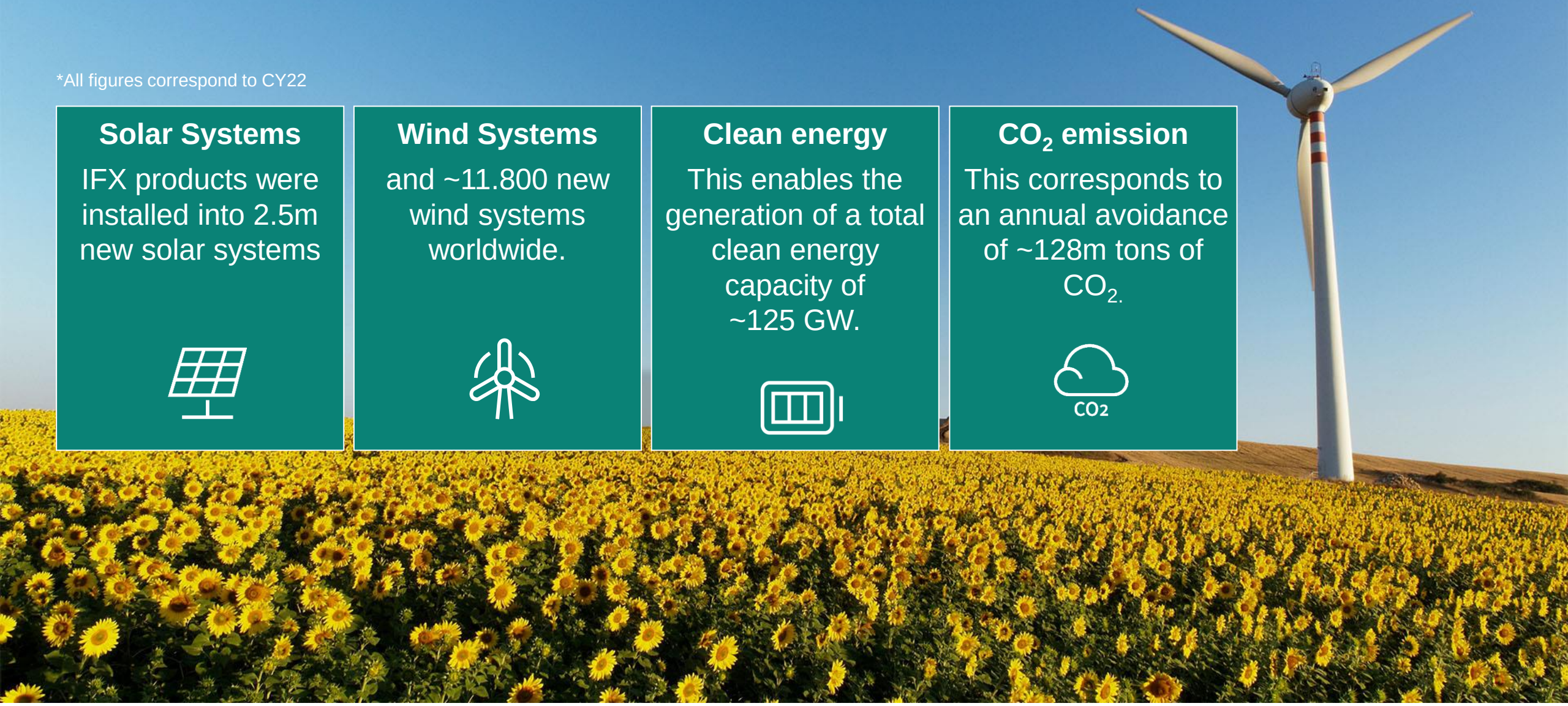
and ~11.800 new wind systems worldwide.

Clean energy

This enables the generation of a total clean energy capacity of ~125 GW.

CO_2 emission

This corresponds to an annual avoidance of ~128m tons of CO_2.



How we actively drive decarbonization:
Our climate strategy is based on two main pillars

Climate strategy at Infineon

Continuous reduction of its own CO_2 footprint **in the manufacture of products** through improved energy efficiency, the most modern process technologies and green electricity usage.

Contribution to global CO_2 reduction through **the use of Infineon's innovative products and solutions by its customers** – leading to better energy efficiency in the industrial, automotive and consumer sectors.

Infineon creates a huge net ecological benefit

In various areas of application (automotive electronics, industrial drives, photovoltaics as well as wind energy), our products can achieve CO_2 savings during their lifetime of around 117 million tons of CO_2 equivalents. Compared with the European electricity mix, this is around 12.5 percent of the annual net electricity production of the European Union.

CO_2 burden[1]

of 3.4 million tons CO_2 equivalents

Ratio around 1:34

CO_2 savings[2]

of 116.6 million tons CO_2 equivalents

Net ecological benefit: CO_2 emissions reduction of more than 113 million tons

[1] This figure takes into account manufacturing, transportation, own vehicles, travel, supplier-specific emissions, water/waste water, direct emissions, energy consumption, waste etc. as well as direct and indirect energy-related emissions by manufacturing service providers. It is based on data collected internally and publicly available conversion factors and relates to the 2023 fiscal year.
[2] This figure is based on internally established criteria, which are described in the explanatory notes. The figure relates to the 2022 calendar year and takes into account the following application areas: automotive electronics, industrial drives, photovoltaics as well as wind energy. CO_2 savings are calculated based on the potential savings generated by technologies in which semiconductors are used. The CO_2 savings are allocated based on Infineon's market share, semiconductor share and the lifetime of the technologies concerned, based on internal and external experts' estimations. Despite the fact that carbon footprint calculations are subject to imprecision due to the complex issues involved, the results are nevertheless clear.

Driving decarbonization and digitalization. Together.