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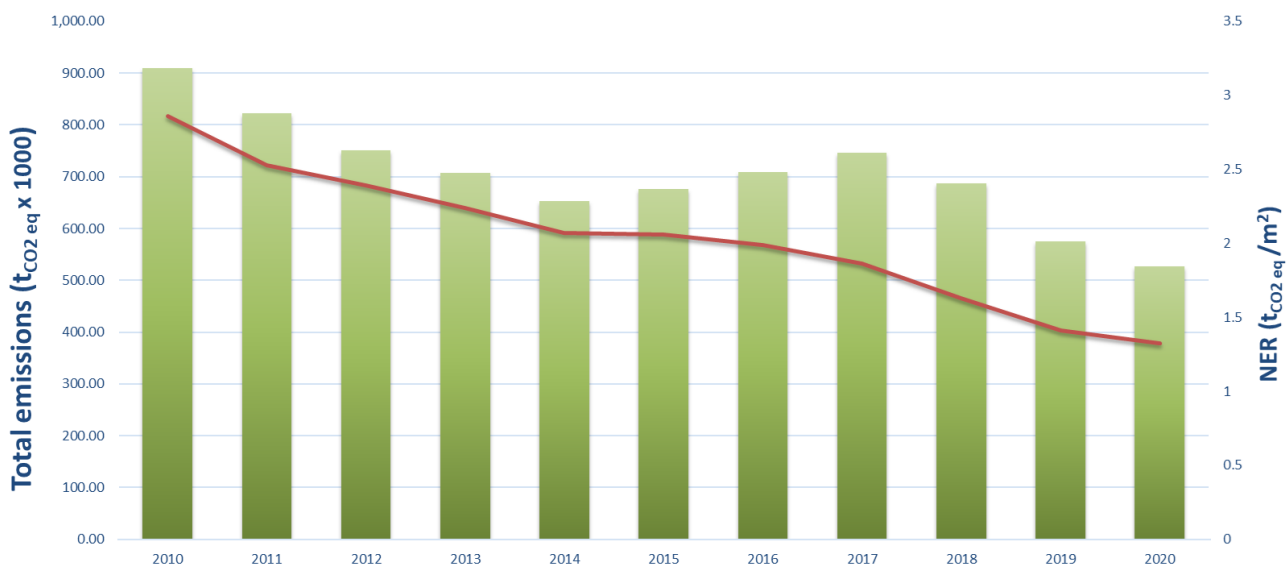
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European semiconductor industry reduces its fluorinated greenhouse gas emissions by 42 percent in Europe during the last decade

Today, the European Semiconductor Industry Association (ESIA) announces that the industry has achieved a 42% absolute emission reduction of ‘perfluorocompound’ gases¹ from 2010 to 2020. PFCs are greenhouse gases which are used in the semiconductor manufacturing process. The sector’s emission reductions show a strong commitment to fight climate change and was achieved through substantial investment to implement reduction practices at operations across Europe.

As the European Union is reviewing its climate legislation and fluorinated gas regulation in 2021, this leadership highlights the benefits and results of having a proactive approach from industry stakeholders. European PFC reduction efforts began in the mid-1990’s to address emissions and have continued through 2020. Previously, European industry had voluntarily reduced emissions by 41% from the 1995 baseline to 2010. Figure 1 below outlines the reduction over the past decade.² Over the same period, the industry has also reduced its overall emissions – normalised per unit of production index – by 54%.³

Figure 1 – European semiconductor ‘perfluorocompound’ gas emissions 2010-2020⁴



Semiconductors themselves make significant contributions to mitigating carbon emissions, facilitating energy savings, and reducing power consumption across society that enable the European Green Deal's climate goals, primarily by improving the efficient use of energy. Such improvements are made in areas such as automobiles, smarter mobility solutions (hybrid and electric vehicles), buildings, lighting, industry production, cloud storage and computing, and by facilitating the use of renewable energy sources.

Although the European semiconductor manufacturing industry itself is only a minor contributor to overall greenhouse gas emissions in Europe, the sector does emit some PFC gases during its manufacturing process. The use of PFC gases remains critical to the production of semiconductors, as there are no effective substitutes that can be utilised. PFC emissions reduction technologies that are applied in their factory operations include: manufacturing process optimisation (reducing the amount of PFCs that are used and emitted), using alternative process PFC chemistries with lower global warming potential where possible, and installing abatement equipment systems.

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About ESIA: *The European Semiconductor Industry Association (ESIA) is the voice of the semiconductor industry in Europe. Its mission is to represent and promote the common interests of the Europe-based semiconductor industry towards the European institutions and stakeholders in order to ensure a sustainable business environment and foster its global competitiveness. As a provider of key enabling technologies, the industry creates innovative solutions for industrial development, contributing to economic growth and responding to major societal challenges. Being ranked as the most R&D-intensive sector by the European Commission, the European semiconductor ecosystem supports approx. 200.000 jobs directly and up to 1.000.000 induced jobs in systems, applications and services in Europe. Overall, micro- and nano-electronics enable the generation of at least 10% of GDP in Europe and the world.*

¹ 'Perfluorocompound' gases include all compounds used in semiconductor production: perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆), and nitrogen trifluoride (NF₃) Therefore, the reference to 'perfluorocompounds' is broader than the traditional categorisation of only PFCs.

² Emission in CO₂ equivalents based on the Intergovernmental Panel on Climate Change (IPCC) 2006 formula.

³ Normalised emissions rate (NER): production index unit is per m² of silicon wafer.

⁴ ESIA company members.