



European
Semiconductor
Industry
Association

Guidance

on the

EU Taxonomy Framework

Brussels, 28 April 2023



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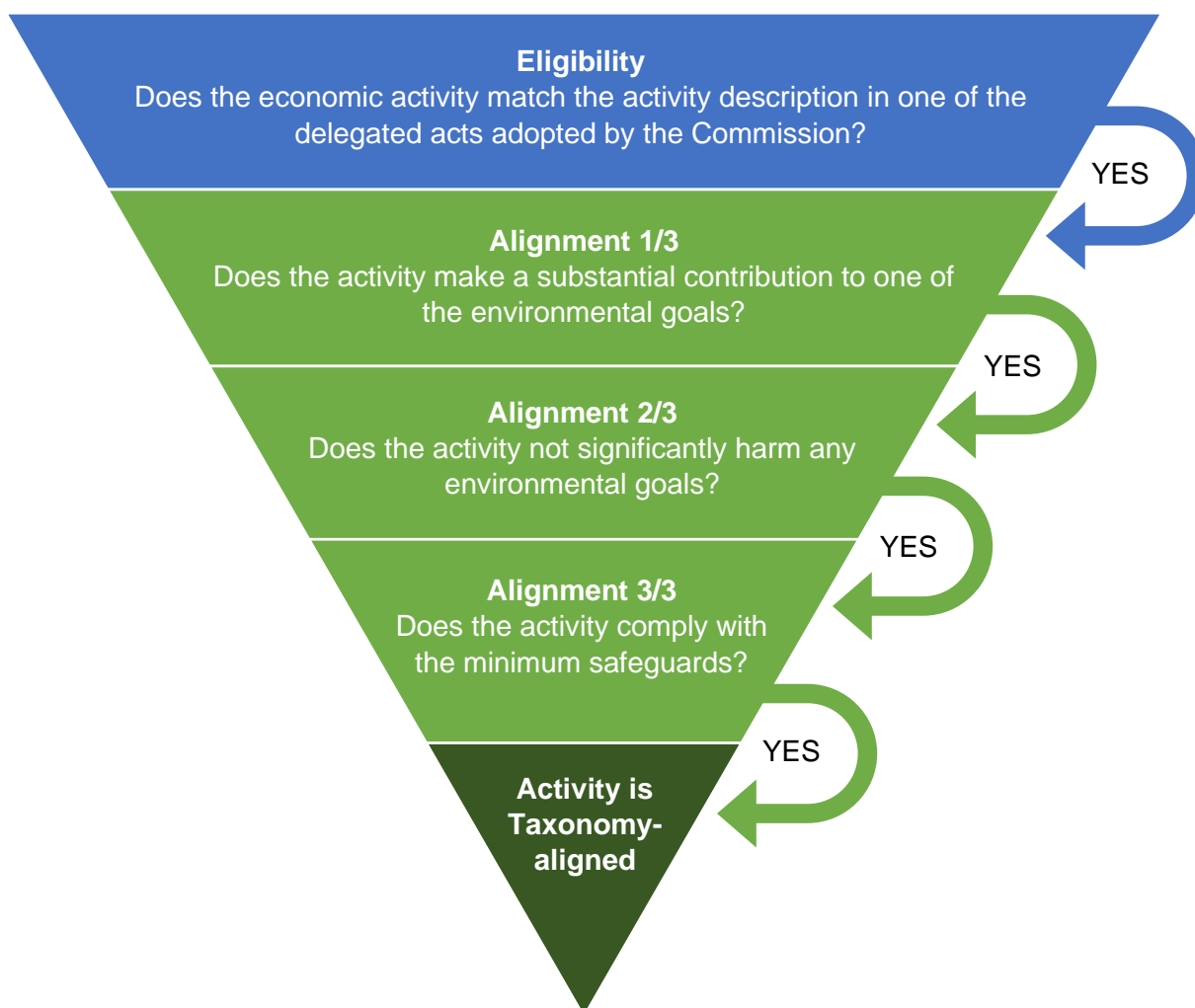
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Antitrust compliance

This guidance document has been devised in full compliance with the ESIA Statement of Antitrust Policy, a copy of which can be found at the end of this document.

Abbreviations

CapEx	Capital Expenditure
DNSH	Do no significant harm
EMS	Energy Management Systems
GHG	Greenhouse gases
ICT	Information and Communication Technologies
IoT	Internet of Things
LCA	Life Cycle Assessment
OpEx	Operational Expenditure
RBA	Responsible Business Alliance
TSC	Technical Screening Criteria



1. Introduction to the EU Taxonomy framework

The EU Taxonomy is a classification system which establishes a list of environmentally sustainable economic activities.¹ The rationale behind the EU Taxonomy is to provide companies, investors, and policymakers with the tools to assess how sustainable companies' product portfolios, investments (CapEx) and operating expenses (OpEx) are. The objective of this document is to provide guidance to semiconductor manufacturing companies.

This guidance document has been drafted by ESIA and its member companies and is intended to offer guidance to semiconductor companies by suggesting possible interpretations of the main concepts underlying the EU taxonomy. Such interpretations are indicated in **bold**. It is not a binding document or position paper, and companies are free to make their own interpretation.

This document will be reviewed on a regular basis, considering changes to the regulatory framework, including the adoption of new delegated acts, the publication of FAQ documents.

2. Semiconductors contribute to the European Green Deal

The European Green Deal envisages to transform the EU into a modern, resource-efficient, and competitive economy. Semiconductors are used in many applications that are essential for the realisation of the European Green Deal and the transition to a net zero economy. They help reduce society's environmental footprint, by enabling GHG reductions within other industries. Examples of this include the following.

- Semiconductors are indispensable for the ongoing shift from traditional vehicles to solutions focused on low carbon mobility, autonomous driving, and electrification.
- Semiconductors are the drivers of the smart industry, cities and information and communications technologies (ICT) which are crucial for the integration of energy systems, development of smart grids, energy management systems (EMS), and sustainable cities.
- Semiconductors enable energy-efficiency gains and the generation of renewable energy from, for example, solar and wind energy.

3. Eligibility

The EU Taxonomy sets out several economic activities that are potentially sustainable. These activities are called eligible activities. An economic activity is eligible where it matches the description set out in one of the delegated acts adopted by the Commission. Until today, the Commission has only adopted a delegated act setting out the technical screening criteria for the first two environmental goals – climate change mitigation and climate change adaptation. Considering this and the end-markets of semiconductor products, this guidance document focuses on climate change mitigation. **Semiconductor manufacturing is not specifically described in the existing delegated acts but can be an economic activity within the residual category 3.6. “manufacturing of other low carbon technologies”.** For an activity

¹ For an interactive overview, please see the EU Taxonomy Compass, available [here](#).

or product to be eligible for climate change mitigation under this category, the activity or product needs to have the objective of enabling a substantial reduction of GHG emissions in another sector of the economy. Therefore, **semiconductor manufacturing is a Taxonomy-eligible activity where it enables another economic activity to make substantial GHG emission savings.**

4. Alignment

An eligible activity must fulfil four basic criteria to be classified as sustainable, or as aligned, as the EU Taxonomy calls it. (1) It must substantially contribute to at least one of the environmental objectives,² (2) it must comply with the technical screening criteria established by the Commission. (3) it may not significantly harm any of the environmental objectives, and (4) it must be carried out in compliance with certain minimum safeguards.

5. Technical Screening Criteria

5.1. Substantial contribution

There is a vast array of semiconductor products almost each of which has unique features and is intended for a different function and a different application. All three of these factors (features of the product, function, and application) influence the performance over the course of a product's lifetime. A product and application-based approach could help accounting for these differences when determining whether semiconductor manufacturing is taxonomy aligned.

Substantial GHG reduction across the life cycle could be evaluated based on product life cycle emissions and applications (whenever possible) and such a substantial contribution can come from any part of the life cycle.

Semiconductor foundries,³ as a specific subcategory of semiconductor manufacturers, may have insights into the end market that the devices they build will support (e.g., automotive, industrial IoT, data centre). However, foundries will have incomplete information, as some devices may be used in multiple end markets.

5.2. Life cycle assessment

Companies need to determine the overall life cycle GHG emissions savings that the product achieves. The assessment of the life cycle GHG emissions of products is typically conducted from cradle to grave, thus including the sourcing of raw materials, the manufacturing, the transportation, the use, and the end of life of the product. For semiconductor companies, life

² Climate change mitigation, climate change adaptation, the sustainable use and protection of water and marine resources, the transition to a circular economy, pollution prevention and control, and the protection and restoration of biodiversity and ecosystems

³ Contract semiconductor manufacturers who produce integrated circuits based on their customers' designs.

cycle assessments are complex analyses that often involve the full value chain and the most significant phases of the LCA are the manufacturing phase and product use phase.

While some companies already have implemented an LCA approach, others may not have done so yet, particularly in the absence of standardised methodologies, or may face challenges to assess the gain versus a reference point in the first years. Such **companies could already provide relevant information by performing a simplified LCA (Example: focusing only on the manufacturing and product use phases.)**

Based on the difference in business model, **foundries, which only control the manufacturing phase, may focus on the LCA phases prior to use and end of life.**

A possible approach to comply with the LCA requirements of the technical screening criteria could be that companies classify products in different categories according to their contribution to GHG reductions over their life cycle.

In addition to the LCA of end-use products' savings potential, **consideration could be given to substantive reductions achievable in operations and the manufacturing supply chain** (scope 1, scope 2, and upstream scope 3 emissions). These substantial reductions could be factored into the approach described above.

5.3. Best performing alternative in the market

It is extremely difficult to compare one semiconductor product to another. However, the Taxonomy framework warrants such a comparison, requiring companies to show that their economic activities are aimed at and demonstrate substantial life cycle GHG emission savings *compared to the best performing alternative available on the market.*

To ensure a meaningful comparison, companies would need to estimate their product's advantage compared to a competing product in term of technology gain (e.g., node), carbon footprint (e.g., estimation of overall emissions by units), and/or power consumption per application (including idle mode assumptions). However, given that this is not feasible for the semiconductor industry (for example because there is no direct competition or it is unknown), **companies could compare a given product with the previous generation thereof or an alternative solution from their own product portfolio.**

6. Do No Significant Harm Criteria

6.1. Climate change adaptation

In the FAQ on the Climate Delegated Act, the Commission explains that to comply with the DNSH criteria for climate change adaptation, companies must carry out a risk and vulnerability assessment to identify solutions for climate change adaptation.⁴

⁴ Question 165 of the FAQ Document, available [here](#).

6.2. The transition to a circular economy

Companies must assess whether there are techniques available for the economic activity in question that support circular economy principles.⁵

Companies must adopt the techniques in question, where it is feasible to do so. Thus, companies are not under an obligation to achieve a certain result but only under an obligation to make such an assessment. It is up to each individual company to determine how they interpret the term ‘feasible’.

6.3. Pollution prevention and control

According to the Climate Delegated Act, an economic activity may not lead to the manufacture, placing on the market, or use of certain chemicals to be Taxonomy-aligned. Instead of listing individual chemicals, it refers to other pieces of EU legislation that regulated the use of certain chemicals.⁶ Under the referenced legislation, it is possible to grant exemptions and derogations for the use of certain chemicals in very specific cases, where it is demonstrated that there are no viable alternatives available and where the impact on the environment is minimal. The wording of Appendix C that suggests the exemptions and/or derogations granted under the referenced legislation do not apply in the context of the assessment whether an economic activity does significant harm to pollution prevention and control.

The semiconductor industry has exemptions and/or derogations to the restriction of the use of certain chemicals that are regulated by the referenced legislation and uses these chemicals accordingly.

The departure from existing legislation in substances leads to the following issue. The semiconductor industry has been granted several exemptions and/or derogations to the restriction of the use of certain substances. However, **because these exemptions and/or derogations are not recognised by the Taxonomy framework, semiconductor manufacturing companies may need to report very low levels of alignment**, as they heavily rely on some of the substances referred to.

Furthermore, Appendix C, section (f), and (g) refers on the concept of “**essential use**,” even though this concept has yet to be defined by the European Chemicals Agency (ECHA). **Until an official definition of this concept has been adopted, it is up to each company to define it.**

⁵ (1) The reuse of secondary raw materials and reused components in the products manufactured. (2) The design of high durability, recyclability, easy disassembly, and adaptability of products manufactured. (3) Waste management that prioritises recycling over disposal in the manufacturing process. (4) Information on and traceability of substances of concern throughout the life cycle of the manufactured products.

⁶ Regulation (EU) 2019/1021 (POPs Regulation), available [here](#); Regulation (EU) 2017/852 (Mercury Regulation), available [here](#); Regulation 1005/2009 (ODS Regulation), available [here](#); Directive 2011/65/EU (RoHS Directive), available [here](#); and Regulation 1907/2006 (REACH Regulation), [here](#).

6.4. Protection and restoration of biodiversity and ecosystems

To satisfy the DNSH criteria relating to the protection and restoration of biodiversity and ecosystems, the following conditions must be fulfilled:⁷

1. An Environmental Impact Assessment or screening has been completed and the required mitigation and compensation measures have been implemented; and
2. An appropriate assessment within the meaning of Article 6 (3) of the Habitat Directive has been conducted for sites located in or near biodiversity sensitive areas and the mitigation measures have been implemented.

6.5. Sustainable use and protection of water and marine resources

The DNSH criteria relating to the sustainable use and protection of water and marine resources are met where companies carried out an Environmental Impact Assessment or screening and have addressed the identified risks.⁸

7. Minimum safeguards

Companies must have in place procedures to ensure alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, the rights set out in the eight fundamental conventions in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights. According to the Platform on Sustainable Finance, companies should take existing and upcoming EU legislation in the field of human rights due diligence as reference for alignment with minimum safeguards. This includes legislation on labour rights, corruption, taxation, fair competition, and sustainability disclosure.⁹

8. Financial KPIs

It is not entirely clear, what the concept of OpEx (operational expenditures), set out in the Disclosures Delegated Act,¹⁰ encompasses. **It is up to each company to assess which OpEX costs to include and if they want to apply an exemption for the costs that are not material.** Given the nature of the semiconductor manufacturing business, one possible approach could be to only include costs related to research and development, since other costs that could possibly fall within this category are likely to be insignificant in the context of Taxonomy eligibility and alignment.

⁷ Commission Delegated Regulation (EU) 2021/2139, Appendix D, available [here](#).

⁸ Commission Delegated Regulation (EU) 2021/2139, Appendix B, available [here](#).

⁹ Platform on Sustainable Finance “Final Report on Minimum Safeguards” October 2022, p. 31, available [here](#).

¹⁰ Commission Delegated Regulation (EU) 2021/2178, available [here](#).

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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.

9. Annex

Statement of Antitrust Policy

Because the meetings of the European Semiconductor Industry Association (ESIA) necessarily bring together a wide cross-section of the industry, including competitors, meeting participants must be careful not to engage in discussions that could lead to unintended antitrust consequences. Even the exchange of recent sensitive company-related information could trigger such antitrust consequences.

Accordingly, meeting participants should not engage in discussions that encourage or may result in anticompetitive consequences of any kind, either in formal meetings or in informal conversations taking place before, during, or after formal sessions. Many competition and antitrust law investigations, proceedings, indictments, and civil lawsuits have arisen from informal conversations at industry meetings or in social settings. Even “small talk” or a friendly game of golf between competitors could give rise to illegal coordination or the mere appearance of such conduct, if sensitive information is exchanged.

Strict adherence to the following guidelines is essential and required of all members and participants:

Do not assume a particular nation’s antitrust laws will not apply to discussions at meetings. The antitrust laws of several countries can apply to certain “extraterritorial” conduct. Meeting participants thus should adhere to these guidelines regardless of the geographic location of their operations.

Do not discuss sensitive competitive or confidential information. This information may include costs, current prices, price trends, inventory, production capacity (and/or its utilisation) or production; restrictions on output; allocation or limitation of locations or territories; customers and sales or bidding practices; boycotting or blacklisting of customers, competitors, or suppliers; and precise formulas or other trade secrets.

Do not discuss prices. There should never be discussions of prices or terms of sale, including actual, projected, possible, or future prices or terms for any products or components. Also, participants should avoid exchanges of information that could lead to any agreement on price, or even only coordinated behaviour.

Do not discuss costs. There should be no discussion of any particular company’s costs of producing or purchasing hardware, software, components or any other item.

Do not suggest or discuss any limitation on competition among the participating companies or with other companies. There should be no discussion of collective approaches for marketing products, either among the participating companies or with others.

Do not discuss confidential or non-public information regarding development or release dates for new products. There should be no signalling of when new products are expected to be released, or the timetable for the development of new products.

Do not discuss decisions to deal or refrain from dealing with customers or suppliers. There should be no discussion of distribution strategies or of entities with which participants will or will not deal.

Do not discuss production capabilities or quantities of product produced. Participants should refrain from discussing, or signalling, production capacity and number of units produced. Participants similarly should not discuss anticipated production or production capacity.

Do not engage in discussions that could be interpreted as allocating customers, suppliers, markets, or territories. The antitrust laws of certain countries prohibit so-called “market division” agreements. Participants should be extremely careful not to engage in discussions that could suggest the formation of such agreements.

Can you discuss possible cooperation (e.g. in R&D) with competitors? If you intend to enter into some form of cooperation or joint venture agreement – which may, in itself, be legal if the antitrust requirements are met – do not start discussing any confidential or sensitive information without having first retained advice from antitrust counsel as to how such discussions may be initiated and what information may be exchanged.

If you have any questions regarding these matters or any questions as to the legality of any proposed course of action, please immediately consult antitrust counsel/ESIA Secretariat to assure full compliance with applicable competition and antitrust laws.