

Index Insights

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“Do No Significant Harm” and “Minimum Safeguards” in Practice

Navigating the EU Taxonomy Regulation

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Overview

The EU Taxonomy is an important and complex regulation that aims to define sustainable activities, which is influential in the current global trend of countries developing green or environmental taxonomies. The Regulation entered into force in July 2020 and requires companies and investors in the EU to disclose the proportions of sustainable economic activities they undertake or finance. To qualify as sustainable and align with the EU Taxonomy, an activity must make a substantial contribution to one of the six environmental objectives, do no significant harm (DNSH) to the other environmental objectives, and comply with minimum safeguards (MS).

The subsequent Climate Delegated Act provides details on technical screening criteria (TSC) for determining the alignment of economic activities with a substantial contribution to Climate Change Mitigation or Adaptation objectives. Further TSC is expected on the remaining four environmental objectives.

However, it is not straightforward to implement the EU Taxonomy. There are various questions about what the Regulation means in practice. For example, how do investors and companies implement the TSC? What can investors realistically report when current corporate disclosure and data is limited, and disclosure rules have not yet started? How can we determine the EU Taxonomy alignment at the portfolio level?

To address these fundamental questions on using the Taxonomy in practice, this paper analyzes the EU Taxonomy Regulation with a deep dive into the DNSH and MS requirements contained in the Climate Delegated Act. This study transforms these requirements into sustainable investment data points and proposes data solutions using green revenues, ESG and controversies data to assess the EU taxonomy alignment of activities, companies and portfolios.

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Executive summary

The EU Taxonomy Regulation entered into force in July 2020 with the aim of providing clear definitions of sustainable economic activities and mobilize sustainable investment at scale. According to the Delegated Act on disclosure (Article 8) adopted in July 2021, companies and investors should disclose the extent to which their business activities are EU Taxonomy-aligned, i.e., the proportions of sustainable economic activities, as defined by the EU Taxonomy, undertaken by companies or financed by investors.

To qualify as “environmentally sustainable” under the EU Taxonomy Regulation, an activity must meet all the requirements below:

1. Make a substantial contribution to one of the six environmental objectives and meet relevant technical screening criteria (TSC);
2. Do no significant harm (DNSH) to the other five environmental objectives and meet relevant TSC; and
3. Comply with minimum safeguards.

The Climate Delegated Act, which was formally adopted in June 2021, provides details on the TSC for determining whether an economic activity makes a substantial contribution to either the Climate Change Mitigation or Adaptation objectives, and whether it does no significant harm to the other environmental objectives. The European Commission will develop further delegated acts for activities with a substantial contribution to the remaining four objectives. It is also considering how to treat nuclear energy and natural gas, and whether the taxonomy should extend to social objectives.

The application of the current TSC is complex, and the amount of data required for assessing the EU Taxonomy alignment is significant. Our analysis shows that the EU Taxonomy effectively puts forward 105 unique DNSH requirements. An economic activity can be subject to 0-20 DNSH requirements, with an average of 9.6 requirements applied to mitigation activities and 7.2 to adaptation activities. Each activity is subject to different DNSH requirements depending on the types of activities and to which environmental objectives the activity is contributing.

In addition to the DNSH requirements, the EU Taxonomy Regulation requires the economic activity to be aligned with “the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, including the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights.”¹ Topics covered by these principles are far-reaching. While there are overlaps in the topics covered by the UN Guiding Principles, the ILO Principles and the International Bill of Human Rights, the OECD Guidelines are much broader, covering responsible conduct in the areas of consumer rights, taxation, science and technology, and competition. Recognizing this, the EU TEG recommends focusing on corporate conduct in the areas of human rights, labour rights, and corruption.²

Currently, there is insufficient corporate disclosure or data to fully assess the EU Taxonomy alignment. After mapping the DNSH TSC against c.300 ESG indicators related to environmental issues³, we found that only 43 ESG indicators can be used to approximate DNSH TSC and assess the alignment. Most TSC are not covered by the existing ESG data landscape or corporate disclosure as they are very forward-looking or specific to EU legislations. Similarly, 28 ESG indicators have been identified as proxies to MS requirements. These indicators apply universally to all economic activities, unlike DNSH requirements where various ESG indicators apply to different activities.

Given the incomplete coverage by ESG data, we propose to use controversies screening, which checks companies’ involvement in controversial conduct, as another layer of examination to flag violations against DNSH and MS-related issues. Further, even with ESG indicators available to address all the TSC, companies, in particular non-European companies, which are not subject to the EU Taxonomy Regulation, may not disclose such granular information on how their businesses align with the EU Taxonomy.

¹ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0852>.

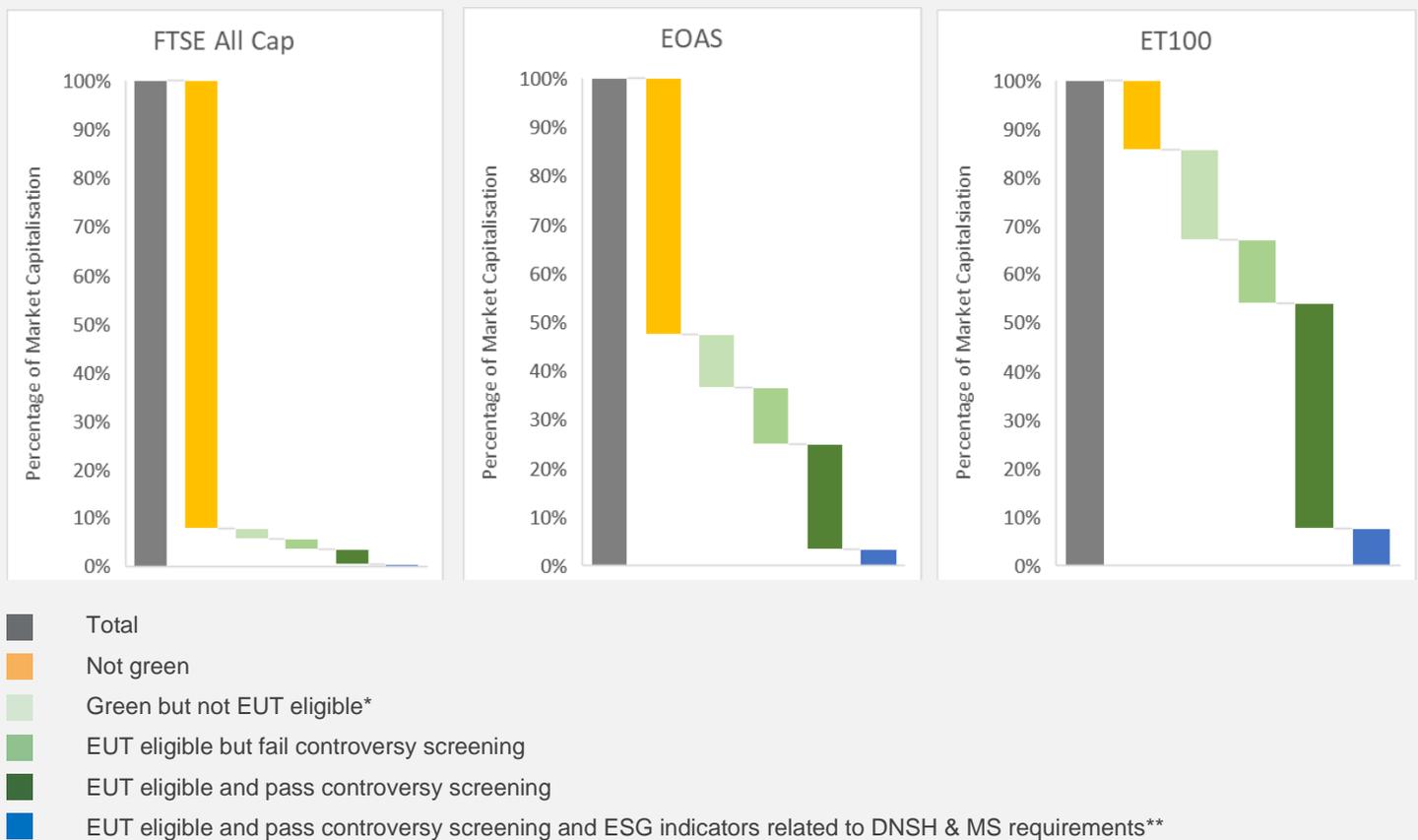
² European Commission (2020). TEG Final Report on the EU Taxonomy https://ec.europa.eu/info/publications/sustainable-finance-teg-taxonomy_en.

³ From both FTSE Russell and Refinitiv ESG data models.

To demonstrate how to assess the EU taxonomy alignment at the portfolio level, we used FTSE Russell Green Revenues data for identifying eligible economic activities with substantial contribution to environmental objectives, and ESG and controversies data for determining whether the activity meets DNSH and minimum safeguards criteria. The analysis found that, for example, 5.7% of the FTSE Global All Cap Index (FTSE All Cap Index), which covers over 97% of the global equity market, is EU Taxonomy eligible. This is expected given our research that approximately 7% of the global listed equity market can be considered green. Taking into account the DNSH and MS requirements, 3.4% passes controversies screening, and 0.4% passes both controversies screening and *potentially* all the ESG indicators. (This is a relatively low figure as companies do not disclose information against all ESG indicators related to DNSH and MS, so we cannot determine whether those ESG indicators without disclosure are met or failed.)

Figure 1 demonstrates the EU Taxonomy alignment for the FTSE All Cap, and indexes designed to capture green companies, including the FTSE Environmental Opportunities All-Share Index (EOAS)⁴ and FTSE Environmental Technologies Index Series - ET100 Index (ET100).⁵

Figure 1. Examples of calculating EU Taxonomy (EUT) alignment percentage⁶



*Some green activities under the FTSE Russell Green Revenues Classification System (GRCS), such as industrial pollution reduction, and organic and low impact farming, are not yet covered by the current EUT.

**There is no sufficient disclosure and data to demonstrate all ESG indicators are met.

Source: FTSE Russell as of September 2021.

⁴ Companies must have at least 20% of Green Revenues derived from environmental products and services to be eligible for the FTSE Environmental Opportunities Index Series. <https://www.ftserussell.com/products/indices/env-markets>.

⁵ Companies must have at least 50% of Green Revenues derived from transformational environmental technologies to be eligible for the FTSE Environmental Technology Index Series. The FTSE Environmental Technologies Index Series includes the FTSE ET100 Index, which comprises the 100 largest pure play companies globally by full market capitalization. <https://www.ftserussell.com/products/indices/env-markets>.

⁶ Preliminary results based on sample data. Data source: FTSE Russell as of September 2021.

With current corporate disclosure and data, we can identify eligible activities that pass controversies screening related to DNSH and MS issues but cannot conclusively determine whether ESG indicators and ultimately, TSC, are fully met. Companies should be encouraged to disclose detailed information on how activities pass TSC and EU Taxonomy requirements. Such information will be useful for investors' decision-making process, supporting the assessment of sustainability performance of companies in the global financial market.

Given the data challenge now, investors may need to take a pragmatic approach when implementing DNSH and MS requirements. One option is to apply the controversies screening as a first step to ensure activities and companies are not involved in relevant controversial conduct, so that they, in principle, do no significant harm to environmental objectives and have minimum safeguards. When corporate disclosure and data improve over time, applicable ESG indicators can be gradually put in place to fully assess the EU Taxonomy alignment. Investors should be aware of the potential trade-offs between the level of sustainability and the size of the investable universe when following the EU Taxonomy to construct sustainable investment portfolios.

This paper provides a deep dive into the EU Taxonomy DNSH and minimum safeguards requirements. It proposes processes and data solutions for determining the EU Taxonomy alignment at activity, company and portfolio levels. It aims to build a framework of data solutions that can incorporate the existing and future requirements from the EU Taxonomy Regulation, while supporting investors with their disclosure obligations.

Section 1: The EU Taxonomy Regulation

To achieve the Paris Agreement on Climate Change and the UN's Sustainable Development Goals, the European Commission has established the EU Taxonomy as part of its Action Plan on Financing Sustainable Growth.⁷ The Taxonomy identifies sustainable economic activities considering the EU's six environmental objectives to encourage sustainable investment and direct capital towards a green economy. It is also an essential enabler of the "European Green Deal," an ambitious set of EU sustainable economy reforms that provide many use cases for the EU Taxonomy.⁸

The EU Taxonomy Regulation, which entered into force in July 2020, identifies **six environmental objectives**:

1. Climate change mitigation
2. Climate change adaptation
3. Sustainable use and protection of water and marine resources
4. Transition to a circular economy
5. Pollution prevention and control
6. Protection and restoration of biodiversity and ecosystems

To qualify as "environmentally sustainable" under the EU Taxonomy Regulation, an activity must meet all the requirements below⁹:

1. Make a substantial contribution to one of the six environmental objectives and meet relevant technical screening criteria (TSC);
2. Do no significant harm to the other five environmental objectives and meet relevant TSC; and
3. Comply with minimum safeguards.

The Climate Delegated Act released in June 2021 lists 99 eligible economic activities.¹⁰ It provides details on the TSC for determining whether economic activities make a substantial contribution to Climate Change Mitigation or Adaptation, and whether they Do No Significant Harm (DNSH) to the other environmental objectives. The TSC that define substantial contributions to the other four environmental objectives was due to be developed by the end of 2021, but it is now delayed until 2022.

Substantial contribution

An economic activity needs to meet relevant TSC to demonstrate that it makes a substantial contribution to an environmental objective. For example, rail transport must have zero direct emissions, and geothermal electricity production must meet the threshold of 100gCO₂/kWh to indicate that they contribute substantially to Climate Change Mitigation (Objective 1).

⁷ https://ec.europa.eu/info/publications/180308-action-plan-sustainable-growth_en.

⁸ European Commission (2020). TEG Final Report on the EU Taxonomy https://ec.europa.eu/info/publications/sustainable-finance-teg-taxonomy_en.

⁹ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0852>.

¹⁰ There are 88 activities making substantial contribution to Objective 1 and 95 activities making substantial contribution to Objective 2; 84 of them are overlapped. [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM:C\(2021\)2800](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM:C(2021)2800).

Substantial contribution TSC for Climate Change Adaptation (Objective 2) is similar for most eligible economic activities. These criteria use a “process-based” approach: activities must undertake a robust climate risk and vulnerability assessment, as well as implement adaptation solutions to address any material climate risks identified through the assessment.

Do No Significant Harm (DNSH)

DNSH supposes an eligible economic activity meets relevant TSC and makes a substantial contribution to Objective 1. It also needs to meet additional DNSH TSC associated with Objectives 2 – 6 but not Objective 1. DNSH TSC may vary with the types of activities and to which environmental objectives the activity is contributing – our research identifies 105 different DNSH requirements. An economic activity needs to meet all the applicable DNSH TSC to qualify under the EU Taxonomy Regulation.

Section 2 provides a detailed analysis of the DNSH requirements.

Minimum safeguards

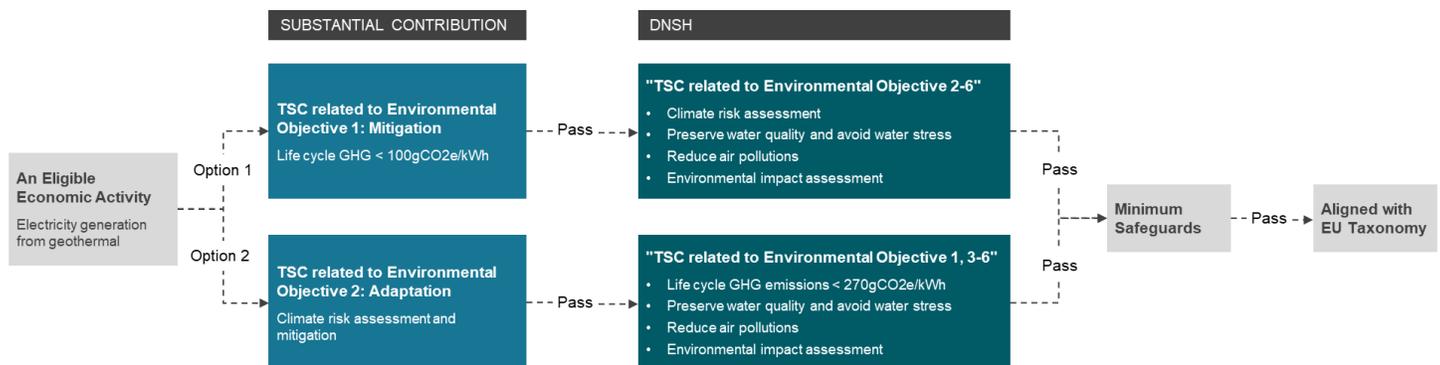
The minimum safeguards requirements apply to all the eligible economic activities and do not vary with economic activities or environmental objectives. According to Article 18 of the Regulation, economic activities should be aligned with “the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, including the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights.”¹¹

Overall alignment

The requirements related to the substantial contribution TSC, DNSH, and MS must all be met for an eligible economic activity to be considered EU Taxonomy aligned.

Figure 2 illustrates how the EU Taxonomy Regulation requirements apply to electricity generation from geothermal energy, for example (see more details in Appendix 1).

Figure 2. Example: electricity generation from geothermal energy



¹¹ Ibid.

Disclosure rules

Under the EU Taxonomy Regulation, investors must disclose how and to what extent their underlying investments support economic activities that qualify as environmentally sustainable. In July 2021, the European Commission adopted and published the EU Taxonomy Article 8 Delegated Act to specify disclosure rules for financial and non-financial undertakings in the scope of the Non-Financial Reporting Directive (NFRD).¹² It defines the information and key performance indicators (KPIs) that investors and companies need to disclose to show the proportions of their investments or activities that are EU Taxonomy-aligned. KPIs for non-financial undertakings include turnover, capex (capital expenditures) and opex (operational expenditures); those for financial undertakings include Green Asset Ratio¹³ and Green Investment Ratio.¹⁴

Box 1 The EU Taxonomy Article 8 Delegated Act, Corporate Sustainability Reporting Directive (CSRD) and Sustainable Finance Disclosure Regulation (SFDR)

For financial undertakings,

- EU Taxonomy Article 8 Delegated Act provides disclosure rules on the extent to which their underlying assets or investment are aligned with the EU taxonomy at the entity level.
- Separately, SFDR regulation¹⁵ requires financial institutions to disclose to what extent their financial products are environmentally sustainable and to address adverse sustainability impacts.
- The proposed CSRD¹⁶ is to extend the scope of companies subject to the EU Taxonomy Regulation, due to investors' demand for more corporate disclosure. The EU Taxonomy Article 8 Delegated Act will make adjustments accordingly.

Implementation in practice

The EU Taxonomy Regulation is still a moving target with potential delays on the timeline. More activities may be covered, and additional TSC will be developed. There have been debates among various stakeholders and member states on changes of TSC and the inclusion or exclusion of certain economic activities such as natural gas, agriculture and nuclear power generation. This creates uncertainty in the financial market and complexity in data gathering and financial product construction. The application of TSC is likely to pose challenges for various financial asset classes, as discussed in a previous research paper.¹⁷ Given the wide range of products and services across broad value chains in the listed equity market, it is difficult to fully implement such criteria consistently due to limited corporate disclosure with low granularity.

¹² https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en.

¹³ Defined as the proportion of the credit institutions' assets invested in taxonomy-aligned economic activities as a share of total covered assets. https://ec.europa.eu/info/files/sustainable-finance-taxonomy-article-8-faq_en.

¹⁴ Defined as the proportion of taxonomy-aligned investments managed by an asset manager in the value of all covered assets under management from both its collective and individual portfolio management activities. https://ec.europa.eu/info/files/sustainable-finance-taxonomy-article-8-faq_en.

¹⁵ Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability - related disclosures in the financial services sector <https://eur-lex.europa.eu/eli/reg/2019/2088/oj>.

¹⁶ Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0189>.

¹⁷ FTSE Russell (2020). Sizing the Green Economy: Green Revenues and the EU Taxonomy <https://www.ftserussell.com/research/sizing-green-economy-green-revenues-and-eu-taxonomy>.

Section 2: Systematizing the DNSH Technical Screening Criteria (TSC)

What are the DNSH TSC

In the Climate Delegated Act supplementing the EU Taxonomy Regulation, ‘Do No Significant Harm’ (DNSH) TSC are listed for each economic activity, split by environmental objectives. Economic activities do not have DNSH TSC for the objective to which the activity has contributed, nor necessarily for all other environmental objectives: in some cases, they may have negligible impacts on one or more of the objectives, or the objectives are not relevant to them, rendering DNSH TSC unnecessary.

Box 2 provides an example for the economic activity of “storage of electricity” under Climate Change Mitigation (Objective 1). It does not have DNSH TSC for Climate Change Mitigation, the objective to which it contributes; or for Pollution Prevention and Control, an objective deemed unaffected by this economic activity.

Box 2. Excerpt from the EU Taxonomy Regulation Climate Delegated Act Annex 1: DNSH TSC for the Storage of Electricity¹⁸

Do no significant harm (‘DNSH’)	
(2) Climate change adaptation	The activity complies with the criteria set out in Appendix A to this Annex.
(3) Sustainable use and protection of water and marine resources	In case of pumped hydropower storage not connected to a river body, the activity complies with the criteria set out in Appendix B to this Annex. In case of pumped hydropower storage connected to a river body, the activity complies with the criteria for DNSH to sustainable use and protection of water and marine resources specified in Section 4.5 (Electricity production from hydropower).
(4) Transition to a circular economy	A waste management plan is in place and ensures maximal reuse or recycling at end of life in accordance with the waste hierarchy, including through contractual agreements with waste management partners, reflection in financial projections or official project documentation.
(5) Pollution prevention and control	N/A
(6) Protection and restoration of biodiversity and ecosystems	The activity complies with the criteria set out in Appendix D to this Annex.

¹⁸ [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM:C\(2021\)2800](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM:C(2021)2800)

Devising these technical screening criteria is a complex undertaking. The scale of the information contained within over 500 pages of delegated acts is significant, such that it appears unclear how to report in line with these requirements. This paper endeavors to tackle this problem by distilling the information into a practical model, which can be applied at scale to identify securities that cause no significant harm to the achievement of the EU Taxonomy's environmental objectives, as specified in the delegated acts.

This section provides details on how we analyze the DNSH TSC, categorizing them into different requirements that can be translated into data points. It also demonstrates the applicability of these requirements to economic activities through a matrix. Section 3 will explain how ESG indicators can be approximated to these requirements to establish data solutions and support portfolio analysis.

A matrix of DNSH requirements and their applicability

To build a data model and generate data points relevant to DNSH TSC, we established a system of DNSH requirements. We analyzed one by one the DNSH TSC for each economic activity under each environmental objective, grouping similar TSC together and distinguishing those that are different (see Appendix 2 for details about the approach on categorizing DNSH TSC into requirements). We then mapped these DNSH requirements against economic activities through a matrix.

Table 1 provides a snapshot of the matrix demonstrating the applicability of DNSH requirements to eligible economic activities – only five economic activities and three environmental objectives are shown here. As we can see, there are eight unique DNSH requirements (W1-W8) related to the environmental objective, concerning water and marine resources (Objective 3); two of them, W1 and W2, apply to the economic activity of afforestation. The full matrix can be found in Appendix 3.

Table 1. Sample of DNSH requirement matrix: activities making a substantial contribution to climate change mitigation

EU Taxonomy Activities		DNSH requirements																								
		2. Climate change adaptation			3. Sustainable use and protection of water and marine resources								4. Transition to a circular economy													
NACE Code	Activity	A1	A2	A3	W1	W2	W3	W4	W5	W6	W7	W8	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
A.2	Afforestation	A1	A2	A3	W1	W2																				
C.27.2, C.38.3.2	Manufacture of batteries	A1	A2	A3	W1	W2									C3	C4										
D.35.11, F.42.22	Electricity generation from hydropower	A1	A2	A3				W4	W5	W6	W7															
H.49.32, H.49.39, N.77.11	Transport by motorbikes, passenger cars and light commercial vehicles	A1	A2	A3													C5		C7							
J.63.11	Data processing, hosting and related activities	A1	A2	A3	W1	W2									C3		C5							C12	C13	
R.90	Creative, arts and entertainment activities																									

In total, we have identified 105 unique DNSH requirements. These DNSH requirements are not evenly distributed across objectives or activities; some economic activities are subject to far more requirements than others, and some environmental objectives have far more requirements than others.

An economic activity can be subject to 0-20 DNSH requirements, with an average of 9.6 requirements applied to activities that substantially contribute to Objective 1 – Climate Change Mitigation, and an average of 7.2 applied to activities with a substantial contribution to Objective 2 – Climate Change Adaptation.

The number of unique DNSH requirements, the specifics and nuances within each DNSH requirement, and the variations in applying DNSH requirements to economic activities make it challenging to assess the EU Taxonomy alignment of activities, businesses and companies. It also creates complexity in data gathering, where the amount of data required is significant.

Figure 3 shows that under Objective 1 – Climate Change Mitigation, most activities (70%) are required to meet 8-12 requirements. 20% of economic activities are subject to fewer than eight requirements and a minority of activities (10%) must meet 13 or more requirements. Under Objective 2 – Climate Change Adaptation, 19% of activities need to fulfil 11-18 requirements, 39% should meet 7-10 requirements and 42% of economic activities are subject to six or fewer requirements.

Figure 3.1. Number of DNSH requirements applied to each economic activity

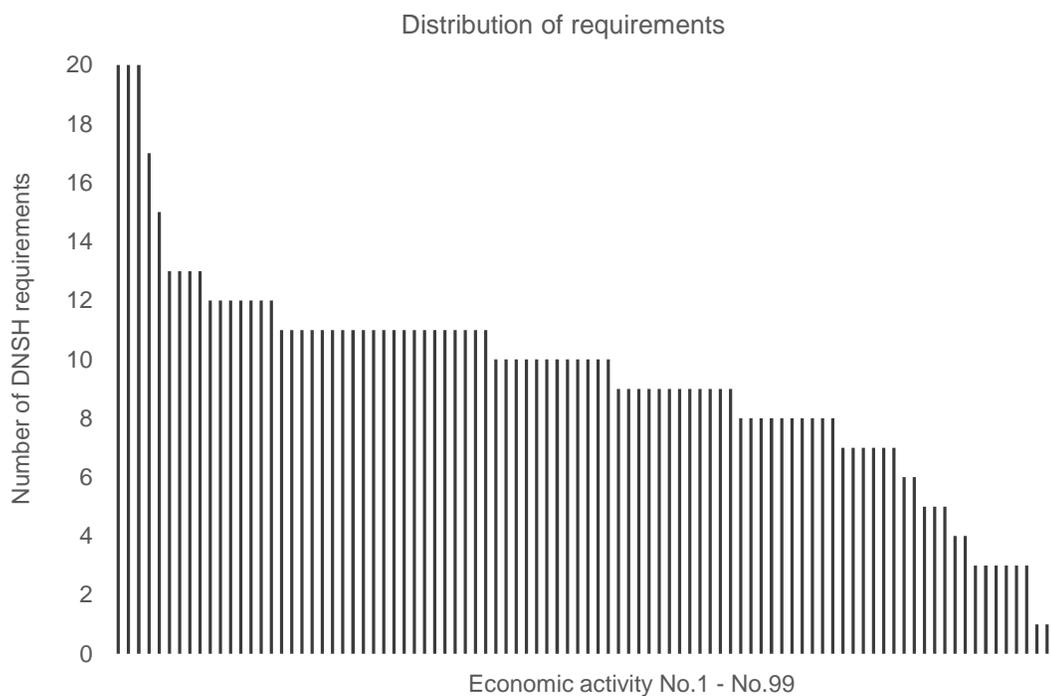
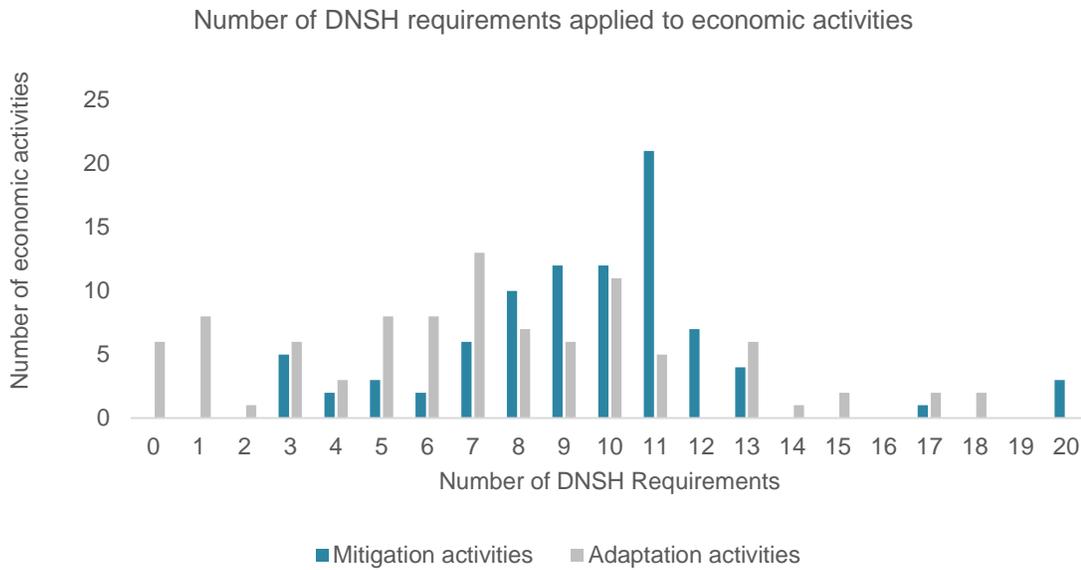


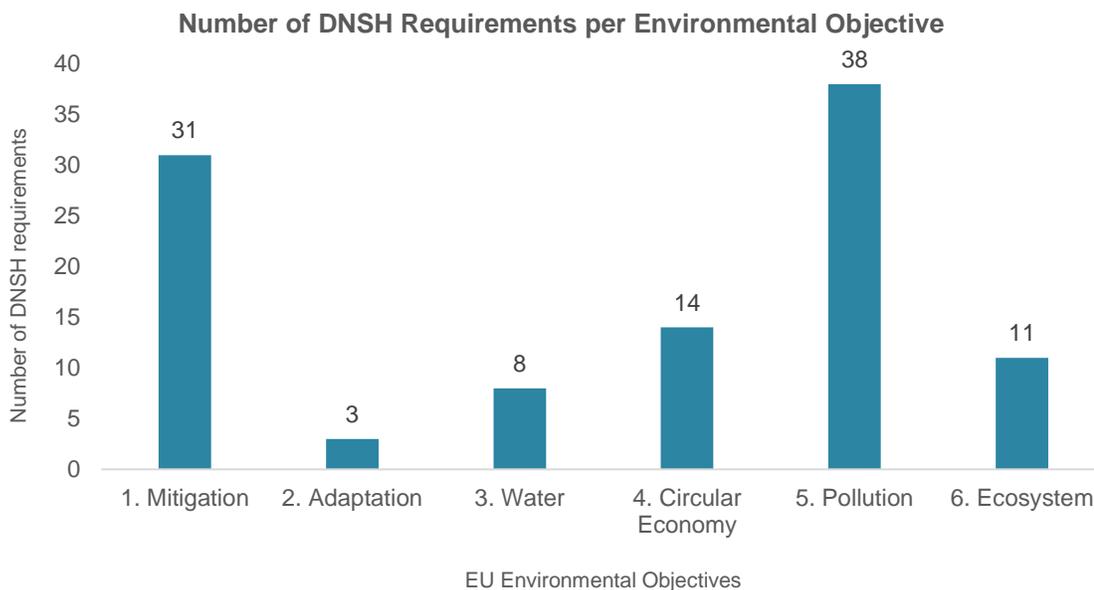
Figure 3.2. Number of DNSH requirements vs number of economic activities



Source: FTSE Russell as of September 2021.

Figure 4 shows that the numbers of DNSH requirements across environmental objectives are also quite different, indicating that EU Taxonomy might be more evolved in some areas than others. For example, Objective 1 – Climate Change Mitigation and Objective 4 – Pollution Prevention and Control have over 30 requirements, whereas Objective 2 – Climate Change Adaptation and Objective 3 – Sustainable Use and Protection of Water and Marine Resources, have less than ten requirements. 14 out of 38 DNSH requirements related to Pollution Prevention and Control are related to specific EU directives.

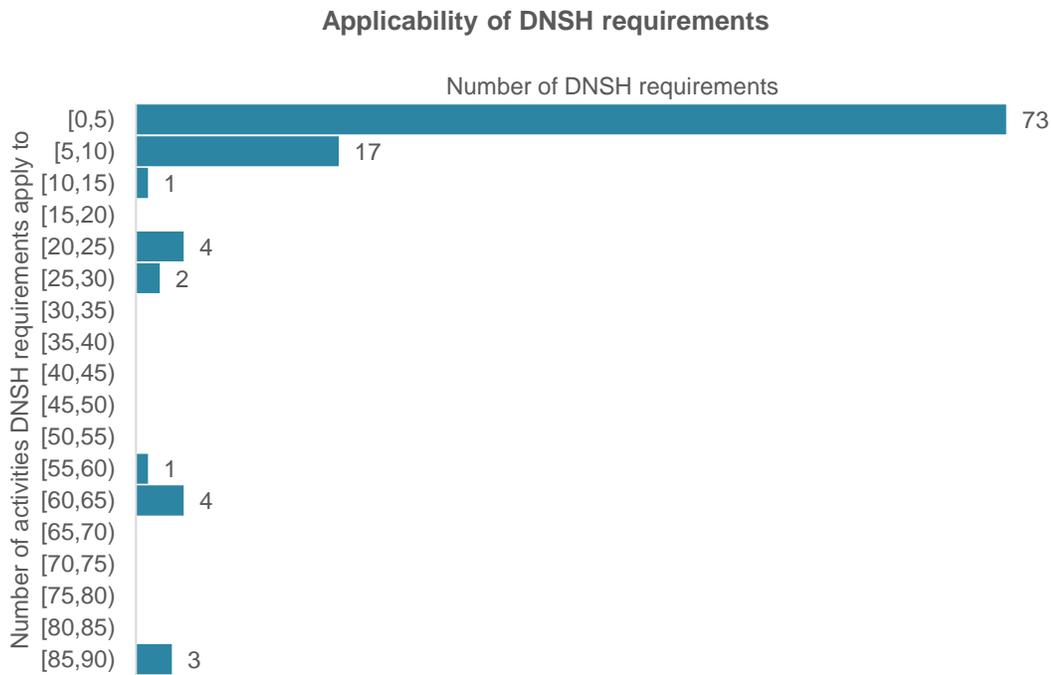
Figure 4. DNSH requirements relevant to each environmental objective



Source: FTSE Russell as of September 2021.

Figure 5 demonstrates that the applicability of most DNSH requirements is relatively narrow. Some DNSH requirements apply to multiple economic activities, while some are unique to an activity. Just three requirements related to Climate Change Adaptation can be applied uniformly. 70% of the DNSH requirements can apply to five or fewer economic activities; 26% can only apply to one economic activity. For example, the DNSH requirement related to Climate Change Mitigation (Objective 1) “meet the threshold of energy consumption per tonne of product” can be only applied to one economic activity “manufacture of chlorine.” In contrast, the requirement “meet the threshold of tCO₂e/tonne of product” can be applied to eight similar activities such as the manufacture of carbon black, soda ash and organic basic chemicals.

Figure 5. Applicability of DNSH requirements



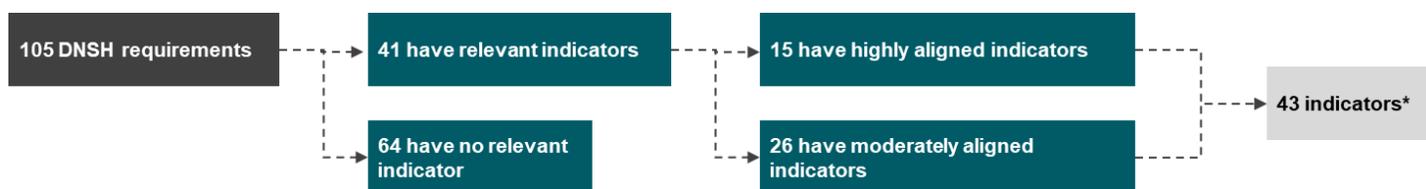
Source: FTSE Russell as of September 2021.

Section 3: Approximating DNSH and MS requirements through ESG indicators

Mapping DNSH requirements against ESG indicators

To enable DNSH to be applied in practice, we use ESG indicators to approximate DNSH requirements (and ultimately DNSH TSC) and MS requirements. While the DNSH criteria are intended to be met at the activity level, current corporate disclosure is not granular to assess alignment at this level. We infer that corporate behaviors and company-level policies and systems, measured by ESG indicators, will apply to all company activities, including any of the company's Taxonomy-eligible economic activities. ESG indicators data can then act as a proxy to DNSH criteria to assess activities' alignment with the EU Taxonomy. Figure 6 provides a summary of the process of mapping DNSH requirements against ESG indicators.

Figure 6. The process of mapping DNSH requirements against ESG indicators



*Some indicators address multiple DNSH requirements; some DNSH requirements require multiple indicators

As discussed in section 2, we established a system of 105 DNSH requirements with an applicability matrix to specify what requirements apply to an economic activity. These DNSH requirements were then mapped against c.300 ESG indicators related to environmental issues¹⁹ to identify relevant indicators. These ESG indicators cover a wide range of themes, including climate change, biodiversity, pollution, water and waste.

However, there is a significant gap between the EU Taxonomy DNSH requirements and the existing ESG or sustainable investment data landscape. Not all DNSH requirements have relevant ESG indicators and for those that do, not all of them are precisely matched. More than half (64 out of 105) of the DNSH requirements are not covered by ESG indicators. The remaining 41 DNSH requirements have relevant ESG indicators, although 26 of them are not precisely matched. Table 2 shows examples.

Such a gap is expected at this stage for the following reasons:

- **Some DNSH requirements are unique and forward-looking**, such as the requirement of “does not adversely affect others’ adaptation efforts” related to Climate Change Adaptation.²⁰ Although ESG data typically cover climate change topics and ask for corporate disclosure on adaptation solutions²¹, they do not cover this specific DNSH requirement. This requirement does not reflect current corporate disclosure practices either. It is unclear what information a company should disclose to demonstrate conformance.

¹⁹ Including FTSE Russell and Refinitiv ESG data models.

²⁰ The original text in the Climate Delegated Act: The adaptation solutions implemented do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; are consistent with local, sectoral, regional or national adaptation strategies and plans.

²¹ For example, FTSE Russell ESG Data Model includes eight indicators related to climate change risks and adaptation.

- **A number of requirements are related to particular pieces of EU legislation.** For example, as discussed in Section 2, 14 out of 38 DNSH requirements about pollution prevention and control are associated with EU directives such as Directive 2012/18/EU (for storage of hydrogen above five tonnes). Such requirements are Eurocentric and not captured by the ESG data models focusing on the global financial market.
- **Some DNSH requirements are ambiguous in terms of corporate disclosure.** For example, there is a requirement under the Circular Economy environmental objective, which mandates an economic activity to “design for high durability, recyclability, easy disassembly and adaptability of products manufactured.” It has been mapped to the ESG indicator requiring “use of life cycle analysis in product or system design.” This requirement and the ESG indicator are similar in principle, as the goal is to minimize waste from an economic activity. Yet, there is a difference in what they are looking for from a corporate disclosure point of view where the DNSH requirement is less precise.

In general, the DNSH requirements tend to be more ambiguous than ESG data points. This is likely because ESG data points are collected by dedicated, established ESG data providers, who have been testing and collecting data over many years. There has been an improved understanding of the structure that indicators should take to glean the information and granularity desired, and the realities of collecting data from company disclosures.

Table 2. Examples of DNSH requirements vs ESG indicators

Environmental Objective	DNSH Requirement	ESG Indicator	Alignment
Climate change adaptation	Does not affect others' adaptation efforts	NA	Not Aligned
Protection of healthy ecosystems	Conduct assessment on biodiversity impacts and implement mitigation measures when necessary (for sites located in or near biodiversity-sensitive areas)	Does the company report on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas?	Aligned
Transition to a circular economy, waste prevention and recycling	Consideration of component and equipment durability and recyclability and ease of dismantling and refurbishing	Use of LCA (Life Cycle Analysis) in product or system design and report of analysis	Moderately aligned

Our analysis concluded that only 43 ESG indicators can be used to address 41 DNSH requirements, leaving 64 of the DNSH requirements unaddressed. As mentioned above, many DNSH requirements do not reflect current corporate disclosure, so these gaps are expected at this stage. Some ESG indicators can address multiple DNSH requirements. In some cases, more than one indicator is required to address a single DNSH requirement.

The mapped ESG indicators are either qualitative or quantitative. Qualitative indicators consider whether a company discloses certain information or not (for example, does the company report carbon emissions). In comparison, quantitative indicators ask for more underlying details (for example, the value of the carbon emissions disclosed by the company) to address thresholds set by DNSH requirements.

Applying DNSH related ESG indicators to economic activities

Applying DNSH related ESG indicators to economic activities needs to take into consideration the environmental objective to which the activity is making a substantial contribution. Under the EU Taxonomy, most economic activities are considered to make a substantial contribution to either Climate Change Mitigation or Adaptation (Objectives 1 and 2). We suppose these economic activities are making a substantial contribution to Mitigation only²². In that case, the Mitigation DNSH requirements, and therefore the ESG indicators related to Climate Change Mitigation, are not relevant. By excluding ESG indicators associated with Climate Change Mitigation, only 18 ESG indicators are applicable.

As discussed in section 2, each economic activity can be subject to 0-20 requirements and therefore 0-13 (on average 6) relevant ESG indicators. To meet the DNSH requirements, an activity should score “Yes” against qualitative indicators and disclose data against quantitative indicators. If applicable, disclosed information against quantitative indicators should demonstrate the activity meets the thresholds set by DNSH requirements, such as 270gCO₂e/kWh for electricity production. An economic activity needs to pass all the applicable ESG indicators to demonstrate it meets the DNSH TSC. Table 3 provides an example of solar power generation with applicable DNSH requirements and ESG indicators.

²² In our view, TSC related to Climate Change Adaptation is very challenging to meet, and currently there is no data to determine the compliance.

Table 3. Example: DNSH requirements and ESG indicators applied to solar energy generation

Economic Activity in the EU Taxonomy Climate Delegated Act	Substantial Contribution Environmental Objective	DNSH Environmental Objective	DNSH requirements	ESG indicators			
Electricity generation using concentrated solar power (CSP) technology	Climate change mitigation	Climate change adaptation	Perform a robust climate risk assessment and vulnerability assessment	Climate scenario planning: The company mentions the 2-degree scenario in relation to business planning, or confirms it has conducted climate related scenario analysis; or the company describes the business impact of one or more climate scenario analysis			
			Implement and integrate adaptation solutions to address material climate risks	Initiatives in place include measures to address climate change through adaptation: company explains specific actions taken			
			Does not affect others' adaptation efforts	NA			
		Sustainable use and protection of water and marine resources	Identify and address environmental degradation risks related to preserving water quality and avoiding water stress	Risk assessment regarding water issues in water stressed locations for existing or potential new operations or projects (due diligence); Detailed disclosure of action(s) taken to reduce water use applied to specific sites	Develop a water use and protection management plan in consultation with relevant stakeholders	Discloses and details its water management plan at the company level/site specific; Engage with its stakeholders at water stressed sites	
					Transition to a circular economy	Increase reusability and recyclability	Use of LCA (Life Cycle Analysis) in product or system design: report of analysis, or use in planning
					Protection and restoration of biodiversity and ecosystems	Complete an environmental impact assessment (EIA) or screening	NA
		Implement mitigation and compensation measures where required	NA				
		Conduct assessment on biodiversity impacts and implement mitigation measures when necessary (for sites located in or near biodiversity-sensitive areas)	Does the company report on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas?				

Mapping MS requirements against ESG indicators

The minimum safeguards requirements apply to all the eligible economic activities and do not vary by economic activity or environmental objective. According to Article 18 of the Regulation, the economic activity should be aligned with “the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, including the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights.”²³

Topics covered by these principles are far-reaching. While there are overlaps in the topics covered by the UN Guiding Principles, the ILO Principles and the International Bill of Human Rights, the OECD Guidelines are much broader, covering responsible conduct in the areas of consumer rights, taxation, science and technology, and competition.

Recognizing this, the EU TEG recommends focusing on corporate conduct in the areas of human rights, labour rights, and corruption.²⁴ As with the approach to DNSH, ESG data at the company level is used as a proxy for activity level assessments.

To address MS requirements, 28 ESG indicators related to the social theme have been identified as relevant (see Table 4 for examples). These indicators apply universally to all economic activities, unlike DNSH requirements where various ESG indicators apply to different activities.

Table 4. Examples of MS requirements vs ESG indicators

MS Requirement	Topic	ESG Indicator
The activity should be carried out “in alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, including the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights”	Human Rights	Public commitment to respect and support the protection of internationally proclaimed human rights: The company has made a specific commitment to apply either the UN Guiding Principles on Business and Human Rights or the OECD Guidelines for Multinational Enterprises
	Combating Bribery, Bribe Solicitation and Extortion	Bribery – Policy or commitment statement: addresses countering bribery

Controversies screening for DNSH and MS assessment

Recognizing that data on the DNSH and MS requirements may not be available to the extent required by the EU Taxonomy Regulation, the EU TEG recommended the use of ‘controversies screening’ to determine alignment.²⁵ Adopting ‘controversies screening’ entails companies being screened for involvement in controversial conduct related to the DNSH environmental objectives and topics covered by the minimum safeguards requirements.

²³ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0852>.

²⁴ European Commission (2020). TEG Final Report on the EU Taxonomy https://ec.europa.eu/info/publications/sustainable-finance-teg-taxonomy_en.

²⁵ Ibid.

The ESG assessment can indicate whether the company has measures to ensure it does no significant harm and meets minimum safeguards. Meanwhile, controversies screening can demonstrate whether the company has in the past caused significant harm to the environmental objectives, or in the areas of human rights, labor standards and corruption.

Due to the significant gap between regulatory requirements and available ESG data, we propose a dual-layer approach to examine alignment with the DNSH and MS requirements: an economic activity needs to meet applicable ESG indicators and pass controversies screening which flags issues relevant to DNSH and MS requirements. If an eligible activity fails any applicable ESG indicator, or the company is identified by the controversies screening as failing the DNSH and MS requirements (indicated by severe incidents in the past, for example) of, then the activity cannot be considered EU-taxonomy aligned.

Section 4: Assessing portfolio EU Taxonomy alignment

As discussed in previous sections, an economic activity needs to meet the substantial contribution, DNSH and minimum safeguards requirements to be aligned with the EU Taxonomy. By aggregating revenues from EU-taxonomy aligned economic activities, we can assess the level of alignment for a company, as a percentage of company revenues, and for a portfolio.

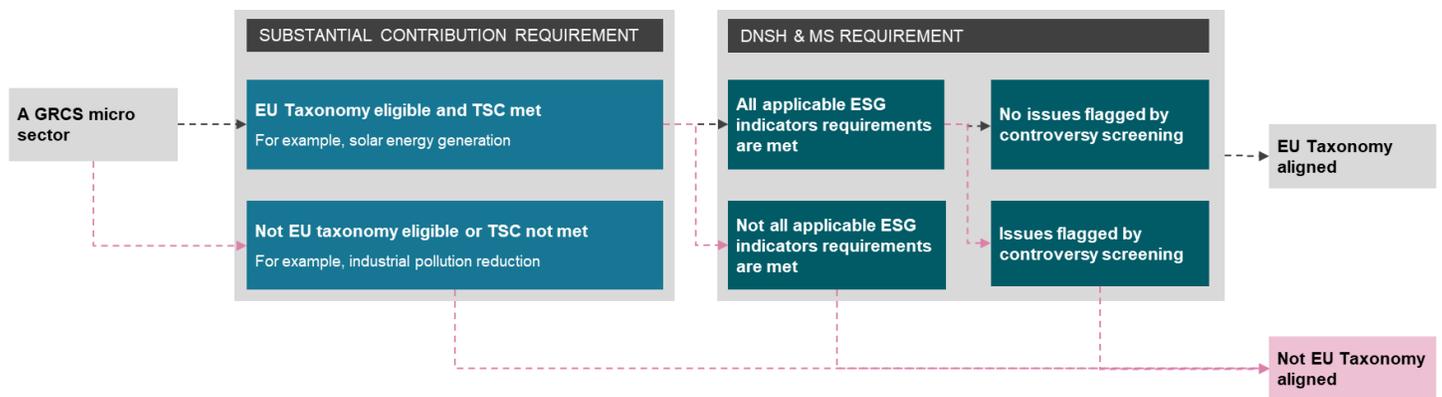
Activity level alignment

The FTSE Russell Green Revenues data can identify eligible economic activities with substantial contribution to the EU Taxonomy’s environmental objectives. The data model screens any companies with revenues derived from environmental products and services (i.e., green micro sectors) according to the Green Revenues Classification System (GRCS) and provides data points on the associated revenues.²⁶ ESG and controversies data can then be used to assess whether the economic activity or micro sector meets DNSH and MS criteria.

To be EU taxonomy aligned, a green micro sector needs to be EU Taxonomy eligible (see Appendix 4 for the mapping of the EU Taxonomy and GRCS) and meet Substantial Contribution TSC. For example, both solar energy generation and industrial pollution control are considered green under GRCS, but only solar energy generation is eligible under the current EU Taxonomy. Solar energy automatically meets the Substantial Contribution requirement as it is not subject to any Substantial Contribution TSC. For other activities such as geothermal energy production, they need to meet Substantial Contribution TSC like 100gCO₂e/kWh.

The micro sector should then meet all the applicable ESG indicators (as discussed in section 3) and pass the controversies screening related to DNSH and MS requirements. If the micro sector fails any requirement such as an ESG indicator, it cannot be deemed EU Taxonomy aligned. Figure 6 demonstrates the process of determining the EU Taxonomy alignment for an activity.

Figure 7. Determining the EU Taxonomy alignment at the activity level



Company level alignment

The EU taxonomy-aligned green revenues at the company level can be computed by aggregating green revenues at the activity level, i.e., from eligible micro sectors that meet all the

²⁶ For more information: <https://www.ftserussell.com/data/sustainability-and-esg-data/green-revenues-data-model>.

requirements. The Green Revenues data already provides information on revenue generated from each micro sector.

In the example given in Figure 8, Company A has five green products or services, as indicated by Green Revenues micro sectors. However, only four meet the Substantial Contribution requirements because industrial pollution reduction activity is not an eligible activity under the current EU Taxonomy. Additionally, while two of the micro sectors also meet the DNSH requirements, only one micro sector meets the MS requirements as well. Therefore, Company A has only 1.33% EU Taxonomy-aligned green revenues from one micro sector (manufacturing of solar energy equipment), even though it has 5.96% revenues from five green products and services according to the GRCS.

Figure 8. Computing EU Taxonomy-aligned green revenues at company level

COMPANY A					
GREEN REVENUES	TE02.2 Trains (electrified/magnetic) 1.38%	EM08.0 Smart and Efficient Grids 0.59%	EQ09.0 Solar 1.33%	EM05.2 Efficient IT 1.33%	WP04.1 Industrial Pollution Reduction 1.33%
	✓	✓	✓	✓	
SUBSTANTIAL CONTRIBUTION	Manufacture of low carbon technologies for transport 1.38%	Transmission and distribution of electricity 0.59%	Manufacture of renewable energy technologies 1.33%	Data processing, hosting and related activities 1.33%	✗
DNSH	✗	✓	✓	✗	
MINIMUM SAFEGUARDS		✗	✓		

Estimated EU Taxonomy aligned Green Revenues: 1.33%

Source: FTSE Russell as of September 2021.

Portfolio level alignment

At the portfolio level, the Delegated Act on disclosure under Article 8 of the EU Taxonomy Regulation requires disclosure of “the proportion of taxonomy-aligned investments managed by an asset manager in the value of all covered assets under management from both its collective and individual portfolio management activities”, i.e., the “Green Investment Ratio”.²⁷

Figure 8 provides examples of calculating the level of EU Taxonomy alignment for the FTSE Global All Cap Index (FTSE All Cap)²⁸, FTSE Environmental Opportunities All-Share Index

²⁷ Delegated Act supplementing Article 8 of the Taxonomy Regulation. https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en.

²⁸ The FTSE Global All Cap Index is a market-capitalization weighted index representing the performance of the large, mid and small cap stocks globally. <https://www.ftserussell.com/products/indices/geisac>.

(EOAS)²⁹ and FTSE Environmental Technologies Index Series – ET100 Index (ET100).³⁰ The calculation uses green revenues weighted market capitalization; the percentage of alignment is computed by dividing green revenues weighted market capitalization by total market capitalization of the index.³¹

The FTSE All Cap Index covers over 97% of the global equity market³², of which 5.7% is EU Taxonomy eligible. Taking into consideration the DNSH and MS requirements, 3.4% passes controversies screening and 0.4% passes both controversies screening and *potentially* all the ESG indicators – as discussed in Section 3, there is insufficient disclosure to determine whether all the applicable ESG indicators, i.e., DNSH and MS requirements, are met.

For indexes that are designed to focus on green companies such as EOAS and ET100, the ratios are slightly higher. 36.5% of the EOAS and 67.2% of the ET100 are EU Taxonomy eligible, whereas 24.9% and 54.0% pass controversies screening, respectively. However, only 3.5% of the EOAS and 7.6% of the ET100 pass both the controversies screening and *potentially* all the ESG indicators – similarly, due to lack of corporate disclosure, there is no sufficient data to determine whether all the ESG indicators (and thus DNSH and MS requirements) are met.

In contrast, the greenness of these indexes using GRCS is higher: 7.7% for FTSE All Cap, 47.5% for EOAS and 85.6% for ET100. The reasons are: GRCS has a broader scope than the current EU Taxonomy in identifying products or services with clear environmental benefits across seven environmental objectives (whereas the EU Taxonomy currently only covers climate change); GRCS does not contain thresholds as granular as the EU Taxonomy TSC due to the lack of corporate disclosure. Instead, it leverages common industry standards such as LEED in the buildings sector and FSC in the forestry sector.

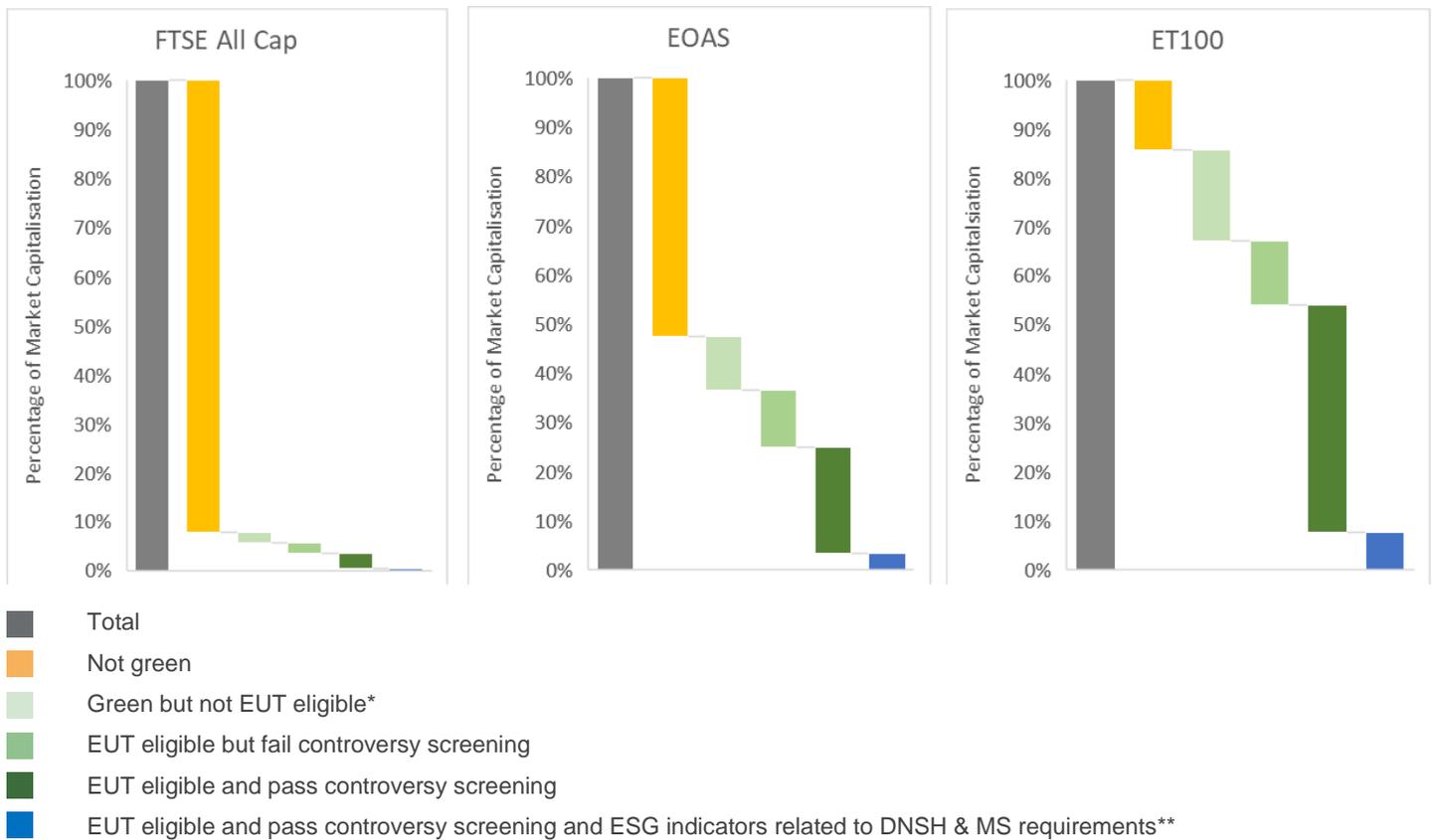
²⁹ Companies must have at least 20% of Green Revenues derived from environmental products and services to be eligible for the FTSE Environmental Opportunities Index Series. <https://www.ftserussell.com/products/indices/env-markets>.

³⁰ Companies must have at least 50% of Green Revenues derived from transformational environmental technologies to be eligible for the FTSE Environmental Technology Index Series. The FTSE Environmental Technologies Index Series includes the FTSE ET100 Index, which comprises the 100 largest pure play companies globally by full market capitalization. <https://www.ftserussell.com/products/indices/env-markets>.

³¹ $\sum_{i=1}^n \text{Market Capitalization } i * \text{Company GR } i / \sum_{i=1}^n \text{Market Capitalization } i$

³² Data source: FTSE Russell as of 30 September 2021.

Figure 9. Examples of calculating EU Taxonomy (EUT) alignment percentage³³



*Some green activities under the FTSE Russell Green Revenues Classification System (GRCS), such as industrial pollution reduction and organic and low impact farming, are not yet covered by the current EUT.

**There is no sufficient disclosure and data to demonstrate all ESG indicators are met.

Source: FTSE Russell as of September 2021.

Data challenge

The underlying challenge is that currently there is insufficient corporate disclosure or data to fully assess the EU Taxonomy alignment of an activity, a company, or a portfolio. This may change as the EU Taxonomy corporate disclosure requirements are phased in, over the next few years.

With the approach laid out in Section 2-3 and a research universe of over 16,000 companies, our analysis shows that no activity or company can be proved as fully aligned with the EU Taxonomy. As indicated by the category of “pass controversy and ESG” in Figure 8, a minimal number of activities (it is questionable whether the number might be meaningful to investors) can *potentially* pass all the DNSH and MS TSC. As companies do not currently disclose information against all ESG indicators related to DNSH and MS, we cannot determine whether those ESG indicators without disclosure are met or failed. We can identify eligible activities that pass controversies screening, but we cannot determine conclusively whether all the ESG indicators and ultimately, TSC, are fully met.

Going through detailed analysis to identify EU Taxonomy-aligned activities and investment can be onerous, but the data availability is a more significant challenge. As discussed in Section 3, most TSC are not covered by the existing ESG data landscape as they are very forward-looking or specific to EU legislation. Even if there are ESG indicators available to address all the TSC,

³³ Preliminary results based on sample data. Data source: FTSE Russell as of September 2021.

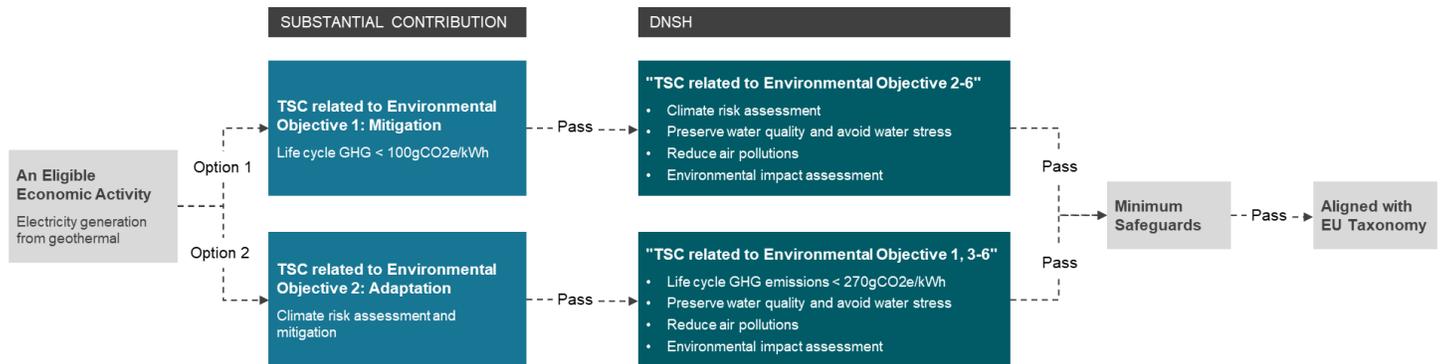
companies may not disclose such information. Further, there will be a gap between European and non-European companies: non-European companies are not subject to disclosure rules related to the EU Taxonomy Regulation. They are unlikely to disclose such granular information required for determining the EU Taxonomy alignment of their businesses.

For companies that disclose EU-Taxonomy alignment, investigation on company due diligence on alignment evaluation might be necessary. Detailed information on how activities pass TSC and EU Taxonomy requirements will be useful for investors' decision-making process, supporting the assessment of sustainability performance of companies in the global financial market. Companies should be encouraged to disclose such information.

Given the current data challenge, investors might need to take a pragmatic approach when implementing DNSH and MS requirements. One option is to apply the controversies screening as the first step to ensure activities and companies are not involved in relevant controversial conduct, so that they in principle do no significant harm to environmental objectives and have minimum safeguards. Then applicable ESG indicators can be gradually put in place, when corporate disclosure and data improve over time, to fully assess the EU Taxonomy alignment.

Appendix 1: An example of how the EU Taxonomy work

Based on the EU Taxonomy Regulation and the Climate Delegated Act, we take the electricity generation from geothermal as an example.



Step 1: Substantial contribution

If the geothermal power generation activity meets the TSC related to Environmental Objective 1 – Climate Change Mitigation: life cycle GHG emission is lower than 100gCO₂e/kWh, the activity passes the Substantial Contribution requirement. This is Option 1.

Option 2 is for the activity to meet the TSC related Environmental Objective 2 – Climate Change Adaptation, which includes climate risk assessment and mitigation. In this case, the activity also passes the Substantial Contribution requirement, albeit with a different environmental objective compared to Option 1.

Step 2: DNSH

Following Option 1, the geothermal power generation needs to meet DNSH TSC related to Environmental Objective 2-6 (i.e., other than Environmental Objective 1) to demonstrate it passes the DNSH requirement. These DNSH TSC, for example, include climate risk assessment, water quality preservation, air pollutions reductions and environmental impact assessment.

With Option 2, the geothermal power generation needs to meet DNSH TSC related to Environmental Objective 1 and 3-6 (i.e., other than Environmental Objective 2) to pass the DNSH requirement. The DNSH TSC here would be slightly different from Option 2: instead of conducting climate risk assessment, the activity needs to meet the life cycle GHG emissions threshold of 270gCO₂e/kWh. It also needs to meet TSC related to water quality, air pollutions and environmental impact assessment, like Option 1.

Step 3: Minimum safeguards

For both options, the activity to meet the minimum safeguards requirement. This requirement does not vary with types of activities or environmental objectives. If the activity also passes this requirement, then this activity can be considered EU Taxonomy aligned.

Appendix 2: Approach on categorizing DNSH TSC into requirements

As discussed above, the Climate Delegated Act identifies DNSH TSC for each economic activity under each environmental objective, with variations based on the type of the activity and to which environmental objective it is making a substantial contribution.

There is a multitude of DNSH TSC in the Climate Delegated Act. As one may expect, some TSC cover similar topics. We analyzed one by one the TSC under each environmental objective for each economic activity to identify similarities and discrepancies in themes covered by these criteria.

TSC were grouped when they covered the same theme, and when any difference was determined to be immaterial or indeed impractical from a company assessment or data collection perspective. Examples of TSC related to Objective 4 – Transition to a Circular Economy, Waste Prevention and Recycling are provided below.

Box 3. Examples of similar DNSH TSC grouped to a single requirement of “Reuse or recycle to a minimum threshold”

Some TSC, although they apply to different economic activities, can be grouped into a single requirement of a minimum threshold of reusing or recycling. This requirement applies to 10 economic activities. Below are examples with the excerpt from the Climate Delegated Act Annex 1.

The economic activity of “Transport by motorbikes, passenger cars and light commercial vehicles”

(4) Transition to a circular economy	Vehicles of categories M1 and N1 are both of the following: (a) reusable or recyclable to a minimum of 85% by weight;
	(b) reusable or recoverable to a minimum of 95% by weight ²³⁶ .

The economic activity of “Infrastructure enabling low carbon water transport”

(4) Transition to a circular economy	At least 70 % (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material defined in category 17 05 04 in the European List of Waste established by Decision 2000/532/EC) generated on the construction site is prepared for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste
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Grouping requirements sometimes took a ‘broad brush’ approach; there are some topics that companies simply do not disclose at the level of granularity stipulated in the DNSH TSC. An example of broadly grouped TSC is given in Box 4 below.

Box 4. Examples of broadly similar DNSH requirements grouped to a single requirement of “Have waste management measures in place”

Some TSC are grouped into a single requirement as they cover the topic in a broadly similar manner. Below are examples with the excerpt from the Climate Delegated Act Annex 1.

The economic activity of “Transmission and distribution of electricity”

(4) Transition to a circular economy	A waste management plan is in place and ensures maximal reuse or recycling at end of life in accordance with the waste hierarchy, including through contractual agreements with waste management partners, reflection in financial projections or official project documentation.
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The economic activity of “Sea and coastal freight water transport, vessels for port operations and auxiliary activities”

(4) Transition to a circular economy	Measures are in place to manage waste, both in the use phase and in the end-of-life of the vessel, in accordance with the waste hierarchy.
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The economic activity of “Construction of new buildings”

	Management Protocol ²⁸⁷ . Operators limit waste generation in processes related to construction and demolition, in accordance with the EU Construction and Demolition Waste Management Protocol and taking into account best available techniques and using selective demolition to enable removal and safe handling of hazardous substances and facilitate reuse and high-quality recycling by selective removal of materials, using available sorting systems for construction and demolition waste.
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Conversely, where a single TSC contains distinct topics, it is broken down into multiple DNSH requirements. This ensures the full spirit of the TSC is reflected by the requirements and the subsequent mapping to economic activities, and that there is sufficient granularity in data being collected to cover all the DNSH TSC. Box 5 provides an example.

Box 5. Example of a DNSH TSC split into multiple requirements

Some TSC are split into multiple DNSH requirements. Below is an example with the excerpt from the Climate Delegated Act Annex 1. The TSC is split into three requirements: 1) Increase reusability and recyclability; 2) Have waste management measures in place; 3) Reuse or recycle to a minimum threshold.

The economic activity of “Renovation of existing buildings”.

(4) Transition to a circular economy	At least 70 % (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material referred to in
	category 17 05 04 in the European List of Waste established by Decision 2000/532/EC) generated on the construction site is prepared for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol ³⁰⁰ . Operators limit waste generation in processes related construction and demolition, in accordance with the EU Construction and Demolition Waste Management Protocol and taking into account best available techniques and using selective demolition to enable removal and safe handling of hazardous substances and facilitate reuse and high-quality recycling by selective removal of materials, using available sorting systems for construction and demolition waste.

Appendix 3: Matrix of DNSH requirements and their applicability

Table 1: DNSH requirements related to Objective 1: climate change mitigation

There are 31 unique requirements related to Objective 1: climate change mitigation. For example, three of them (M10-M12) apply to manufacturing of aluminium.

NACE Code	EU Taxonomy Activity	DNSH Requirements Related to Objective 1: Climate Change Mitigation																															
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	
A.2	Afforestation	M1	M2	M3	M4	M5	M6	M7																									
A.2	Rehabilitation and restoration of forests, including reforestation and natural forest regeneration after an extreme event		M2		M4	M5	M6	M7																									
A.2	Forest management		M2		M4	M5	M6	M7																									
A.2	Conservation forestry		M2		M4	M5	M6	M7																									
NA	Restoration of wetlands						M6	M8																									
C.25, C.27, C.28	Manufacture of renewable energy technologies																																
C.25, C.27, C.28	Manufacture of equipment for the production and use of hydrogen																																
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport																																
C.27.2, C.38.3.2	Manufacture of batteries																																
C.16.23, C.23.11, C.23.20, C.23.31, C.23.43, C.23.61, C.25.11, C.25.12, C.25.21, C.25.29, C.25.93, C.27.31, C.27.32, C.27.33, C.27.40, C.27.51, C.28.11, C.28.12, C.28.13, C.28.14	Manufacture of energy efficient equipment for buildings																																
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies																																
C.23.51	Manufacture of cement								M9																								
C.24.42, C.24.53	Manufacture of aluminium									M10	M11	M12																					
C.24.10, C.24.20, C.24.31, C.24.32, C.24.33, C.24.34, C.24.51, C.24.52	Manufacture of iron and steel									M10		M12																					
C.20.11	Manufacture of hydrogen									M10		M12																					
C.20.13	Manufacture of carbon black									M10																							
C.20.13	Manufacture of soda ash									M10																							
C.20.13	Manufacture of chlorine										M11						M15																
C.20.14	Manufacture of organic basic chemicals									M10								M16	M17														
C.20.15	Manufacture of anhydrous ammonia									M10		M12																					
C.20.15	Manufacture of nitric acid									M10																							
C.20.16	Manufacture of plastics in primary form											M12	M13	M14				M16	M17														
D.35.11, F.42.22	Electricity generation using solar photovoltaic technology																																
D.35.11, F.42.22	Electricity generation using concentrated solar power (CSP) technology																																
D.35.11, F.42.22	Electricity generation from wind power																																
D.35.11, F.42.22	Electricity generation from ocean energy technologies																																
D.35.11, F.42.22	Electricity generation from hydropower																																
D.35.11, F.42.22	Electricity generation from geothermal energy																																
D.35.11, F.42.22	Electricity generation from renewable non-fossil gaseous and liquid fuels																																
D.35.11	Electricity generation from bioenergy																																
D.35.12, D.35.13	Transmission and distribution of electricity																																
NA	Storage of electricity																																
NA	Storage of thermal energy																																
NA	Storage of hydrogen																																
D.35.21	Manufacture of biogas and biofuels for use in transport and of bioliquids																																
D.35.22, F.42.21, H.49.50	Transmission and distribution networks for renewable and low-carbon gases																																
D.35.30	District heating/cooling distribution																																
D.35.30, F.43.22	Installation and operation of electric heat pumps																																
D.35.11, D.35.30	Cogeneration of heat/cool and power from solar energy																																
D.35.11, D.35.30	Cogeneration of heat/cool and power from geothermal energy																																
D.35.11, D.35.30	Cogeneration of heat/cool and power from renewable non-fossil gaseous and liquid fuels																																
D.35.11, D.35.30	Cogeneration of heat/cool and power from bioenergy																																
D.35.30	Production of heat/cool from solar thermal heating																																
D.35.30	Production of heat/cool from geothermal energy																																
D.35.30	Production of heat/cool from renewable non-fossil gaseous and liquid fuels																																
D.35.30	Production of heat/cool from bioenergy																																
D.35.30	Production of heat/cool using waste heat																																
E.36.00, F.42.99	Construction, extension and operation of water collection, treatment and supply systems																																

Table 2. DNSH requirements related to Objective 2-4: Climate change adaptation; Sustainable use and protection of water and marine resources; Transition to a circular economy, waste prevention and recycling

For example, there are eight unique DNSH requirements related to Objective 3: Sustainable use and protection of water and marine resources. Four of them (W4-W7) apply to hydropower power generation.

EU Taxonomy		DNSH Requirements Related to Objective 2: Climate Change Adaptation			DNSH Requirements Related to Objective 3: Sustainable use and protection of water and marine resources								DNSH Requirements Related to Objective 4: Transition to a circular economy, waste prevention and recycling													
NACE Code	Activity	A1	A2	A3	W1	W2	W3	W4	W5	W6	W7	W8	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
A.2	Afforestation	A1	A2	A3	W1	W2																				
A.2	Rehabilitation and restoration of forests, including reforestation and natural forest regeneration after an extreme event	A1	A2	A3	W1	W2								C1												
A.2	Forest management	A1	A2	A3	W1	W2								C1												
A.2	Conservation forestry	A1	A2	A3	W1	W2								C1												
NA	Restoration of wetlands	A1	A2	A3	W1	W2									C2											
C.25, C.27, C.28	Manufacture of renewable energy technologies	A1	A2	A3	W1	W2										C3										
C.25, C.27, C.28	Manufacture of equipment for the production and use of hydrogen	A1	A2	A3	W1	W2										C3										
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	A1	A2	A3	W1	W2										C3										
C.27.2, C.38.3.2	Manufacture of batteries	A1	A2	A3	W1	W2										C3	C4									
C.16.23, C.23.11, C.23.20, C.23.31, C.23.43, C.23.61, C.25.11, C.25.12, C.25.21, C.25.29, C.25.93, C.27.31, C.27.32, C.27.33, C.27.40, C.27.51, C.28.11, C.28.12, C.28.13, C.28.14	Manufacture of energy efficient equipment for buildings	A1	A2	A3	W1	W2										C3										
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	A1	A2	A3	W1	W2										C3										
C.23.51	Manufacture of cement	A1	A2	A3	W1	W2																				
C.24.42, C.24.53	Manufacture of aluminium	A1	A2	A3	W1	W2																				
C.24.10, C.24.20, C.24.31, C.24.32, C.24.33, C.24.34, C.24.51, C.24.52	Manufacture of iron and steel	A1	A2	A3	W1	W2																				
C.20.11	Manufacture of hydrogen	A1	A2	A3	W1	W2																				
C.20.13	Manufacture of carbon black	A1	A2	A3	W1	W2																				
C.20.13	Manufacture of soda ash	A1	A2	A3	W1	W2																				
C.20.13	Manufacture of chlorine	A1	A2	A3	W1	W2																				
C.20.14	Manufacture of organic basic chemicals	A1	A2	A3	W1	W2																				
C.20.15	Manufacture of anhydrous ammonia	A1	A2	A3	W1	W2																				
C.20.15	Manufacture of nitric acid	A1	A2	A3	W1	W2																				
C.20.16	Manufacture of plastics in primary form	A1	A2	A3	W1	W2																				
D.35.11, F.42.22	Electricity generation using solar photovoltaic technology	A1	A2	A3												C3										
D.35.11, F.42.22	Electricity generation using concentrated solar power (CSP) technology	A1	A2	A3	W1	W2										C3										
D.35.11, F.42.22	Electricity generation from wind power	A1	A2	A3			W3									C3										
D.35.11, F.42.22	Electricity generation from ocean energy technologies	A1	A2	A3			W3									C3										
D.35.11, F.42.22	Electricity generation from hydropower	A1	A2	A3				W4	W5	W6	W7															
D.35.11, F.42.22	Electricity generation from geothermal energy	A1	A2	A3	W1	W2																				
D.35.11, F.42.22	Electricity generation from renewable non-fossil gaseous and liquid fuels	A1	A2	A3	W1	W2																				
D.35.11	Electricity generation from bioenergy	A1	A2	A3	W1	W2																				
D.35.12, D.35.13	Transmission and distribution of electricity	A1	A2	A3													C5									
NA	Storage of electricity	A1	A2	A3	W1	W2		W4	W5	W6	W7						C5									
NA	Storage of thermal energy	A1	A2	A3	W1	W2											C5									
NA	Storage of hydrogen	A1	A2	A3													C5									
D.35.21	Manufacture of biogas and biofuels for use in transport and of bioliquids	A1	A2	A3	W1	W2																				
D.35.22, F.42.21, H.49.50	Transmission and distribution networks for renewable and low-carbon gases	A1	A2	A3	W1	W2																				
D.35.30	District heating/cooling distribution	A1	A2	A3	W1	W2																				
D.35.30, F.43.22	Installation and operation of electric heat pumps	A1	A2	A3	W1	W2										C3	C5									
D.35.11, D.35.30	Cogeneration of heat/cool and power from solar energy	A1	A2	A3												C3										
D.35.11, D.35.30	Cogeneration of heat/cool and power from geothermal energy	A1	A2	A3	W1	W2																				
D.35.11, D.35.30	Cogeneration of heat/cool and power from renewable non-fossil gaseous and liquid fuels	A1	A2	A3	W1	W2																				
D.35.11, D.35.30	Cogeneration of heat/cool and power from bioenergy	A1	A2	A3	W1	W2																				
D.35.30	Production of heat/cool from solar thermal heating	A1	A2	A3												C3										
D.35.30	Production of heat/cool from geothermal energy	A1	A2	A3	W1	W2																				
D.35.30	Production of heat/cool from renewable non-fossil gaseous and liquid fuels	A1	A2	A3	W1	W2																				
D.35.30	Production of heat/cool from bioenergy	A1	A2	A3	W1	W2																				
D.35.30	Production of heat/cool using waste heat	A1	A2	A3												C3										
E.36.00, F.42.99	Construction, extension and operation of water collection, treatment and supply systems	A1	A2	A3	W1	W2																				

Table 2. (continued)

EU Taxonomy		DNSH Requirements Related to Objective 2: Climate Change Adaptation			DNSH Requirements Related to Objective 3: Sustainable use and protection of water and marine resources								DNSH Requirements Related to Objective 4: Transition to a circular economy, waste prevention and recycling													
NACE Code	Activity	A1	A2	A3	W1	W2	W3	W4	W5	W6	W7	W8	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
E.36.00, F.42.99	Renewal of water collection, treatment and supply	A1	A2	A3	W1	W2																				
E.37.00, F.42.99	Construction, extension and operation of waste water collection and treatment	A1	A2	A3	W1	W2			W5	W6																
E.37.00	Renewal of waste water collection and treatment	A1	A2	A3	W1	W2			W5	W6																
E.38.11	Collection and transport of non-hazardous waste in source segregated fractions	A1	A2	A3														C6								
E.37.00, F.42.99	Anaerobic digestion of sewage sludge	A1	A2	A3	W1	W2																				
E.38.21, F.42.99	Anaerobic digestion of bio-waste	A1	A2	A3	W1	W2																				
E.38.21, F.42.99	Composting of bio-waste	A1	A2	A3																						
E.38.32, F.42.99	Material recovery from non-hazardous waste	A1	A2	A3																						
E.38.21	Landfill gas capture and utilisation	A1	A2	A3																						
F.42.21, H.49.50	Transport of CO2	A1	A2	A3	W1	W2																				
E.39.00	Underground permanent geological storage of CO2	A1	A2	A3	W1	W2																				
H.49.10, N.77.39	Passenger interurban rail transport	A1	A2	A3														C5								
H.49.20, N.77.39	Freight rail transport	A1	A2	A3														C5								
H.49.31, H.49.3.9, N.77.39, N.77.11	Urban and suburban transport, road passenger transport	A1	A2	A3														C5								
N.77.11, N.77.21	Operation of personal mobility devices, cycle logistics	A1	A2	A3														C5								
H.49.32, H.49.39, N.77.11	Transport by motorbikes, passenger cars and light commercial vehicles	A1	A2	A3														C5	C7							
H.49.4.1, H.53.10, H.53.20 and N.77.12	Freight transport services by road	A1	A2	A3														C5	C7							
H.50.30	Inland passenger water transport	A1	A2	A3	W1	W2									C3		C5									
H.50.40	Inland freight water transport	A1	A2	A3	W1	W2									C3		C5									
H.50.4, H.50.30, C.33.15	Retrofitting of inland water passenger and freight transport	A1	A2	A3	W1	W2											C5									
H.50.2, H.52.22, N.77.34	Sea and coastal freight water transport, vessels for port operations and auxiliary activities	A1	A2	A3	W1	W2									C3		C5			C8	C9	C10	C11			
H.50.10, N.77.21, N.77.24	Sea and coastal passenger water transport	A1	A2	A3	W1	W2									C3		C5			C8	C9	C10	C11			
H.50.10, H.50.2, H.52.22, C.33.15, N.77.21, N.77.34	Retrofitting of sea and coastal freight and passenger water transport	A1	A2	A3	W1	W2									C3		C5			C8	C9	C10	C11			
F.42.11, F.42.12, F.42.13, F.43.21, F.71.1, F.71.20	Infrastructure for personal mobility	A1	A2	A3	W1	W2											C5	C7								
F.42.12, F.42.13, M.71.12, M.71.20, F.43.21, and H.52.21	Infrastructure for rail transport	A1	A2	A3	W1	W2											C5	C7								
F.42.11, F.42.13, F.71.1, F.71.20	Infrastructure enabling low-carbon road transport and public transport	A1	A2	A3	W1	W2											C5	C7								
F.42.91, F71.1, F71.20	Infrastructure enabling low carbon water transport	A1	A2	A3	W1	W2											C5	C7								
F.42.91, F71.1, F71.20	Infrastructure for water transport	A1	A2	A3				W4	W5	W6	W7						C5	C7								
F.41.20, F.42.99	Low carbon airport infrastructure	A1	A2	A3	W1	W2											C5	C7								
F.41.1, F.41.2	Construction of new buildings	A1	A2	A3	W1	W2											C3	C5	C7							
F.41, F.43	Renovation of existing buildings	A1	A2	A3									W8				C3	C5	C7							
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28, S.95.21, S.95.22, C.33.12	Installation, maintenance, and repair of energy efficient equipment	A1	A2	A3																						
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28	Installation, maintenance, and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings)	A1	A2	A3																						
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28	Installation, maintenance, and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings	A1	A2	A3																						
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28	Installation, maintenance, and repair of renewable energy technologies	A1	A2	A3																						
L.68	Acquisition and ownership of buildings	A1	A2	A3																						
J.63.11	Data processing, hosting and related activities	A1	A2	A3	W1	W2									C3		C5						C12	C13		
J.61, J.62, J.63.11	Data-driven solutions for GHG emissions reductions	A1	A2	A3											C3		C5						C12	C13		
J.62	Computer programming, consultancy and related activities																									
J.60	Programming and broadcasting activities																									
M.71.12	Engineering activities and related technical consultancy dedicated to adaptation to climate change				W1	W2																				
M.71.12, M72.1	Close to market research, development and innovation	A1	A2	A3					W5	W6																C14
M.71.12	Research, development and innovation for direct air capture of CO2	A1	A2	A3					W5	W6																C14
M.71	Professional services related to energy performance of buildings	A1	A2	A3																						
K.65.12	Non-life insurance: underwriting of climate-related perils																									
K.65.20	Reinsurance																									
P.85	Education																									
Q.87	Residential care activities																									
R.90	Creative, arts and entertainment activities																									
R.91	Libraries, archives, museums and cultural activities																									
J.59	Motion picture, video and television programme production, sound recording and music publishing activities																									

Appendix 4: Mapping of the EU Taxonomy and Green Revenues Classification System (GRCS)

- Activities/Microsectors that are covered by both the FTSE Russell GRCS and the EU Taxonomy with the same environmental objective
- Activities/Microsectors that are covered by both the FTSE Russell GRCS and the EU Taxonomy with slightly different environmental objectives
- Activities/Microsectors that are covered by the EU Taxonomy but not the FTSE Russell GRCS

EU taxonomy			GRCS	
NACE Code	Activity	Types of Activity	Code	Microsectors
A.2	Afforestation	Primary	FA06.1	Sustainable Forestry
A.2	Rehabilitation and restoration of forests, including reforestation and natural forest regeneration after an extreme event	Primary	FA06.1	Sustainable Forestry
A.2	Forest management	Primary	FA06.1	Sustainable Forestry
A.2	Conservation forestry	Primary	FA06.1	Sustainable Forestry
NA	Restoration of wetlands	Primary	FA03.0	Land Erosion
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ01.1	Bio Fuel (1st & 2nd Generation)
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ01.2	Bio Fuel (3rd Generation)
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ01.3	Bio Gas
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ01.4	Bio Mass (grown)
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ01.5	Bio Mass (waste)
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ02.1	Cogeneration (Biomass)
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ02.2	Cogeneration (Renewable)
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ05.0	Geothermal
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ06.1	Large Hydro
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ06.2	Small Hydro
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ08.0	Ocean and Tidal
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ09.0	Solar (General)
C.25, C.27, C.28	Manufacture of renewable energy technologies	Enabling	EQ11.0	Wind (General)
C.25, C.27, C.28	Manufacture of equipment for the production and use of hydrogen	Enabling	EQ04.0	Fuel Cells
C.25, C.27, C.28	Manufacture of equipment for the production and use of hydrogen	Enabling	TE03.4	Electrified Road Vehicles & Devices (incl Hydrogen powered)
C.25, C.27, C.28	Manufacture of equipment for the production and use of hydrogen	Enabling	WP04.2	Transport Pollution Reduction
C.25, C.27, C.28	Manufacture of equipment for the production and use of hydrogen	Enabling	WI07.1	Water Treatment Chemicals
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	Enabling	TE02.2	Trains (Electric / Magnetic)
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	Enabling	TE02.3	Trains (General)
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	Enabling	TE03.2	Bikes and Bicycles
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	Enabling	TE03.3	Bus and Coach Manufacturers
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	Enabling	TE03.4	Electrified Road Vehicles & Devices (incl Hydrogen powered)
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	Enabling	TE03.5	Energy Use Reduction Devices
C.29.1, C.30.1, C.30.2, C.30.9, C.33.15, C.33.17	Manufacture of low carbon technologies for transport	Enabling	TE04.0	Shipping
C.27.2, C.38.3.2	Manufacture of batteries	Enabling	EM07.1	Power storage (Battery)
C.27.2, C.38.3.2	Manufacture of batteries	Enabling	TE03.1	Advanced Vehicle Batteries
C.16.23, C.23.11, C.23.20, C.23.31, C.23.43, C.23.61, C.25.11, C.25.12, C.25.21, C.25.29, C.25.93, C.27.31, C.27.32, C.27.33, C.27.40, C.27.51, C.28.11, C.28.12, C.28.13, C.28.14	Manufacture of energy efficient equipment for buildings	Enabling	EM01.0	Buildings & Property
C.16.23, C.23.11, C.23.20, C.23.31, C.23.43, C.23.61, C.25.11, C.25.12, C.25.21, C.25.29, C.25.93, C.27.31, C.27.32, C.27.33, C.27.40, C.27.51, C.28.11, C.28.12, C.28.13, C.28.14	Manufacture of energy efficient equipment for buildings	Enabling	EM06.0	Lighting

Appendix 4: Mapping of the EU Taxonomy and Green Revenues Classification System (GRCS) (continued)

EU taxonomy			GRCS	
NACE Code	Activity	Types of Activity	Code	Microsectors
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	EM02.0	Controls
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	EM03.0	Energy Management Logistics & Support
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	EM04.0	Industrial Processes
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	EM05.2	Efficient IT
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	FA01.2	Machinery
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	EQ03.1	Carbon Capture & Storage
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	ER01.0	Advanced & Light Materials
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	EQ10.0	Waste to Energy
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	ER03.1	Recyclable Materials
C.22, C.25, C.26, C.27, C.28	Manufacture of other low carbon technologies	Enabling	ER03.2	Recyclable & Resusable Products
C.23.51	Manufacture of cement	Transition:NA	NA	NA
C.24.42, C.24.53	Manufacture of aluminium	Transition:ER03.1	ER03.1	Recyclable Materials
C.24.10, C.24.20, C.24.31, C.24.32, C.24.33, C.24.34, C.24.51, C.24.52	Manufacture of iron and steel	Transition:ER03.1	ER03.1	Recyclable Materials
C.20.11	Manufacture of hydrogen	Primary	EQ04.0	Fuel Cells
C.20.11	Manufacture of hydrogen	Primary	TE03.4	Electrified Road Vehicles & Devices (incl Hydrogen powered)
C.20.11	Manufacture of hydrogen	Primary	WP04.2	Transport Pollution Reduction
C.20.11	Manufacture of hydrogen	Primary	WI07.1	Water Treatment Chemicals
C.20.13	Manufacture of carbon black	Transition:NA	NA	NA
C.20.13	Manufacture of soda ash	Transition:NA	NA	NA
C.20.13	Manufacture of chlorine	Transition:WI07.1	WI07.1	Water Treatment Chemicals
C.20.14	Manufacture of organic basic chemicals	Transition:NA	NA	NA
C.20.15	Manufacture of anhydrous ammonia	Primary	NA	NA
C.20.15	Manufacture of nitric acid	Transition:NA	NA	NA
C.20.16	Manufacture of plastics in primary form	Transition:ER03.1	ER03.1	Recyclable Materials
D.35.11, F.42.22	Electricity generation using solar photovoltaic technology	Primary	EG08.0	Solar (general)
D.35.11, F.42.22	Electricity generation using concentrated solar power (CSP) technology	Primary	EG08.0	Solar (general)
D.35.11, F.42.22	Electricity generation from wind power	Primary	EG10.0	Wind (General)
D.35.11, F.42.22	Electricity generation from ocean energy technologies	Primary	EG07.0	Ocean and Tidal
D.35.11, F.42.22	Electricity generation from hydropower	Primary	EG05.1	Large Hydro
D.35.11, F.42.22	Electricity generation from hydropower	Primary	EG05.2	Small Hydro
D.35.11, F.42.22	Electricity generation from geothermal energy	Primary	EG04.0	Geothermal
D.35.11, F.42.22	Electricity generation from renewable non-fossil gaseous and liquid fuels	Primary	EQ04.0	Fuel Cells
D.35.11	Electricity generation from bioenergy	Primary	EG01.1	Bio Gas
D.35.11	Electricity generation from bioenergy	Primary	EG01.2	Bio Mass (Grown)
D.35.11	Electricity generation from bioenergy	Primary	EG01.3	Bio Mass (Waste)
D.35.12, D.35.13	Transmission and distribution of electricity	Enabling	EM08.0	Smart and Efficient Grids
NA	Storage of electricity	Enabling	EM07.2	Power Storage (Pumped Hydro)
NA	Storage of thermal energy	Enabling	EM07.0	Power storage
NA	Storage of hydrogen	Enabling	EM07.0	Power storage
D.35.21	Manufacture of biogas and biofuels for use in transport and other applications	Primary	EQ01.1	Bio Fuel (1st & 2nd Generation)
D.35.21	Manufacture of biogas and biofuels for use in transport and other applications	Primary	EQ01.2	Bio Fuel (3rd Generation)
D.35.22, F.42.21, H.49.50	Transmission and distribution networks for renewable and low-carbon gases	Primary	WP01.0	Cleaner Power
D.35.30	District heating/cooling distribution	Primary	EM01.0	Buildings & Property
D.35.30, F.43.22	Installation and operation of electric heat pumps	Primary	EM01.0	Buildings & Property
D.35.11, D.35.30	Cogeneration of heat/cool and power from solar energy	Primary	EG02.2	Cogeneration (Renewable)
D.35.11, D.35.30	Cogeneration of heat/cool and power from geothermal energy	Primary	EG02.2	Cogeneration (Renewable)
D.35.11, D.35.30	Cogeneration of heat/cool and power from renewable non-fossil gaseous and liquid fuels	Primary	EG02.0	Cogeneration
D.35.11, D.35.30	Cogeneration of heat/cool and power from bioenergy	Primary	EG02.1	Cogeneration (Biomass)
D.35.30	Production of heat/cool from solar thermal heating	Primary	EM01.0	Buildings & Property
D.35.30	Production of heat/cool from geothermal energy	Primary	EM01.0	Buildings & Property
D.35.30	Production of heat/cool from renewable non-fossil gaseous and liquid fuels	Primary	EM01.0	Buildings & Property
D.35.30	Production of heat/cool from bioenergy	Primary	EM01.0	Buildings & Property
D.35.30	Production of heat/cool using waste heat	Primary	EM01.0	Buildings & Property
E.36.00, F.42.99	Construction, extension and operation of water collection, treatment and supply systems	Primary	WI08.0	Water Utilities
E.36.00, F.42.99	Construction, extension and operation of water collection, treatment and supply systems	Primary	WI06.0	Water Infrastructure
E.36.00, F.42.99	Renewal of water collection, treatment and supply systems	Primary	WI06.0	Water Infrastructure
E.37.00, F.42.99	Construction, extension and operation of waste water collection and treatment	Primary	WI08.0	Water Utilities
E.37.00, F.42.99	Construction, extension and operation of waste water collection and treatment	Primary	WI06.0	Water Infrastructure
E.37.00	Renewal of waste water collection and treatment	Primary	WI06.0	Water Infrastructure
E.38.11	Collection and transport of non-hazardous waste in source segregated fractions	Primary	WP06.0	Recycling Services

Appendix 4: Mapping of the EU Taxonomy and Green Revenues Classification System (GRCS) (continued)

EU taxonomy			GRCS	
NACE Code	Activity	Types of Activity	Code	Microsectors
E.37.00, F.42.99	Anaerobic digestion of sewage sludge	Primary	WI08.0	Water Utilities
E.38.21, F.42.99	Anaerobic digestion of bio-waste	Primary	WP07.2	Organic Waste Process
E.38.21, F.42.99	Composting of bio-waste	Primary	WP07.2	Organic Waste Process
E.38.32, F.42.99	Material recovery from non-hazardous waste	Primary	WP06.0	Recycling Services
E.38.21	Landfill gas capture and utilisation	Primary	EG09.0	Waste to Energy
F.42.21, H.49.50	Transport of CO2	Enabling	EQ03.1	Carbon Capture & Storage
E.39.00	Underground permanent geological storage of CO2	Primary	EQ03.1	Carbon Capture & Storage
H.49.10, N.77.39	Passenger interurban rail transport	Transition	TS01.1	General Railways
H.49.10, N.77.39	Passenger interurban rail transport	Primary	TS01.2	Electrified Railways
H.49.20, N.77.39	Freight rail transport	Transition	TS01.1	General Railways
H.49.20, N.77.39	Freight rail transport	Primary	TS01.2	Electrified Railways
H.49.31, H.49.3.9, N.77.39, N.77.11	Urban and suburban transport, road passenger transport	Transition	TS01.1	General Railways
H.49.31, H.49.39, N.77.11	Urban and suburban transport, road passenger transport	Primary	TS01.2	Electrified Railways
H.49.31, H.49.39, N.77.11	Urban and suburban transport, road passenger transport	Transition	TS02.2	Bus and Coach operators
N.77.11, N.77.21	Operation of personal mobility devices, cycle logistics	Primary	TS02.1	Bike sharing
H.49.32, H.49.39, N.77.11	Transport by motorbikes, passenger cars and light commercial vehicles	Transition	TS02.3	Car Clubs
H.49.32, H.49.39, H.49.4.1, H.53.10, H.53.20 and N.77.12	Transport by motorbikes, passenger cars and light commercial vehicles	Transition	TS02.4	Ride Hailing
H.50.30	Inland passenger water transport	Transition	NA	NA
H.50.40	Inland freight water transport	Transition	NA	NA
H.50.4, H.50.30, C.33.15	Retrofitting of inland water passenger and freight transport	Transition	TE04.0	Shipping
H.50.2, H.52.22, N.77.34	Sea and coastal freight water transport, vessels for port operations and auxiliary activities	Transition	NA	NA
H.50.10, N.77.21, N.77.34	Sea and coastal passenger water transport	Transition	NA	NA
H.50.10, H.50.2, H.52.22, C.33.15, N.77.21, N.77.34	Retrofitting of sea and coastal freight and passenger water transport	Transition	TE04.0	Shipping
F.42.11, F.42.12, F.42.13, F.43.21, F.71.1, F.71.20	Infrastructure for personal mobility	Enabling	NA	NA
F.42.12, F.42.13, M.71.12, M.71.20, F.43.21, and H.52.21	Infrastructure for rail transport	Enabling	TE02.1	Railway (Infrastructure)
F.42.11, F.42.13, F.71.1, F.71.20	Infrastructure enabling low-carbon road transport and public transport	Enabling	ES03.0	Smart City Design & Engineering
F.42.11, F.42.13, F.71.1, F.71.20	Infrastructure enabling low-carbon road transport and public transport	Enabling	TE03.4	Electrified Road Vehicles & Devices (incl Hydrogen powered)
F.42.91, F71.1, F71.20	Infrastructure enabling low carbon water transport	Enabling	NA	NA
F.42.91, F71.1, F71.20	Infrastructure for water transport	Primary	NA	NA
F.41.20, F.42.99	Low carbon airport infrastructure	Enabling	NA	NA
F.41.1, F.41.2	Construction of new buildings	Primary	EM01.0	Buildings & Property
F.41, F.43	Renovation of existing buildings	Transition	EM01.0	Buildings & Property
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28, S.95.21, S.95.22, C.33.12, F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28	Installation, maintenance, and repair of energy efficient equipment	Enabling	EM01.0	Buildings & Property
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28	Installation, maintenance, and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings)	Enabling	EM01.0	Buildings & Property
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28	Installation, maintenance, and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings	Enabling	EM01.0	Buildings & Property
F.42, F.43, M.71, C.16, C.17, C.22, C.23, C.25, C.27, C.28	Installation, maintenance, and repair of renewable energy technologies	Enabling	EM01.0	Buildings & Property
L.68	Acquisition and ownership of buildings	Primary	EM09.0	Sustainable Property Operator
J.63.11	Data processing, hosting and related activities	Transition	EM05.1	Cloud Computing
J.61, J.62, J.63.11	Data-driven solutions for GHG emissions reductions	Enabling	EM05.1	Cloud Computing
J.62	Computer programming, consultancy and related activities	Primary	NA	NA
J.60	Programming and broadcasting activities	Primary	NA	NA
M.71.12	Engineering activities and related technical consultancy dedicated to adaptation to climate change	Enabling	WI03.0	Flood Control
M.71.12	Engineering activities and related technical consultancy dedicated to adaptation to climate change	Enabling	WI04.0	Meteorological Solutions
M.71.12	Engineering activities and related technical consultancy dedicated to adaptation to climate change	Enabling	WI05.0	Natural Disaster Response
M.71.12, M72.1	Close to market research, development and innovation	Enabling	NA	NA
M.71.12	Research, development and innovation for direct air capture of CO2	Enabling	EQ03.1	Carbon Capture & Storage
M.71	Professional services related to energy performance of buildings	Enabling	ES01.0	Environmental Consultancies
K.65.12	Non-life insurance: underwriting of climate-related perils	Enabling	NA	NA
K.65.20	Reinsurance	Enabling	NA	NA
P.85	Education	Primary	NA	NA
Q.87	Residential care activities	Primary	NA	NA
R.90	Creative, arts and entertainment activities	Primary	NA	NA
R.91	Libraries, archives, museums and cultural activities	Primary	NA	NA
I.59	Motion picture, video and television programme production, sound recording and music publishing activities	Primary	NA	NA

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