A credible and robust EU Taxonomy must be based on science

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On 20th November 2020, the European Commission published its draft technical criteria for climate mitigation and adaptation activities to qualify as "sustainable investments" according to the EU Taxonomy. This is a major milestone for Europe's leadership in sustainable finance. This briefing paper describes how science, and due process, can be upheld to ensure that the EU Taxonomy delivers on its goal to align financial flows with the EU climate objectives and the Paris Agreement, and prevent greenwashing.

Science-based thresholds: The final frontier for the EU taxonomy

Meeting the EU's climate goals requires the rapid alignment and mobilisation of finance at a massive scale. Over the past two years, Europe has led in its pioneering development of the world's most comprehensive and advanced taxonomy for sustainable finance.

The goal of the EU Taxonomy is to identify investments that make a substantial contribution to climate change mitigation, or adaptation, and avoid harming environmental objectives. This will prevent greenwashing and provide clear, science-based definitions of what can be called a sustainable activity, aligning investments with the EU's 2030 climate targets and net zero 2050 objectives. A robust taxonomy can also protect the savings of Europe's citizens against future climate risks and help pension funds avoid investments in what will become stranded assets. The EU Taxonomy is a cornerstone of the EU's reforms to integrate sustainability into the financial system – getting it right is fundamental to the integrity of the EU's efforts to secure an environmentally sustainable global financial framework.

This December, the European Commission is finalising its draft technical screening criteria for economic activities that are considered sustainable by the EU Taxonomy. These draft technical screening criteria determine the activities that make significant contributions to climate change mitigation and adaptation, and those which can cause significant harm to the EU's environmental objectives. Years of technical expert work and science-based recommendations have informed this process and were summarised by a Commission appointed independent Technical Expert Group (TEG) in March 2020.

This briefing highlights the strengths of the Commission 's draft, and where it can still be improved. In general, there is a need to revert to the TEG recommendations in several cases, and ensure that Commission thresholds move down over time to ensure the alignment of financial flows with the EU 2050 Climate Law and the EU's commitments under the Paris Agreement.

What is the EU Taxonomy ?

The EU Taxonomy for sustainable (or "green") activities aims to provide common definitions for income, investment and finance that can be considered sustainable for formal reporting purposes. Reporting using the EU Taxonomy will be mandatory for companies and investors from 1st January 2022.

Under the EU Taxonomy, to be labelled "environmentally sustainable" an activity must:

- Be from an eligible sector (eg. Energy, Transport, Buildings, Industry or Land Use);
- Contribute substantially to one or more of the EU's six environmental objectives;
- Not significantly harm any of the other five environmental objectives; and
- Comply with minimum safeguards.

The roots of the EU Taxonomy for Sustainable Finance can be traced back to the launch of a high-level expert group on sustainable finance in December 2016. At their recommendation in 2018, the European Commission established a technical expert group ("TEG") to develop a taxonomy for climate change mitigation and climate change adaptation. After multiple public consultations, and the input of hundreds of finance and sector specialists, invited to help develop technical screening criteria, the TEG published a its conclusions. These contained a set of recommended science-based thresholds for investments that determine significant contribution to European climate change commitments, under the Paris Agreement, and prevent significant environmental harm. Here are some key taxonomy terms:

- Doing no significant harm (DNSH) is a principle that ensures that by striving to make a significant contribution on one axis of the environment, an activity doesn't unintentionally harm another.
- The Technical Expert Group (TEG) on Sustainable Finance was established by the European Commission to develop recommendations on the technical screening criteria for the EU Taxonomy.
- The draft Delegated Act sets out the Commission's proposed technical screening criteria for climate change mitigation (Annex I) and adaptation (Annex II).

The Commission is now setting formal technical screening criteria for activities that contribute to climate mitigation and adaptation. Following this, in 2021, EC will also develop the criteria for the remaining four environmental objectives: Water and Marine; Circular Economy; Pollution prevention; and Biodiversity.

On 20th November, the EU Commission published over 500 pages of its own draft technical screening criteria in two annexes to a draft Delegated Act which supplements the EU Taxonomy Regulation 2020/852. This consultation is open for a 4-week period.

Based on inputs from some of the experts involved in the development of the EU Taxonomy, and others who have worked in the impacted sectors for much of their careers, this paper highlights key findings to ensure the EU Taxonomy is fit for purpose. The following are the key areas where action is needed to maintain and improve the environmental credibility of the EU Taxonomy:

1 Life-cycle emissions of green power generation must be kept below 100g CO2e/kWh

Heat and electricity generation are responsible for over a quarter of the EU's greenhouse gas emissions. It is vital that the EU Taxonomy helps investors avoid funding high-carbon assets, that cannot operate for their useful lives, by sending the right signals already to decarbonise the sector. The TEG recommended an energy-sector-wide emissions intensity threshold of 100g CO2e life-cycle emissions per kWh for electricity generation, heat production and the co-generation of heat and power.

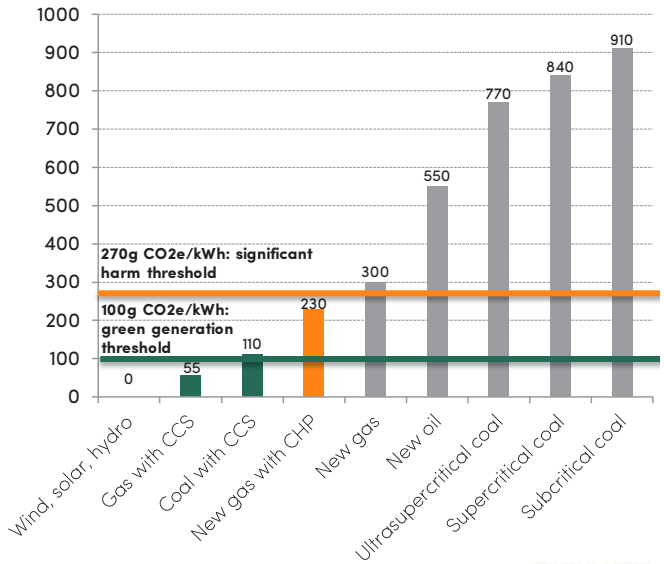
The Commission's draft criteria rightly retain this life-cycle intensity limit of 100g CO2e/kWh for making a substantial contribution to climate mitigation. The Commission's criteria would ensure that unabated fossil fuelled power generation, including new gas-fired power plants, could not be labelled as sustainable investments. The TEG also recommended that the energy sector emissions threshold should automatically be reduced every five years, in line with EU targets to achieve net-zero emissions by 2050. Regrettably, the Commission's draft criteria do not include a declining threshold and rely on the three-year review mechanism in the EU Taxonomy Regulation to tighten the emissions criteria over time. Including a declining threshold now would strengthen the signals that the EU Taxonomy sends to the market, and help maintain its future relevance and ongoing alignment with EU climate targets and objectives. According to the IEA, the carbon intensity of all EU electricity generation in 2018 was 270 gCO2/kWh, which fell to 235 gCO2/kWh in 2019[1]. To be carbon free by 2050, EU power generation must decarbonise by more than 7 gCO2/kWh (-3.3%) per annum, from its 235 gCO2/kWh base in 2019.

Clearly the addition of power generation with a carbon intensity above this limit is going in the wrong direction, and will harm the EU's decarbonisation trajectory, and therefore its ability to deliver its net zero 2050 objectives.

The Commission, in its draft delegated act, uses the same method as the TEG and, with updated EEA/Eurostat data on emissions, defines the DNSH threshold for mitigation at 270 gCO2/kWh, and also uses this emission intensity figure in its calculations to establish the EU ETS industrial benchmarks for the period of 2021-2026. This measure of direct emissions does not consider extraction, transport and fugitive emissions from power production which will remain hidden unless a life-cycle carbon intensity approach is used.

1 IEA (2020), Electricity Information: Overview, IEA, Paris https://www.iea.org/reports/electricity-information-overview

GHG Emissions Intensities of Selected Power Generation Technologies
Source WWF (2018)



SUMMARY

The 100g CO2e/kWh life-cycle emission threshold for substantial contribution to climate mitigation, and the 270g CO2e/kWh significant harm limit, are built on a long expert process and use a robust and scientific methodology, as recommended by TEG. Yet, to align with Europe's objectives, and as the TEG recommends, these thresholds must also reduce over time in sync with the EU's increased climate ambitions to deliver net-zero emissions by 2050.

2 Bioenergy: Advanced feedstocks only, and alignment to net-zero trajectory

The production of electricity from bioenergy could deliver mitigation benefits but, if done incorrectly, could also have no net positive impact, or even a negative impact. This was acknowledged by the TEG in March 2020. The EEA Scientific Committee sees biomass generally emitting more CO2 per unit of useful energy than burning fossil fuels. The offset for these emissions is assumed to occur through regrowth of the feedstock, or the avoidance of emissions released during its decomposition for residues/wastes, which can take decades[2]. This year, the Commission reported that Europe's carbon sink has seen significant losses[3] due to "increasing economic demand for forest biomass" as well as fires and pests.

For these reasons, over a hundred NGOs are calling for the exclusion of forest biomass as an eligible fuel in the up-coming revision of RED II – the recast Renewable Energy Directive (EU) 2018/2001 - whose own calculation methodology assumes "no net-carbon emissions from land-use change" as a baseline.

To partially address these concerns, the TEG recommended that bioenergy's significant contribution threshold criteria be a feedstock-based enhancement to existing EU regulations. The TEG set out "to advance the agenda by setting a higher threshold on the required GHG emissions savings" versus benchmark and restrict eligibility to bioenergy (solid, liquid and gas) produced from "advanced feedstocks" (17 listed in Annex IX of RED II). These are known to have lower indirect land-use change (ILUC) impacts and are therefore more likely to deliver emissions savings. Like all TEG recommended carbon intensity thresholds, this was also expected to be "reduced every 5 years in line with a trajectory to net-zero CO2e in 2050".

The Commission's draft criteria for bioenergy reinforces the TEG's 80% GHG savings threshold, but critically remains silent on the need to use only advanced feedstocks, and does not align to a net-zero emissions trajectory to 2050.

2 In its 2016 impact assessment for the sustainability of biomass, the EC suggests that the break-even time period for GHG savings for certain forest biomass feedstocks can be "20 to 50 years or even up to centuries". European Commission. 2016. Impact Assessment: Sustainability of Bioenergy. Accompanying the document Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (recast). Brussels. At https://eur-lex.europa.eu/resource.html?uri=cellar:1bdc63bd-b7e9-11e6-9e3c-01aa75ed71a1.0001.02/DOC_1&format=PDF

3 "Stepping-up Europe's 2030 Climate Ambition" COM (2020) 562 EU Carbon sinks decreased from 300 million tons CO2e in 2010, to 263 million tons CO2e in 2018), and projects a risk of further decline to 225 million tons CO2e by 2030 if nothing is done.

SUMMARY

The Commission's delegated act needs to reinstate a TEG-recommended bioenergy feedstock restriction to the low-ILUC "advanced feedstocks" identified in Annex IX Part A of RED II, and align with the EU's increased 2030 climate ambition by excluding whole trees in precautionary anticipation of revisions to the criteria in RED II in 2021. Finally, the delegated act must increase its savings threshold at least every 5 years, as recommended by the TEG, in line with future climate ambition, new regulations, and a net-zero emissions trajectory to 2050.

3 Forestry & Agriculture: Sustainable and essential management practices

Common definitions, criteria and indicators for Sustainable Forestry Management (SFM) have been developed since the early 1990s, and the TEG recommended linking the definition of sustainable agriculture directly to these SFM requirements in its climate mitigation thresholds to guarantee the maintenance of carbon sequestration. In its draft delegated act, the Commission retains many elements of the TEG's recommendations, including a requirement to increase carbon stock, having a third party verified GHG baseline and the demonstration of forest permanence. However, the Commission omitted TEG recommended links to SFM and the list of specific SFM requirements and practices in forest categories. Forestry DNSH criteria need to exclude the mitigation harm caused by conversion of carbon-rich soils to forest, and promote afforestation with native species – both of these TEG recommendations that are absent from the Commission draft.

TEG also recommended farms to avoid or reduce GHG emissions through the application of essential management practices each year, or by following a stated GHG benchmark reduction trajectory (eg. -20% by 2030, -30% by 2040 and -40% by 2050).

Positively, the Commission's draft criteria support the application of essential management practices through a Farm Sustainability Plan, in which it adds a requirement to set-aside a minimum share of 10% of the farm's agricultural area for high-diversity landscape features (eg. hedges, coppice, buffer strips, and ponds) to protect against soil erosion and contribute to carbon sequestration. Studies[4] show that this biodiversity encouragement can improve overall productivity and lower GHG emissions.

Nevertheless, the Commission has removed the critical frame of a specific stated GHG reduction benchmark trajectory for farm mitigation. Concerns also remain over the sustainability of concentrated livestock farming which is carbon-intensive, emissive, polluting, and linked to deforestation. Livestock production should not be considered a sustainable activity under the EU Taxonomy if it harms the environment, and slows down a transition to a more sustainable, plant-based diet, as required in Paris-compliant climate scenarios for Europe.

4 Dainese, M. et al. (2019) "A global synthesis reveals biodiversity mediated benefits for crop production". https://doi.org/10.1126/sciadv.aax0121 and Pywell, R.F. et al. (2015) "Wildlife-friendly farming increases crop yield: evidence for ecological intensification" found https://doi.org/10.1098/rspb.2015.1740

SUMMARY

As a precautionary measure, the Commission's delegated should avoid labelling all livestock sustainable until scientific criteria to control its impacts on climate, biodiversity and land use are established. The Commission also needs to reinstate TEG references to listed SFM best practices, and the benchmark emissions trajectory approach at the farm level, and exclude afforesting carbon-rich land.

4 Manufacturing and transport: Revert to TEG, refine and review frequently

For the most part, the Commission's draft criteria follows the TEG's recommended use of EU ETS industrial benchmarks for the 10% best installations in the EU, as the reference for significant contribution mitigation thresholds. TEG had assumed that these would be regularly updated to reflect BAT-Associated Energy Efficiency Levels, and consider alternative low carbon technologies if they become commercially available, to make the EU Taxonomy a genuinely "living document".

However, there are some important areas where the Commission's draft criteria for the manufacturing sector diverge from the TEG recommendations, and can be tightened in order to ensure that EU Taxonomy eligible investments deliver on EU objectives:

- **Hydrogen:** Upstream emissions (including fugitive methane emissions) must be considered in the methodology used to calculate the life-cycle emissions of hydrogen production – this is best covered by using the Product Environmental Footprint method 2013/179/EU.
- **Ammonia:** TEG recommended criteria (Scope 1 emissions must be less than 1 tCO2e/t Ammonia, and combined scope 1 and scope 2 emissions should be less than 1.3 tCO2/t Ammonia) are more ambitious than the EU ETS benchmark and simpler to apply.
- **Cement:** The co-combustion of refuse-derived fuel (RDF) in cement plants does significant harm to human health and the environment. RDF combustion should be excluded as it is harmful, and it results in increased air pollution and the undermining of EU Circular Economy objectives.
- **Plastics:** The TEG's recommendation for plastic manufacturers to conduct an Independent sector study to confirm that at least 90% of the type of plastic manufactured is not used for single use consumer products should be reinstated as a DNSH condition, in line with the Single Use Plastic directive.
- **Heatpumps:** Heatpump refrigerants can have very high Global Warming Potential (GWP). A net-zero emissions economy must promote a transition to safe and energy-efficient alternatives, relying on natural and low-GWP technologies, and restrict the use of Flourinated gases. The Commission's GWP limit of 675 should be returned to the TEG's recommended GWP of 10 as a threshold for heatpump manufacturing.
- **Shipping:** For the TEG, it was evident that zero direct emissions fleets should be considered sustainable, and that criteria for maritime shipping should be developed where modal shift benefits can be achieved. This was identified as an area of future work by technical experts. Yet in the Commission draft all ships, essentially, get a pass as 'environmentally sustainable' until 2025, due to a very low energy efficiency standard. This is not aligned with the TEG process, has not been developed with scientific input from expert review, and should therefore not be included as a threshold until it is properly assessed by the EU Platform on Sustainable Finance.

SUMMARY

The methods used to demonstrate significant contributions in hydrogen and ammonia should be tightened to TEG-levels. Harmful RDF combustion in cement and production of over 10% of single use plastics must be excluded, and the EU Taxonomy must encourage the manufacturing of low-GWP heatpumps and much more efficient. Shipping should not be included in the Taxonomy until science-based criteria can be established.

5 Adaptation: More qualitative, but not a loophole

Climate change mitigation and adaptation are fundamentally different. For mitigation activities, a reduction of greenhouse gas emissions has the same impact regardless of where it takes place. Mitigation activities can be more easily identified, and life-cycle thresholds and process limits for carbon emission intensities can be calculated scientifically. Adaptation, however, responds to physical climate risks that are location and context specific. Nearly all sectors are impacted and there are often multiple engineering and non-engineering options available to respond to potential future risks. As a result, adaptation thresholds are less numerical and more qualitative, and there is a greater reliance on best practices, using best-in-class data and scientific models with third party assessments.

Thus, the Taxonomy's adaptation criteria require careful design to ensure that the open, qualitative language does not create unintended loopholes. Clearly, adapting an asset to future climate change scenarios in a high emissions sector is not a short-cut to "green status" to avoid the need to deliver significant contributions to mitigation. By design the Commission's adaptation criteria is broad and needs some flexibility to ensure that local and context specific considerations are taken into account.

TEG was clear in its report that "in the case of adapted activities, only the cost of the actions required to adapt the activity can be counted". This restriction should be included in the Commission's criteria to reduce the risk of adaptation being used as a means of labelling larger investments with limited environmental benefits as sustainable.

Operationalising the adaptation criteria, and particularly the adaptation DNSH criteria, will require the continued development of adaptation skills and knowledge, particularly easy services for SMEs and the residential buildings sector. Appendix E of the Commission's draft delegated act provides generic criteria for DNSH to climate change adaptation for all sectors, it lists physical climate-related risks and draws a cut-off for actions between assets with an expected lifespan below 10 years, to those of a longer-term. It is clear that assets offering significant mitigation should be adapted to future climate change as they must be also fit for a future climate. These DNSH criteria should not burden small businesses or private home owners, however, which can be addressed by municipal requirements, de minimus restrictions and the development and dissemination of best practices.

SUMMARY

Investments relating to adaptation should be ring-fenced in financial reports and the flexibility required in adaptation practices should not be used as a green loophole. The application of the adaptation DNSH criteria should not burden SMEs and home owners, and adaptation skills and training should be increased at the municipal level.

Conclusions

An EU Taxonomy that is science-based and that increases investments in sustainable economic activities making significant contributions will accelerate the transition to a net-zero emissions economy in line with the EU's net zero 2050 objectives and reduce the risk of greenwashing. The Commission 's draft Delegated Act has taken into account many of the recommendations of the many years of expert work led and documented by the TEG. The distance to target, in terms of what needs to be upgraded through public consultation is small, by comparison, but essential to the integrity of the taxonomy system.

The EU Taxonomy cannot be static, and it will need to dynamically align with higher climate ambition, new regulations and improvements in hundreds of covered sectors.

All significant contribution and do no significant harm thresholds should ratchet-down in line with EU emissions reduction targets and Paris Agreement commitments.This is particularly relevant for building renovation, where a vast gap exists between what was recommended by the TEG and proposed in the Commission's criteria, and what is needed to achieve the deep renovation of Europe's building stock. The EU taxonomy will also need to specifically exclude activities that cause harm to the environment.

Taking into account the recommendations identified in this paper will allow the EU to adopt a broadly science-based sustainable finance taxonomy that will help to align financial flows with the EU's 2050 Climate Law.

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