EU TECHNICAL EXPERT GROUP ON
SUSTAINABLE FINANCE

TEG INTERIM REPORT

ON CLIMATE BENCHMARKS AND BENCHMARKS' ESG DISCLOSURES

June 2019

Disclaimer

This report represents the overall view of the members of the Technical Expert Group, and although it represents such a consensus, it may not necessarily, on all details, represent the individual views of member institutions or experts. The views reflected in this report are the views of the experts only. This report does not reflect the views of the European Commission or its services.

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Executive Summary

The agreement reached by the European co-legislators on the regulation amending Regulation (EU) 2016/2011, as part of the Commission's Action Plan on Financing Sustainable Growth, resulted in two essential measures regarding investment benchmarks. The first is the creation of two types of climate benchmarks[11], i.e. the 'EU Climate Transition Benchmark (EU CTB) and EU Paris-aligned Benchmark (EU PAB)'. The second measure is the definition of Environmental, Social and Governance (ESG) disclosure requirements that shall be applicable to all investment benchmarks[12].

The main objectives of the new climate benchmarks are to (i) allow a significant level of comparability of climate benchmarks methodologies while leaving benchmarks' administrators with an important level of flexibility in designing their methodology; (ii) provide investors with an appropriate tool that is aligned with their investment strategy; (iii) increase transparency on investors' impact, specifically with regard to climate change and the energy transition; and (iv) disincentivize greenwashing.

Context. While conceptually, the two types of climate benchmarks are closely linked to the objectives of the Paris Agreement, the TEG wants to clearly acknowledge the fact that the current state of methodologies and available issuer-level data does not allow for an evident and irrefutable conversion of climate scenarios into detailed and informed portfolio construction methodologies at the time of writing this report. In order to ensure the highest level of ambition for climate benchmarks, the TEG therefore largely relies on already available proxies and currently evolving methodologies, sometimes already used by market participants. In this context, the TEG also strongly recommends a review of all minimum standards after a three-year period to ensure the highest level of ambition for climate benchmarks in accordance with potential future enhancements in the state of the research and practices around scenario analysis applied to investment strategies.

Definition and use cases. A climate benchmark is defined as an investment benchmark that incorporates – next to financial investment objectives - specific objectives related to greenhouse gas (GHG) emission reductions and the transition to a low-carbon economy - based on the scientific evidence of the IPCC - through the selection and weighting of underlying constituents.

A climate benchmark can serve as:

- Underlying for passive investment strategies;
- An investment performance benchmark for GHG emission-related strategies;
- An engagement tool;
- A policy benchmark to help guide strategic asset allocation (SAA).

While benchmarks incorporating constraints or objectives related to GHG emissions have primarily been built around a (tail) risk[13] reduction objectives, EU CTBs and EU PABs have broader ambitions. Investors using these new types of benchmarks not only intend to hedge against climate transition

[11] The term 'climate benchmarks' is used throughout this document to reference EU Climate Transition Benchmarks and EU Paris-aligned Benchmarks together.

[12] With the exception of currency and interest rate benchmarks.

[13] Climate transition risks as defined by the Task Force on Climate-related Financial Disclosure (TCFD). See https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf for further details.

risks (Risk objective) but also have the ambition to direct their investments towards opportunities related to the energy transition (Opportunity objective). Note that only transition risks and opportunities are considered as part of the minimum standards for both indices. The physical risks associated with climate change are however included in the disclosure recommendations.

Differentiation. The two types of climate benchmarks are pursuing a similar objective but differentiate themselves in terms of their level of restrictiveness and ambition. EU PABs are designed for highly ambitious climate-related investment strategies and are characterized by stricter minimum requirements, while EU CTBs allow for greater diversification and serve the needs of institutional investors in their core allocation.

Table 1: Summary of minimum standards of EU CTBs and EU PABs

Minimum standards	EU CTB	EU PAB
Risk oriented minimum standards:		
Minimum Scope 1+2(+3)[14] carbon intensity reduction compared to investable universe	30%	50%
Scope 3 phase-in	2-4 years	2-4 years
Do no significant harm principle	Yes	Yes
Opportunity oriented minimum standards:		
Minimum green share / brown share ratio compared to investable universe	At least equivalent	Significantly larger (factor 4)
Exposure constraints	Minimum exposure to sectors highly exposed to climate change issues is at least equal to market benchmark value	
Year-on-year self-decarbonization of the benchmark	At least 7%: in line with or beyond the decarbonization trajectory from the IPCC's 1.5°C scenario (with no or limited overshoot)	
Disqualification from label if 2 consecutive years of misalignments with trajectory	Immediate	Immediate

The main users of EU CTBs are institutional investors such as pension funds and (re)insurance companies with the objective of protecting a significant share of their assets against various investment risks related to climate change and the transition to a low-carbon economy, labelled as transition risks by the TCFD.[15] The main users of EU PABs are institutional investors which aim to display more urgency than CTB investors and want to be at the forefront of the immediate transition towards a +1.5°C scenario. Overall, EU PABs are differentiated from EU CTBs by the following features:

[14] Scope 3 being phased-in during a four-year timeframe.

[15] https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf.

- EU PABs allow for a higher decarbonization of the investment relative to the underlying investment universe;
- EU PABs have a stronger focus on opportunities with a significantly enhanced green share / brown share ratio (factor 4).

Structure of the report. Section 3 details technical advice on minimum disclosure requirements to improve transparency and comparability of information across benchmarks not only regarding climate-related information but also on a variety of ESG indicators. These indicators are assessed by benchmark' administrators either in-house or through third party data providers and rating agencies. To ensure global alignment references are made to global standards and international conventions used by investors across jurisdictions for their ESG analysis. Furthermore, the perspective of various asset classes has been taken into consideration to ensure that minimum standards are available for as many asset classes as applicable and geared to the associated investment needs.

Sections 4 and 5 provide detailed technical guidance on minimum standards recommended for the EU Climate Transition Benchmarks (EU CTBs) and EU Paris-aligned Benchmarks (EU PABs).

2- Introduction

Benchmarks have an indirect but important impact on investments. Many asset managers and investors rely on them as investment monitoring solutions to track their return (passive and smart beta investment strategies) or to define the investment universe and to measure the performance of an investment fund/portfolio (active investment strategy). A more recent use case for benchmarks that has emerged in the industry is their use as an incentive tool to encourage companies at scale to improve their ESG performance. Benchmarks play a significant role and can be a key lever in aligning the investment and analyst community with long-term sustainability considerations and the transition towards a low-carbon economy.

Since conventional benchmarks do not reflect low-carbon considerations in their methodologies and are not appropriate to measure the performance of sustainable investment strategies, over the past decade index providers have designed hundreds of ESG and 'low-carbon' benchmarks. The index design drivers have mainly been focused on the objective of reducing investment risks related to climate change, especially tail risks. Borrowing words from Mark Carney's address to the European Commission's Sustainable Finance conference on March 21st 2019[16]:

"[W]e know that general insurers and reinsurers are on the front line of managing the physical risks from climate change. Insurers have responded by developing their modelling and forecasting capabilities, improving exposure management, and adapting coverage … In the process, insurers have learned that yesterday's tail risk is closer to today's central scenario. Sadly with climate, history repeats not as a farce but as tragedy and with growing frequency."

Benchmark administrators are well advised to follow the lead of the (re)insurers in integrating the investment risks related to climate change into their products. While the supply of low-carbon benchmarks is there, **lack of harmonisation of the methodologies** (especially lack of consensus on how comprehensive the assessment of a carbon footprint should be) and **lack of clarity on the objectives pursued** (with regard to the impact on global warming) have affected comparability, reliability and adoption of low-carbon indices[17]. Furthermore, the varying degrees of reporting hinders market players' ability to compare indices and choose the adequate benchmarks for their environmental or climate-related investment strategy. Therefore, acceptance and adoption of low-carbon benchmarks by the market has been limited and such benchmarks' significance for overall portfolio allocation remains low.

Finally, the benchmarks currently offered in the market do not necessarily align with the financing needs implied by the limitation of global warming to *well below +2°C* pursuant to the Paris Climate Agreement, as current benchmarks are likely to be more aligned with a 'business-as-usual' scenario, where temperature rises range from 4°C to 6°C, leading to catastrophic damage to the Earth.

To follow up on the work of the High-Level Expert Group on Sustainable Finance (HLEG), in March 2018 the Commission announced in its Action Plan on Financing Sustainable Growth measures to

[16] https://www.bankofengland.co.uk/-/media/boe/files/speech/2019/a-new-horizon-speech-by-mark-carney - p. 4.

[17] As also assessed by the European Commission in the impact assessment for the amending regulation.

enhance the ESG transparency of benchmarks and in May 2018 put forward a legislative proposal to introduce minimum standards for the methodology of climate benchmarks across the European Union. Based on the regulation amending Regulation (EU) 1011/2016 agreed by the co-legislators in February 2019, the TEG will deliver a final report by September 2019, which will be used by the Commission as the basis for the delegated acts to the regulation.

In line with the TEG's mandate, this report includes recommendations on:

- Minimum ESG disclosure requirements for all benchmarks (excluding interest rates and currency benchmarks) and specific ESG disclosure requirements for EU CTBs and EU PABs;

- Minimum standards for EU CTBs;

- Minimum standards for EU PABs.

3- Technical Advice on Minimum ESG Disclosure Requirements

3.1 OVERVIEW OF THE NEW DISCLOSURE REQUIREMENTS SET OUT BY THE AMENDING REGULATION

3.1.1 The case for ESG disclosures for all benchmarks[18]

The final report of the High-Level Expert Group on Sustainable Finance (HLEG)[19] published in January 2018 recommended that benchmark administrators should disclose publicly specific sustainability parameters for indices based on the index constituents and their weights.

The report recommends that regulators "*include references to sustainability considerations in their guidance on the benchmark statement regarding […] how sustainability (ESG[20]) considerations are reflected in the methodology of the benchmark*".

The aspiration of this recommendation was to enhance and align the level of ESG transparency of benchmark methodologies and make it easier for market players to compare indices in order to choose the most adequate benchmarks for their investment strategy.

The provision included in the Regulation amending Regulation (EU) 2016/1011 introducing ESG disclosures for any categories of indexes, except interest rate and currency benchmarks, will be beneficial for financial market players and support the up-scaling of sustainable finance in Europe in several ways, including:

1. Through standardised ESG disclosures, comparability between any benchmarks on the level of their sustainability will be improved. As such, institutional and retail investors are enabled to take into account sustainability information in their investment decisions, and to select benchmarks that best reflect their investment beliefs and meet their investment policies also from a sustainability perspective.

2. An increase in transparency and comparability could ultimately translate into a broader adoption of ESG indices, as outlined by the HLEG report[21].

3. Wider adoption of ESG indices will shift capital towards more sustainable investments, and with that potentially trigger behavioural adjustments on the issuers side[22] leading to more sustainable activities and related disclosures.

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[18] 'Indices' and 'Benchmarks' are used interchangeably throughout this document.

[19] Final report of the HLEG, p 52, report available at https://ec.europa.eu/info/publications/180131-sustainable-finance-report_en

[20] ESG: Environmental, Social and Governance

[21] "It is essential that investors both make careful and considered use of traditional benchmarks and make more use of benchmarks incorporating ESG considerations".

[22] As also noted in the HLEG report.

4. Treating ESG and traditional benchmarks in the same way will increase transparency across the whole index universe. Furthermore, ESG benchmarks will not be penalised through the requirement of additional disclosure relative to traditional benchmarks.

5. Standardised sustainability disclosure by index administrators may help market participants to comply with their transparency obligations under the Regulation on disclosures relating to sustainable investments and sustainability risks[23].

On the other hand, it has to be noted that benchmark administrators who are not able to produce the requested ESG information in-house will rely on third-party data providers. Depending on the number of benchmark administrators in this position, this might have an impact on pricing schedules offered by third-party data providers.

3.1.2 ESG and climate-related disclosures as part of the amending Regulation

The Regulation amending Regulation (EU) 2016/1011 spells out new requirements with regards to the "Transparency of methodology" and the "Benchmark statement" (article 13 and article 27) of Regulation (EU) 2016/1011.

a) Methodology

Regarding the methodology, the amendments to article 13 provide that an index administrator has to deliver '*an explanation of how the key elements of the methodology […] reflect environmental, social and governance ('ESG') factors for each benchmark or family of benchmarks, with the exception of currency and interest rate benchmarks*[24].

b) Benchmark statement

The new requirement is that "*a benchmark statement shall contain an explanation of how ESG factors are reflected in each benchmark or family of benchmarks provided and published*" for all elements outlined under paragraph 2 of article 27 of Regulation (EU) 2016/1011[25].

The amending regulation also introduces further disclosure requirements for benchmarks related to the Paris Climate Agreement applicable to all benchmarks or families of benchmarks, with the exception of currency and interest rate benchmarks.

3.1.3 TEG deliverables in relation to benchmark disclosures

This report aims to provide technical advice on the following areas:

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[23] http://www.europarl.europa.eu/doceo/document/TA-8-2019-0435_EN.html

[24] New text introduced by the regulation amending Regulation (EU) 2016/1011 on EU Climate Transition Benchmarks and EU Paris-aligned Benchmarks available at: http://www.europarl.europa.eu/doceo/document/TA-8-2019-0237_EN.html

[25] In addition to Article 27(2), the Commission Delegated Regulation 2018/1643 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.274.01.0029.01.ENG&toc=OJ:L:2018:274:TOC) specifies further each of the elements.

a) Methodology

1) Minimum content of the explanation of how the key elements of the methodology reflect ESG factors for each benchmark or family of benchmarks (with the exception of currency and interest rate benchmarks as defined by the regulation).

2) Template associated with the ESG disclosures to be included in the methodology.

b) Benchmark statement

3) Specifications regarding the explanation of how ESG factors are reflected in the benchmark or family of benchmarks (elements a) to g) of article 27.2).

4) Specifications regarding the explanation of how the methodology aligns with the target of GHG emission reductions or attains the long-term global warming target of the Paris Agreement on Climate Change (for all benchmarks excluding interest rate and currency benchmarks as defined by the regulation).

5) Specification on a detailed benchmark statement on whether or not and to what extent an overall degree of alignment with the target of reducing GHG emissions or attaining the long-term global warming target of the Paris Agreement on Climate Change is ensured (for significant listed equity and corporate bond benchmarks).

6) Template associated with disclosures 3) to 5).

3.2 APPROACH TO DEFINING MINIMUM ESG DISCLOSURES AS PART OF THE METHODOLOGY AND BENCHMARK STATEMENT

3.2.1 Consideration of different asset classes

The new disclosure requirements apply to a wide range of indices available on the market in relation to different underlying securities identified by investors as “asset classes” based on their distinctive and homogenous characteristics (both regulatory and financial, such as having similar risk-return profiles).

Based on the mandate, interest rate and currency benchmarks are out of scope. As a result of that, further references to these benchmarks will not be provided.

The TEG proposes to set out disclosure requirements based on how the market currently understands that ESG and climate-related considerations can be integrated in the valuation of assets as part of a particular asset class, or across similar asset classes.

Whereas market practices have emerged and established themselves for the integration of ESG considerations in the valuation of listed equities, corporate and sovereign bonds, for other asset

classes the market is still trying and testing new approaches and no consensus has been reached on credible ways to take account of ESG factors[26].

Where market practices have not yet emerged, the TEG recommends disclosures that provide investors with insights into whether and to what extent (i) the benchmark administrator has factored ESG and climate-related considerations in the index design methodology; (ii) the benchmark administrator has measured ESG and climate-related risks and opportunities associated with the index.

Therefore, this report aims to provide guidance on minimum disclosures requirements for the methodology and specifications for the benchmark statements. The latter vary in detail based on the maturity of ESG information for each asset class under consideration.

3.2.2 Classification of asset classes

Regulation (EU) 2016/1011 does not systematically lay down provisions for different types of benchmarks based on the underlying security types, but identifies benchmarks based on a series of characteristics. It only distinguishes between critical, significant and non-significant benchmarks – primarily based on the amount of assets benchmarked to those indexes. It should be noted again here that the amending regulation considers currency and interest rate benchmarks as out of scope for any ESG disclosure requirement.

Due to the reasons outlined in the previous chapter, ESG disclosure requirements will be different for the various asset classes used for benchmark composition, based on MiFID II definitions and lists of financial instruments[27], as also referenced by the Regulation (EU) 2016/1011. However, in the market, asset classes depend not only on the type of instrument as defined from a regulatory perspective, but also on the characteristics of the security.

The table below links the definitions of financial instruments provided by MiFID II to the reporting classification used by the UN Principles for Responsible Investment (PRI) to provide guidance to its members on reporting. As the PRI framework[28] is more global in its application, this will help international benchmark administrators to share the information not only with EU investors, but also on a more global level. The aligned definitions are then matched with the existing index categories covered by these guidelines, and with the indices currently available in the market.

[26] See for example the conclusions of a World Bank research paper on the integration of ESG considerations in fixed income: http://documents.worldbank.org/curated/en/913961524150628959/pdf/125442-REPL-PUBLIC-Incorporating-ESG-Factors-into-Fixed-Income-Investment-Final-April26-LowRes.pdf

[27] See Section C of Annex I to MiFID II.

[28] PRI, "PRI Reporting Framework 2019. Organisational Overview", November 2018 available at https://www.unpri.org/signatories/reporting-for-signatories

Table 2: Classification of asset classes

MiFID category	Alignment with PRI reporting classification	Asset class to be covered by TEG guidance
Transferable securities	Listed Equity	Listed Equity
	Fixed Income Corporate (Financial) Corporate (Non-financial) Sovereigns/ Supranational Agencies (SSA) Securitised	Fixed Income (FI) – Corporate Credit Bonds including Corporate Asset Backed Securities and Money Market – Sovereign Bonds including Supranational Bonds, Municipal Bonds, Government Agency's Bonds and Money Market
Units in collective investment undertakings (UCITs)	Hedge Funds Fund of Funds	Hedge Funds Private Equity / Debt Infrastructure
Options, futures, swaps, forwards and any other derivative contracts relating to commodities	-	Commodity
Derivative instruments for the transfer of credit risk	-	Not covered
Financial contracts for differences	-	Not covered
Emission allowances consisting of any units recognised for compliance with the requirements of Directive 2003/87/EC (Emissions Trading Scheme).	-	Not covered

With regards to Units in collective investment undertakings (UCITS), these guidelines refer to indices that are structured on relatively liquid Net Asset Value (NAV) based securities, such as those of a closed-end fund. Indices that are based on transaction prices or econometric simulations are not considered in scope. This is to ensure consistency with the scope of the mandate given to the TEG, which does not cover currency or interest rate benchmarks that are the closest comparable to a transaction index.

The TEG has left out of the scope of its recommendations several asset classes for reasons explained below.

Derivative instruments for the transfer of credit risk: benchmarks that are structured on this asset class refer to price developments of complex structured products, such as Credit Default Swaps (CDS). Setting any ESG disclosure for a CDS index would essentially require disclosing the characteristics of a second level structured product. A CDS index would reflect the price development of the insurance premium or credit default swap spread of a structured group of Credit Default Swaps. ESG disclosure should therefore not apply.

Financial contracts for differences (CFDs): ESG benchmark disclosure should not apply as to the best of the TEG's knowledge, there are no known indices being structured on CFDs.

Emission allowances (EAs): ESG benchmark disclosure should not apply as to the best of the TEG's knowledge, there are no known indices being structured on EAs. In the TEG's view, this is also unlikely to be expected, considering the asset class covers only one type of commodity traded.

3.3 MINIMUM CONTENT OF THE EXPLANATION OF ESG FACTORS IN THE METHODOLOGY BY ASSET CLASS

The ESG disclosure requirements listed in this section link and provide additional specification to the following articles of Regulation (EU) 2016/1011, article 13 on the transparency of methodology and Article 27 relating to the benchmark statement.

3.3.1 Technical advice on the minimum disclosure requirements by asset class

The benchmark administrator should disclose the below listed ESG information and explain if the disclosed ESG information is used for ex-ante benchmark construction, or to improve ESG transparency only, and whether the ESG benchmark information and criteria used to construct an index are considered financially material or immaterial.

All information listed below has to be published as an aggregated, weighted average value at the benchmark level.

The table below summarizes the minimum ESG disclosure requirements by asset class for inclusion in the benchmark methodology and the benchmark statement via the templates available in Appendix D.

Table 3: ESG factors to be disclosed by asset class

		Main Asset Classes			Other Asset Classes		
	Disclosure Factors	Equities	Fixed Income - Corporates and Securitised (ABS)	Fixed Income - SSA	Hedge Funds	Commodities	Private Equity Private Debt Infrastructure
OVERALL ESG DISCLOSURE	Consolidated ESG Rating	Yes	Yes	Yes	Yes	No	Yes
	ESG Ratings Top Ten Constituents	Yes	Yes	Yes	No	No	Yes
	UNGC Violations %	Yes	Yes	No	Yes	No	Yes
	International Standards Signatories %	No	No	Yes	Yes	No	No
ENVIRONMENTAL DISCLOSURE	Consolidated Environmental Rating	Yes	Yes	Yes	Yes	No	Yes
	Carbon intensity	Yes	Yes	Yes	No	No	Yes
	Fossil Fuel Sector Exposure %	Yes	Yes	No	No	No	Yes
	Green Revenues %	Yes	Yes	No	No	No	Yes
	Green Bonds %	No	Yes	Yes	No	No	No
	Exposure Climate-Related Physical Risks	Yes	Yes	Yes	No	Yes	No
	Exposure Climate-Related Physical Risks Methodology	Yes	Yes	Yes	No	Yes	No
SOCIAL DISCLOSURE	Consolidated Social Rating	Yes	Yes	Yes	Yes	No	No
	Social Violations	Yes	Yes	Yes	No	Yes	Yes
	Controversial Weapons %	Yes	Yes	No	Yes	No	Yes
	Controversial Weapons Definition	Yes	Yes	No	Yes	No	Yes
	Tobacco %	Yes	Yes	No	No	No	No
	Tobacco Definition	Yes	Yes	No	No	No	No
	Human Rights (Index)	No	No	Yes	No	Yes	No
	Income Inequality	No	No	Yes	No	No	No
	Freedom of Expression	No	No	Yes	No	No	No
GOVERNANCE DISCLOSURE	Consolidated Governance Rating	Yes	Yes	Yes	No	No	No
	Board Independence %	Yes	No	No	No	No	No
	Board Diversity %	Yes	No	No	No	No	No
	Corruption	No	No	Yes	No	Yes	No
	Political Stability	No	No	Yes	No	Yes	No
	Rule of Law	No	No	Yes	No	No	No
	Stewardship Policies	No	No	No	Yes	No	No

Legend:

SSA	Included are Supranational, Sovereigns, Government agencies, Municipals, Money Market
Ratings	For all ratings, include 1) Rating, 2) Coverage % and 3) The rating distribution
Weighted Average	For all disclosure factors, the reporting required is weighted average at the index

3.3.2 Detailed minimum disclosure requirement tables

For all disclosure indicators, the % of index portfolio coverage has to be reported.

3.3.2.1 Equity benchmarks (annex I)

ESG themes	Disclosures	Rationale for inclusion	Supporting standards and specifications
Overall ESG	- Average ESG rating (relative to securities covered by ESG research) - Overall ESG ratings of top ten index constituents by weighting in index - Total weighting of index constituents not meeting the principles of the UN Global Compact (conduct-related controversy screen)	Provide investors with further information about portfolio exposure to risks and opportunities not yet fully reflected in the market valuation. Controversy screening based on UN Global Compact is commonly applied in ESG ratings industry.	- ESG rating methodology used - UN Global Compact Principles
Environmental	- Average Environmental rating of index (E component of ESG rating) (relative to securities covered by ESG research) - High emitting sector exposure (% of total weighting) - Carbon intensity - Reported vs estimated emissions (%) - Portfolio exposure to green economy as measured by % of green revenues - Exposure to climate-related physical risks	Sector exposures provides visibility on climate-related transition and technology risks and opportunities captured by the benchmark portfolio. Carbon intensity associated with the index portfolio is commonly used by investors for their own reporting purposes.	- List of high emitting sectors - GHG accounting standard used (GHG Protocol or ISO) - GHG data source and % of reported versus estimated emissions - EU Taxonomy (to determine portfolio exposure to green economy) - Methodology for measurement of the exposure to climate-related physical risks
Social	- Average Social rating of index (S component of ESG rating) (relative to securities covered by ESG research) - Total weighting of index constituents in controversial weapon sector or tobacco - Number of companies in the index involved in social violations	Negative screening for controversial weapons and involvement in the tobacco industry is commonly applied by investors.	- Definition of controversial weapons used - Screening criteria for social violations
Governance	- Governance rating of index (G component of ESG rating) (relative to securities covered by ESG research) - Average degree (%) of board independence - Average degree (%) of board diversity	Corporate governance KPIs are easily quantifiable and well understood by investors and reporting companies.	- Methodology for the calculation of board independence and diversity

3.3.2.2 Fixed Income corporate benchmarks (Corporate Credit Bonds, Corporate Asset Backed Securities and Money Market) (annex II)

ESG themes	Disclosures	Rationale for inclusion	Supporting standards and specifications
Overall ESG	- Average ESG rating of bond issuers (relative to securities covered by ESG research) - Overall ESG ratings of top ten index constituents by weighting in index - Total weighting of index constituents not meeting the principles of the UN Global Compact (conduct-related controversy screen)	Provide investors with further information about portfolio exposure to risks and opportunities not yet fully reflected in the market valuation. Controversy screening based on UN Global Compact is commonly applied in ESG ratings industry.	- ESG rating methodology used - UN Global Compact Principles
Environmental	- Average Environmental rating of index (E component of ESG rating) (relative to securities covered by ESG research) - High emitting sector exposure (% of total weighting) - Carbon intensity - Portfolio exposure to green economy as measured by % of green revenues - % of green bonds in portfolio	Sector exposures provides visibility on climate-related transition and technology risks and opportunities captured by the benchmark portfolio. Total GHG emissions associated with the index portfolio are commonly used by investors for their own reporting purposes.	- List of high emitting sectors - GHG accounting standard used (GHG Protocol or ISO) - GHG data source and % of reported versus estimated emissions - EU Taxonomy (to determine portfolio exposure to green economy) - Green bond standard used (eg ICMA or EU Green Bond Standard)
Social	- Average Social rating of index (S component of ESG rating) (relative to securities covered by ESG research) - Total weighting of index constituents in controversial weapon and tobacco sectors	Negative screening for controversial weapons is commonly applied by investors.	- Definition of controversial weapons used
Governance	- Governance rating of index (G component of ESG rating) (relative to securities covered by ESG research)	Governance considerations in fixed income are applied in a different way than in equities.	

3.3.2.3 Sovereign bond benchmarks (Sovereign Bonds, Supranational Bonds, Municipal Bonds, Government Agency's Bonds and Money Market) (annex III)

ESG themes	Disclosures	Rationale for inclusion	Supporting standards and specifications
Overall ESG	- Average ESG rating (relative to issuers covered by ESG research) - Overall ESG ratings of issuers of top ten index constituents by weighting in index - % by weighting in index of issuer who are signatories of international conventions	The incorporation of ESG considerations in credit ratings is becoming mainstream, and ESG rating of SSA issuers are now calculated.	- ESG rating methodologies used - International conventions used (eg. Ottawa Convention)
Environmental	- Exposure of the index portfolio to climate-related physical risks (based on issuer exposure) - Top 10 and bottom 10 constituents by exposure to climate-related physical risks - Average quality of country / region / municipality response to climate change (based on climate policies, NDCs, per capita emissions, investment in the green economy) - % of green bonds in portfolio	Country commitments under the Paris Agreement and progress against them are publicly available and monitored. Research on climate-related physical risks at country and regional level is getting increasing investor attention (examples are provided opposite). Exposure to climate-related physical risks is well understood, both from a policy and investment perspective.	- Global Climate Risk Index (German Watch) - Environmental performance index (developed by Yale University and Columbia University) - https://epi.envirocenter.yale.edu/ - Environmental Vulnerability Index (developed by UNEP, SOPAC and partners): http://www.vulnerabilityindex.net/ - EU Taxonomy (to determine SSA exposure to green economy) - Green bond standard used (eg ICMA or EU Green Bond Standard)
Social	- Consolidated Social rating - Average human rights performance of the issuers - Average income inequality score - Average performance regarding freedom of expression	Negative screening for controversial weapons is commonly applied by investors.	- Gini coefficient (inequality in income or consumption) – World Bank, OECD. - Universal Human Rights Index (Office of the High Commissioner for Human Rights – OHCHR)
Governance	- Consolidated Governance rating - Average corruption score - Average political stability score - Average rule of law score	Governance indicators for governments are made available by NGOs and other non-commercial sources (eg OECD and World Bank). At the sub-sovereign level, data availability is more limited.	- Corruption Perception Index (Transparency International) - WGI (Worldwide Governance Indicators), source World Bank: http://info.worldbank.org/governance/wgi/#home

3.3.2.4 Commodity benchmarks (annex IV)

ESG themes	Disclosures	Rationale for inclusion	Supporting standards and specifications
Overall ESG	- Breakdown of index portfolio by exposure of the securities to different types of underlying commodity markets (in case of multi commodity indexes)	Awareness of the risk exposure of the underlying commodities to ESG risks can help investors tracking the benchmark or using it as a performance measurement tool to evaluate more correctly the risk/return profile of the associated portfolio.	- UN Global Compact and PRI, "The Responsible Investor's Guide to Commodities", 2011 https://www.unglobalcompact.org/docs/issues_doc/Financial_markets/Commodities_Guide.pdf
Environmental	- Degree of exposure of the underlying commodity markets to climate-related physical risks (low/ moderate / high) - Degree of exposure of the underlying commodity markets to climate-related transition risks and opportunities - Description of the environmental themes relevant to the underlying commodity markets (eg resource depletion, water, healthy ecosystems)	For specific commodities – especially energy related (electricity, oil, natural gas, coal, agricultural commodities associated with biofuels, cobalt, and lithium) – also quantitative evaluations can be carried out based on available models.	- TCFD recommendations for the definition of climate-related physical and transition risks - A list of environmental issues for commodities is provided in UN Global Compact and PRI, "The Responsible Investor's Guide to Commodities", 2011
Social	- Degree of exposure of the underlying commodity markets to social risks (low/ moderate / high) - Description of the social themes relevant to the underlying commodity markets (e.g. human rights, modern slavery, labour standards, land grabbing)	Even a qualitative assessment of the social issues at stake in the underlying commodity market could considerably improve investors' perceptions of the risk/return profile of the index portfolio.	- A list of social issues for commodities is provided in UN Global Compact and PRI, "The Responsible Investor's Guide to Commodities", 2011
Governance	- Degree of exposure of the underlying commodity markets to governance risks (low/ moderate / high) - Description of the governance themes relevant to the underlying commodity markets (e.g. corruption, political instability, income inequality)	Even a qualitative assessment of the governance issue at stake in the underlying commodity market could considerably improve investors' perceptions of the risk/return profile of the index portfolio.	

3.3.2.5 Infrastructure benchmarks (annex V)

ESG themes	**Disclosures** (Significant benchmarks)	Rationale for inclusion	Supporting standards and specifications
Overall ESG	- Portfolio breakdown by different types of infrastructure (eg. public/private, energy, transport, telecommunications, military, social) - Overall level of SDG alignment based on sector breakdown - Total weighting of index constituents not meeting the principles of the UN Global Compact (conduct-related controversy screen)	Awareness of the type of infrastructures tracked by the index can provide greater awareness of the portfolio exposure to ESG risks and opportunities.	- UN Sustainable Development Goals - SDG-alignment taxonomy used - UN Global Compact Principles
Environmental	- Degree of exposure of the portfolio to infrastructure associated with high emitting sectors of the economy as % of total weight in portfolio - Degree of exposure of the portfolio to climate-related opportunities as % of total weight in portfolio	Given the lack of information at the company level, sector exposure can act as a proxy helping to understand the index portfolio exposure to environmental risks and opportunities.	- List of high emitting sectors - EU Taxonomy for definition of climate-related opportunities - Methodology for identifying green revenues or green share of portfolio (EU Taxonomy)
Social	- Degree of exposure of the portfolio to social infrastructure (eg health, education, care homes) as % of total weight in portfolio	Social infrastructure is well defined and understood both from a policy and investment perspective (see work of Prodi Taskforce opposite)	- High-Level Taskforce on Investing in Social Infrastructure in Europe (2018), "Boosting investment in Social Infrastructure in Europe": https://ec.europa.eu/info/sites/info/files/economy-finance/dp074_en.pdf - List of infrastructure categories labelled as social

3.3.2.6 Private equity/debt benchmarks (annex VI)

ESG themes	**Disclosures** (Significant benchmarks)	Rationale for inclusion	Supporting standards and specifications
Overall ESG	- Portfolio sector breakdown - Overall level of SDG alignment as % of portfolio exposure to sector with SDG alignment - Total weighting of index constituents not meeting the principles of the UN Global Compact (conduct-related controversy screen)	Awareness of the type of sectors tracked by the index can provide greater awareness of the portfolio exposure to ESG risks and opportunities.	- UN Sustainable Development Goals - SDG-alignment taxonomy used - UN Global Compact Principles
Environmental	- Degree of exposure of the portfolio to high emitting sectors of the economy as % of total weight in portfolio - Degree of exposure of the portfolio to climate-related opportunities as % of total weight in portfolio	Given the lack of information at the company level, sector exposure can act as a proxy helping to understand the index portfolio exposure to environmental risks.	- List of high emitting sectors - Methodology for identifying green revenues or green share of portfolio (EU Taxonomy)
Social	- % of issuers exposed to controversial weapons industry - Number of companies in the index involved in social violations	Negative screening for controversial weapons is commonly applied by investors. Increased awareness of social imbalances. This information is also used by investors for management risk purposes.	- Definition of controversial weapon used (eg Oslo Convention on Cluster Munitions or Ottawa Convention on Anti-Personnel Mines) - Methodology for the evaluation of social violations

3.3.2.7 Hedge funds benchmarks (annex VII)

	Disclosures (Significant benchmarks)	**Rationale for inclusion**	**Supporting standards and specifications**
Overall ESG	- % of underlying funds managed by UN PRI signatories	Hedge fund portfolios provide very limited look through on underlying investee asset class – therefore disclosures are here set in terms of product governance.	- UN Principles for Responsible Investment (PRI)
Social	- % of underlying funds with controversial weapon policies in place	Negative screening for controversial weapons is commonly applied by investors for management risk purposes.	- Definition of controversial weapon used (eg Oslo Convention on Cluster Munitions or Ottawa Convention on Anti-Personnel Mines)
Governance	- % of underlying funds with stewardship policies in place	Voting policies could be used as a proxy	- Second Shareholders Rights Directive

3.4 FORMAL ASPECTS RELATED TO ESG DISCLOSURES

3.4.1 Availability of ESG information

The ESG disclosure factors described in the previous section – as relevant to the benchmark underlying asset class – should be made publicly and freely available by the benchmark administrator using standard templates, as required by the amending regulation.

The proposed templates for ESG disclosure associated with the benchmark methodology and the benchmark statement can be consulted in Appendix D.

The template for ESG factors in the methodology should be updated every time the benchmark methodology is updated.

The template for ESG factors in the benchmark statement should be updated more frequently, at least on a quarterly basis, as it contains quantitative information related to each index constituent that changes over time. The structure of the template allows for the automation of the updates to the ESG data points.

For ease of reference, the templates populated with ESG information should link to the benchmark statement. For the other – non ESG-related – components of the benchmark statement the same update frequency applies as provided by the relevant delegated acts.

3.4.2 Criteria for the template structure and content

The templates provided in Appendix D should be applicable to all types of benchmarks, and as such are simple and flexible.

By identifying the relevant asset class, the benchmark administrator commits to making reference to the minimum disclosures by asset class as provided in section 3.3. This set of minimum disclosures should be used to populate the templates.

Where a disclosure element associated with the relevant asset class is not applicable or relevant to an understanding of the risks and opportunities associated with the benchmark, the benchmark administrators should clearly flag that the disclosure is “not applicable” and explain why that’s the case.

However, the index administrator can provide additional disclosure if deemed material and decision-useful for investors. For any disclosure – both at the methodology or the benchmark statement level, whether part of the “minimum” set or additional – benchmark administrators are also required to provide a description of the international standards used and information on the data sources used, to ensure global comparability of the benchmark.

3.4.3 Non-disclosure option

The Regulation amending Regulation (EU) 2016/1011 provides that for those benchmarks or families of benchmarks, which are not pursuing ESG objectives, “it shall be sufficient for benchmark administrators to clearly state in the benchmark statement that they do not pursue such objectives”.

There are clear market signs that ESG information is currently expected by investors even when the investment product does not pursue ESG objectives[29].

Therefore, the ESG disclosure template associated with the benchmark statement gives non-disclosure as a last resort option, assuming that investor demand will lead benchmark administrators to disclose ESG factors even if these did not inform the index design in the first place.

3.5 SPECIFICATIONS REGARDING THE PARIS ALIGNMENT OF ALL BENCHMARKS

3.5.1 Description of disclosure requirements

Article 27 of the Regulation amending Regulation (EU) 2016/2011, as agreed between co-legislators, provides that:

1. *For its significant equity and bond benchmarks, the benchmark administrator shall disclose a detailed benchmark statement on whether or not and to what extent an overall degree of alignment with the target of reducing carbon emissions or attaining the long-term global warming target of the Paris Climate Agreement, as per the disclosure rules for financial products in Article 5(3) of ...[PO: please insert reference to Regulation on disclosures relating to sustainable investments and sustainability risks], is ensured.*
2. *By 31 December 2021, all benchmarks or families of benchmarks, with the exception of currency and interest rate benchmarks, should, in their benchmark statement, include an explanation of how their methodology aligns with the target of carbon emission reductions or attains the long-term global warming target of the Paris Climate Agreement.*

The need to align investment portfolios to the objectives of the Paris Climate Agreement is deeply felt in the responsible investment industry but is also impacting the mainstream financial industry. Considerable momentum in this space was determined in 2015 by Article 173 of the French Energy Transition Law, and in 2017 by the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures. Carbon footprints of investment portfolios and scenario analysis are the two emerging practices deriving from these regulatory innovations.

However, to date and at the time this Report was drafted, no broadly accepted and established framework or standard has yet emerged for disclosing an investment portfolio's alignment to a temperature scenario.

3.5.2 Link with EU Paris Aligned Benchmark (EU PAB)

To address the above requirements, it is important to take into account the fact that the Regulation amending Regulation (EU) 2016/1011 introduces a new type of benchmark, the EU Paris Aligned Benchmark or 'EU PAB' (see section 4 of this report for more details).

[29] See for example the ESG disclosures provided by iShares (BlackRock) for all ETFs, regardless of their sustainability or thematic nature.

Benchmarks that comply with the minimum technical requirements set out by the delegated acts to be adopted by the European Commission will be able to label themselves as "EU Paris Aligned Benchmark" and will be also required to disclose the methodology used to measure their alignment temperatures scenarios with no or limited overshoot (see section 5 of this Report for more details).

Furthermore benchmarks that do not comply with EU PAB requirements in the index construction methodology can result ex post in benchmarks that are aligned with the objectives of the Paris Climate Agreement, and should report in the benchmark statements their alignment with the objectives of the Paris Agreement targets.

3.5.3 How to disclose the degree of alignment with the Paris Climate Agreement

When a benchmark meets all the minimum technical requirements for the EU Paris-aligned Benchmark ('EU PAB') or for the Climate Transition Benchmark ('EU CTB'), the benchmark administrator shall:

i) specify to which temperature scenario – consistent with the objectives of the Paris Climate Agreement or not – the benchmark portfolio is aligned,

ii) provide details regarding the methodology used for the measurement of the alignment with a temperature scenario,

ii) provide details (name and provider) regarding the scenario used, and,

iii) provide the link to the scenario used.

When a benchmark does not meet the EU PAB requirements, the benchmark administrator may also disclose the above information.

For disclosure of temperature scenarios, please see section 5 of this Report.

Template 3 in Appendix D summarizes the above disclosures requirements.

3.6 TECHNICAL ADVICE ON MINIMUM ESG DISCLOSURE REQUIREMENTS ON BENCHMARKS

The section below summarizes the minimum ESG disclosure requirements discussed in this report, using legal language.

Article 1: Minimum information to be included in the methodology and in the benchmark statement

1. Benchmark administrators shall disclose the ESG information in accordance with the relevant annexes.

2. Benchmark administrators shall explain if the disclosed ESG information is used for ex-ante benchmark construction, or to improve ESG transparency only, and whether the ESG benchmark information and criteria used to construct an index are considered financially material or immaterial.

3. All information as referred to annex I to VII shall be published as an aggregated, weighted average value at the benchmark level.

4. For each information as referred to annex I to VII, benchmark administrators shall report the percentage of index portfolio coverage.

5. Where a disclosure element associated with the relevant asset class is not applicable or relevant to an understanding of the risks and opportunities associated with the benchmark, the benchmark administrators shall clearly indicate that the disclosure is “not applicable” and explain why that is the case.

6. Benchmark administrators may include additional ESG information in its methodology and benchmark statement if deemed material for investors to take an investment decision.

Article 2: Equity benchmarks

For equity benchmarks, the methodology and the benchmark statement shall contain the information referred to in annex I to this regulation in accordance with the templates referred to in the tables set out in Appendix D.

Article 3: Fixed income corporate benchmarks

For fixed income corporate benchmarks, the methodology and the benchmark statement shall contain the information referred to in annex II to this regulation in accordance with the templates referred to in the tables set out in Appendix D.

Article 4: Sovereign bond benchmarks

For sovereign bond benchmarks, the methodology and the benchmark shall contain the information referred to in annex III to this regulation in accordance with the templates referred to in the tables set out in Appendix D.

Article 5: Commodity benchmarks

For commodity benchmarks, the methodology and the benchmark statement shall contain the information referred to in annex IV to this regulation in accordance with the templates referred to in the tables set out in Appendix D.

Article 6: Infrastructure benchmarks

For private equity and debt benchmarks the methodology and the benchmark statement shall contain the information referred to in annex V to this regulation in accordance with the templates referred to in the tables set out in Appendix D.

Article 7: Private equity and debt benchmarks

For infrastructure benchmarks the methodology and the benchmark shall contain the information referred to in annex VI to this regulation in accordance with the templates referred to in the tables set out in Appendix D.

Article 8: Hedge funds benchmarks

For hedge funds benchmarks, the methodology and the benchmark statements shall contain the information referred to in annex VII to this regulation in accordance with the templates referred to in the tables set out in Appendix D.

Article 9: Update of the methodology

1. Template 1 referred to in Appendix D shall be updated every time the benchmark methodology is updated.

2. Template 2 referred to in Appendix D shall be updated at least on a quarterly basis.

3. Template 1 referred to in Appendix D shall link to the benchmark statement.

Article 10: Disclosure of the Paris alignment

1. Where a benchmark meets all the minimum technical requirements for the EU Paris-aligned Benchmark ('EU PAB') or for the Climate Transition Benchmark ('EU CTB'), the benchmark administrator shall:

i) specify to which temperature scenario – consistent with the objectives of the Paris Climate Agreement or not – the benchmark portfolio is aligned,

ii) disclose the methodology used for the measurement of the alignment with a temperature scenario,

ii) disclose the name of the scenario and provider and its provider, and,

iii) provide the link to the scenario used.

2. In case a benchmark does not meet the EU PAB requirements, the benchmark administrator may also disclose the information as referred to in paragraph 1.

3. Benchmark administrator shall use the template 3 in Appendix D to disclose the information as referred to in paragraph 1.

3.7 AREAS FOR FURTHER WORK

3.7.1 Alignment between benchmark disclosures and the "Regulation on sustainability-related disclosures in the financial services sector"

The agreement reached by the Council and the European Parliament on the so called Disclosures" regulation a couple of weeks after the regulation amending Regulation (EU) 2016/1011 has significantly changed the context in which the regulation discussed in this report was developed. Firstly, the Regulation on disclosures relating to sustainable investment and sustainability risks provides a new definition of sustainable investment, which supersedes the "ESG" language that permeates the regulation discussed here and is "impact-based", as it links sustainable investment to economic activities that pursue either an environmental or social objective and do no "significant" harm

in other areas. Secondly, the regulation requires investors to report on any "adverse impacts" of their investment decisions on sustainability factors, where "sustainability factors" are defined as the list of "matters" on which reporting is required by the Non-financial Reporting Directive. The text also requires financial market participants which offer a fund targeting sustainability objectives to disclose what these objectives are and the methodologies used to assess, measure and monitor progress against these objectives. In addition, they will have to disclose if an index, sustainability index or mainstream index, has been designated as a reference benchmark, whether and how it is consistent with the sustainability objectives of the fund. Since benchmarks play an important role in product disclosures under this directive, it is recommended that once the Joint Committee has developed the delegated acts supporting the disclosures regulation, the Commission reviews the recommendations included in the delegated acts supporting the regulation discussed here to ensure that benchmark disclosures align as far as possible with the needs of investors under the disclosures regulation.

3.7.2 Alignment with the proposed EU Classification System of Sustainable Activities ("EU Taxonomy")

In this report there are many references to the proposed 'EU Taxonomy', as the basis of a series of disclosures that capture the opportunities deriving from the transition to a low-carbon economy. Once the EU Taxonomy has been finalized, it should be further leveraged in benchmarks disclosures to bring additional rigour and comparability to the disclosures recommended here. In particular, wherever sector breakdowns or "green revenues or shares" are recommended, reference to the actual features of the finalized EU Taxonomy will allow for greater precision in the description of the expected disclosure indicators. This recommendation is in line with the provision of the amending regulation that states that "*by 31 December 2022, the Commission shall review the minimum standards of the benchmarks referred to in Article 23a and 23b in order to ensure that the selection of the underlying assets is coherent with environmentally sustainable investments as defined by a Union-wide framework*."

3.7.3 Integration ESG considerations into investment advice under MiFID II and IDD ("suitability test")

Following the agreement on the definition of sustainable investment in the EU as part of the disclosures regulation, the delegated acts to MiFID II and the Insurance Distribution Directive with regards to integration of sustainability consideration into investment advice[30] can now be rolled out. As is the case with the regulation discussed in this report, the language of the delegated acts requires aligning with the spirit and terminology now adopted by the disclosures regulation. But more importantly, given the role that benchmarks play in investment product marketing and pre-contractual information, it's very important that any lessons learnt from the implementation of the suitability test with sustainability considerations can be factored in to ensure that benchmark disclosures as proposed here are fit for the purpose of providing retail investors with clarity regarding the real performance – both financial and sustainability-related – of the investment products they have been advised to purchase based on their sustainability preferences.

[30] The text of the delegated act is available at http://ec.europa.eu/finance/docs/level-2-measures/mifid-delegated-act-2018_en.pdf

3.7.4 ESMA's technical advice on fiduciary duty to European Commission

Upon the European Commission's request, on 3 May 2019 ESMA published its technical advice[31] on the integration of ESG consideration with regard to investment firms and investment funds, into the Markets in Financial Instruments Directive II (MiFID II), the Alternative Investment Fund Managers Directive (AIFMD) and the Undertakings in Collective Investment in Transferable Securities (UCITS) Directive. The two new types of climate benchmarks and the disclosures requirement introduced by the regulation discussed in this report are particularly relevant for all the recommendations that in ESMA's technical advice concern the area of product governance. When reviewing the regulation, it is recommended to the Commission to take into account the role that benchmarks play in product governance where UCITS, alternative investment funds and investment services are concerned.

[31] The reports are available at https://www.esma.europa.eu/press-news/esma-news/esma-submits-technical-advice-sustainable-finance-european-commission

4- EU CTBS / EU PABS specific disclosures and measures to prevent greenwashing

4.1 DISCLOSURES ASSOCIATED WITH THE EU CLIMATE TRANSITION BENCHMARK AND THE EU PARIS-ALIGNED BENCHMARK

Specific disclosures are required for the climate benchmarks introduced by the regulation amending Regulation (EU) 2016/1011 (as specified in the Annex). The table below summarizes these disclosures. Mandatory disclosure are listed first followed by voluntary disclosures.

Table 4: Disclosures associated with EU Climate Transition Benchmark (CTB) and EU Paris Aligned Benchmark (PAB)

EU CTB or EU PAB	Required disclosures based on Annex III of Regulation amending Regulation (EU) 2016/1011	Where to disclose	Further specifications
Mandatory disclosure requirements			
EU CTB & EU PAB	All criteria and methods, including selection and weighting factors, metrics and proxies used in the benchmark methodology	Methodology document	
EU CTB & EU PAB	The exclusion criteria based on climate-related or other ESG considerations	Methodology document	Exclusions could be either sector, activity or company based
EU CTB & EU PAB	Carbon intensity of the index (scope 1+2+3 phased in);	Benchmark statement – ESG disclosure template	Guidance on GHG calculation are provided in section 5.3
EU CTB & EU PAB	Disclosure of Year-on-Year decarbonization trajectory, base year for calculation and achieved GHG emissions trajectory of the benchmark since creation	Methodology document	For guidance on the minimum requirements for the alignment with a decarbonisation trajectory please see section 5.5
EU CTB & EU PAB	The degree to which the IPCC decarbonisation trajectory (1.5°C with no or limited overshoot) has been achieved on a year on year basis since creation	Benchmark statement– ESG disclosure template	
EU CTB & EU PAB	The type and source of data used to determine the decarbonisation trajectory, including: (i) Scope 1 emissions. (ii) Scope 2 emissions, (iii) Scope 3 emissions, in particular for sectors with high impact on climate change and its mitigation, (iv) whether the data uses the EU Product and	Methodology document	Guidance on GHG emissions are provided in section 5.3

EU CTB or EU PAB	Required disclosures based on Annex III of Regulation amending Regulation (EU) 2016/1011	Where to disclose	Further specifications
	Organisation Environmental Footprint methods, or, global standards such as TCFD		
EU CTB & EU PAB	Qualitative Comment on Climate Tail Risks (i.e. downside deviations from the expectation with particular focus on tail risks)	Methodology document	See Appendix A for further details on the assessment of downside risks
EU CTB	Measure of overlap between the EU CTB and its parent index (asset-level calculated active share)	Benchmark statement – ESG disclosure template	
Voluntary disclosure requirements			
EU PAB	Measure of overlap between the EU CTB and its parent index (asset-level calculated active share)	Benchmark statement – ESG disclosure template	

4.2 PREVENTING GREENWASHING

The suggested recommendation on minimum requirements for EU CTBs and EU PABs derive from the mandate included in the Regulation amending Regulation (EU) 1011/2016 to prevent the risks of 'greenwashing': “The common standards for climate benchmarks would seek to address the risk of 'greenwashing', whereby all low-carbon indices are being equally promoted as environmentally relevant despite having different characteristics. In addition, different levels of ESG transparency in the methodology make it difficult for market players to compare indices in order to choose the adequate benchmarks for their investment strategy”. [32]

Generally, we define 'greenwashing' in the context of benchmarks as a misalignment with the stated investment objective of pursuing ambitious climate goals. More specifically, 'greenwashing' in this context can be illustrated through the following cases:

Table 5: Examples of greenwashing

Greenwashing challenge	Examples	Proposed solutions
Incomplete or inappropriate use of corporate issuer CO_2 data	Penalizing more carbon transparent companies through underweighting Overall reduction in scope 1+2 emissions while significant increase in scope 3	Provide key rules on climate benchmarks input data (data quality disclosure and verification), including the accounting of scope 1, 2 and 3 GHG emissions

[32] Source: https://ec.europa.eu/transparency/regdoc/rep/1/2018/EN/COM-2018-355-F1-EN-MAIN-PART-1.PDF

Reduced exposure to opportunities / green solutions and overweight of sectors with no impact on climate change	Exclusion or underweighting of only a few highly carbon intensive sectors (O&G, utilities, transportation) and/or only a few highly emitting constituents from the parent benchmark	Include allocation constraints based on sectors' potential impact on climate change

5- EU Climate Transition and EU Paris-aligned Benchmarks

5.1 DESCRIPTION OF CLIMATE BENCHMARKS

5.1.1 Definition of EU Climate Transition and EU Paris-aligned Benchmarks

The EU Climate Transition Benchmarks (EU CTBs) and EU Paris-aligned Benchmarks (EU PABs) are benchmarks as defined by the Regulation amending Regulation (EU) 2016/1011 (the 'Benchmark Regulation').

In accordance with the amending regulation, an EU CTB means a '*benchmark that is labelled as an EU Climate Transition Benchmark where the underlying assets are selected, weighted or excluded in such a manner that the resulting benchmark portfolio is on a decarbonisation trajectory and is also constructed in accordance with the minimum standards laid down in the delegated acts*'.

An EU PAB means a '*benchmark that is labelled as an EU Paris-aligned Benchmark where the underlying assets are selected in such a manner that the resulting benchmark portfolio's GHG emissions are aligned with the long-term global warming target of the Paris Climate Agreement and is also constructed in accordance with the minimum standards laid down in the delegated acts'*.

Users of EU PABs are investors that have as objective the idea of a significant impact on climate change mitigation through a shift of their investment allocation from GHG intensive activities - notably fossil fuels - to renewable energy and energy efficiency.

Therefore, EU CTBs can be perceived as tools to "accompany" the transition to a low-carbon economy while EU PABs can be perceived as tools for investors with the willingness to be at the forefront of the transition, favouring today the players of tomorrow's economy.

5.1.2 Issuers and asset classes in scope of climate benchmarks minimum requirements

This report recommends reassessing the sovereign index eligibility rules in the first review of the EU CTBs and EU PABs post-2020 in line with the developments in relation to the Paris Climate Agreement. As of this report, corporate issuance-based indices (i.e. listed equity and corporate fixed income securities) are in scope, while sovereign-based issuance indices and private market indices are not yet in scope. The reason for excluding the latter is a lack of data to assess the carbon footprint resulting from decisions made by the relevant investable entity.

Furthermore, sector or activity-specific indices differentiate themselves from 'traditional' benchmarks by an absence of diversification across different sectors of the economy. 'Cleantech' indices have emerged during the past years, with the objective of providing investors with a tool that primarily focuses on solutions to the energy transition in a specific sector. An example for this type of indices would be electric utilities producing electricity almost entirely based on renewable energy sources. While these indices are obvious tools to help in the financing of the energy transition, several minimum

standards suggested in this report are irrelevant in this context, in particular the green to brown share ratio increase and the minimum exposure to sectors with potential high impact on climate change. The TEG therefore suggests that this type of indices are not in the scope of EU CTBs and EU PABs **for the moment** and recommends this rationale to be examined again during the review process detailed in the following section of the report.

5.2 USE CASES AND OBJECTIVES

The objectives pursued by users of climate benchmarks can be split into two main categories.

1. Risk objective: The risk reduction objective has historically been the main driver for the creation of benchmarks incorporating carbon or climate-related data. Literature around climate-related financial risks for investors has widely documented the notion of *stranded assets*.[33] The rationale behind the willingness of investors to reduce their exposure to business models that rely on high levels of proven or probable fossil fuel reserves is that a potentially significant share of these reserves will not be burnt or used if the world economy has to stay within a limited carbon budget, in line with the global objective to keep the rise in average temperature well below +2°C. The contribution of these reserves to companies' financial valuation can therefore be considered as overestimated, leading to significant risks for investors (i.e. extreme losses).[34] The debate around stranded assets, in particular coal and tar sands, has been the basis for several *divestment campaigns,* where concerned students have for example pushed universities' endowments to cut partly or entirely their investments in fossil fuels or large institutional investors have divested to limit their risk exposure.

The risk objective is however not only related to the risk of stranded assets, but to all *transition and physical risks* as defined by the TCFD:

- Policy and legal risk: for example risks related to changes in the regulatory framework like carbon pricing mechanisms or policy and legal risks related to litigation claims.
- Technology risk: impact on organizations of technological evolutions in a context of transition to a low-carbon economy.
- Market risk: changes in supply and demand between different actors of the economy.
- Reputation risk: this risk can affect investors directly or indirectly through the issuers of financial assets, for examples through *name and shame* campaigns by NGOs or consumer organizations. Institutional investors carried significant losses from incidents relating to firms such as BP or VW, at least in part due to the reputation component.
- Physical risk: for example the tail risk of significant damage due to increasing erratic and potentially catastrophic weather phenomena such as droughts, wildfires, flooding or storms.

2. Opportunity objective: Climate benchmarks are not only designed to reduce the exposure to climate related financial risks, but also to increase the share of investments in climate-related opportunities. These broadly include products and services related to renewable energy and energy efficiency which are both necessary to the energy transition.

[33] See https://www.sciencedirect.com/journal/energy-economics/vol/52/part/PA

[34] See https://www.sciencedirect.com/science/article/pii/S0301421515301907 or https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3317570

5.3 GREENHOUSE GAS (GHG) DATA

5.3.1 State of the art on carbon footprint

Although Greenhouse Gases are not the only source of environmental impact, limiting – and decreasing – the emissions is the most important challenge in the short term to tackle climate change and contain the rise in average temperatures to (well) below 2°C (United Nations Framework Convention on Climate Change (UNFCCC) 2015). Thus, emissions are the key indicator to assess a company's exposure to climate risks. In a life-cycle approach, the exposure of a company to climate risks is not only a function of its internal manufacturing processes but also of the raw materials it uses, the quantity and nature of the energy it consumes (inputs) and finally the products and services it sells to its customers (outputs). The measure of GHG emissions is called 'carbon footprint'.

The GHG Protocol[35] identifies three types of GHG emissions:

1. Scope 1 emissions: All direct GHG emissions;

2. Scope 2 emissions: Indirect GHG emissions from consumption of purchased electricity, heat or steam;

3. Scope 3 emissions: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. transmission and distribution losses) not covered in Scope 2, outsourced activities, use of sold products, waste disposal, etc. There are existing international and European standards on the matter, i.e. ISO 14064 on standards for greenhouse gas accounting and verification, and the Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF), that could serve for the calculation of scope 3 emissions.

5.3.2 Technical advice on carbon footprint

First, administrators of EU Climate Transition and of EU Paris-aligned Benchmarks should ensure the consistency, the comparability and the quality of GHG emissions data.

In addition, administrators of EU Climate Transition and of EU Paris-aligned Benchmarks should ensure that data on all three scopes of emissions is obtained prudentially and is accurate according to the GHG Protocol or ISO 14064 and ISO 14069.

It is important that administrators of EU Climate Transition and of EU Paris-aligned Benchmarks consider Scope 3 emissions for sectors with high stakes regarding climate change and its mitigation (e.g. oil & gas, mining, transportation and buildings, agribusiness).

Where an administrator of EU Climate Transition and of EU Paris-aligned Benchmarks uses estimations, it should disclose the methodology upon which the administrator has based its estimates (i.e. whether it has used a bottom-up or a top-down approach to calculate GHG emissions, the main assumptions and the precautionary principles underlying them, the research methodology to estimate

[35] See Greenhouse Gas Protocol at https://ghgprotocol.org

missing, unreported, and underreported GHG emissions, and, the external data sets used in the estimation of missing, unreported or underreported GHG emissions). However, in case the benchmark administrator uses an external GHG data provider for estimated data, it should be exempted from this requirement, but transparency is still required as far as possible.

5.3.3 Technical advice on the calculation of carbon intensity

Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks should disclose the financial metric used to normalize GHG emissions in a given currency. These normalized emissions are needed to compute carbon intensity measures.

Generally, benchmark B composed with N assets has a carbon intensity of:

$$Carbon\_Intensity_{tot}(B) = \sum_{i=1}^{N} Carbon\_Intensity_{\text{tot}}(i) \,.\, w_i$$

Where

$$Carbon\_Intensity_{tot}(i) = \frac{GHG_{\text{tot}}\,(i)}{Financial\ metric\ (i)}$$

is the total carbon intensity of asset i in tCO_2e/year/M€ for which scopes 1, 2 and 3 emissions are accounted for and "w_i" is the weight of asset i in the benchmark/index. The currency can change but it needs to be the same for all assets in the index.

The calculation of an index' carbon intensity should be performed using average weights on a quarterly basis to avoid window dressing phenomena.[36]

Regarding the financial metric, different approaches are already used:

- Flow financial metrics: the revenues for corporates and the GDP for sovereigns;
- Stock financial metrics: the market cap and enterprise value for corporates and the amount of issued debt for sovereigns;
- Accounting metrics: total capital as sufficiently constant denominator which can be used across asset classes.

The TEG believes that using revenues as denominator in the calculation of the carbon intensity allows for the assessment of the ability of corporations to decarbonize their business, generating less GHG emissions per unit of revenue.

Market capitalization as a denominator for carbon intensity is only relevant in the case of equity indices. Therefore, administrators of EU Climate Transition and of EU Paris-aligned Benchmarks should use the Total Capital, which encompasses both equity capital and debt. Total Capital is defined as the sum of the book values of common stock, preferred equity, long term debt and minority interest.

[36] The window dressing phenomena in this case describe a situation where the index provider choses a certain date during the year (likely end of December) to calculate carbon intensity, while performing the same calculation using average weights over the year would result in greater carbon intensity.

Using Total Capital as a denominator for the carbon intensity allows for the applicability of the methodology to both equity and fixed income investments. The TEG explicitly uses the book values instead of market values for the definition of Total Capital, as market effects can significantly affect this indicator and create misleading results. As an example, if the valuation of a company changes significantly, leading its market values to rise, this would result in significantly lower GHG intensity even with no particular change regarding its absolute GHG emissions. The TEG does not use common definitions of Enterprise Value, as adjustments for cash or pension liabilities appear irrelevant to the task of scaling GHG emissions.

Table 6: GHG intensity calculation by use case

Use case	Metric
Reporting (refer to disclosure section)	tCO_2e/M€ total capital or tCO_2e /M€ revenue
Comparison with investment universe or underlying parent index	tCO_2e/M€ total capital
Year-on-Year self-decarbonization	tCO_2e/M€ total capital

5.3.4 Phase-in of Scope 3 GHG emissions

Ideally, Scope 3 data should be used across every sector. However, the current state of Scope 3 data makes it complicated to set quantified thresholds at the time of writing this report. To avoid any counterproductive results in the way EU CTBs and EU PABs are designed, especially through high exposure to assets contributing to important indirect emissions, the following requirements are put forward. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks should include Scope 3 emissions data in the index construction methodology in an incremental way:

Table 7: Scope 3 data phase-in periods

Period considered	Sectors considered	Suggested metric to be used by order of priority	Potential reduction target
At the date of implementation	At least energy (O&G), mining	Scope 3 emissions Fossil fuel reserves (volume or revenue data)	30% for CTBs 50% for PABs
Two years after implementation	At least transportation, buildings, materials, industrial activities	Scope 3	30% for CTBs 50% for PABs

Four years after implementation	Every sector	Scope 3	30% for CTBs 50% for PABs

The TEG wishes to further clarify the following points with respect to Scope 3 data:

- Given the current state of corporate Scope 3 GHG reporting, administrators of EU Climate Transition and of EU Paris-aligned Benchmarks or their data providers will likely have to estimate Scope 3 data for the foreseeable future, using alternative methods focused on products (downstream) and supply chain (upstream);

- Using these alternative methods implies that less firm specific information is included in Scope 3 GHG estimations than in Scope 1 or 2 estimations. Hence, variations between similar firms will largely result from variations in the products and activities they trade in.

Consequently, the effectiveness and efficiency of corporate decision making with respect to upstream and downstream Scope 3 emissions and consequential intensity reductions may only gradually find their way into climate benchmarks, as administrators of EU Climate Transition and of EU Paris-aligned Benchmarks and other investors engage firms to substantially increase the volume and quality of its Scope 3 GHG emissions reporting.

5.3.5 Management of double counting

While double counting does not represent an issue at company level, where the same ton of CO_2 can only be counted once, the phenomenon appears as soon as several companies from various sectors are considered together.

To give a simple example, delivering mail with trucks fuelled by gasoline generates GHG emissions into the atmosphere. These emissions will be accounted once in the Scope 1 of the post company, and twice in the Scope 3 of both the trucks manufacturing company and the company extracting and refining oil to provide gasoline.

There are very complex ways to manage double counting issues already used in some cases. These include notably the share of added value by player in the value chain of the product to split the emissions accordingly. Understanding double counting is very important. However, in the case of diversified investment strategies across almost all sectors of the company, double counting happens everywhere, especially with a continuous integration of Scope 3 emissions over time – which will lead to triple counting.

In the context of this Report and with the particular emphasis put on the risk reduction objective of investors using climate benchmarks, the TEG does not particularly recommend any management of double counting. Indeed, the same amount of emissions can be considered as a proxy – even if very imperfect – for financial risks related to climate change even if counted several times. Also, decarbonizing an investment is always a 'relative' exercise, be it relative to an investment universe – parent benchmark – or relative to itself – self-decarbonization. As soon as the same assumptions are applied, double counting does not represent an issue when decarbonizing. Reducing overall

emissions including Scope 3 with no management of double counting therefore serves both the needs of global decarbonization and risks reduction objectives from investors.

5.3.6 Technical advice on carbon intensity for climate benchmarks

With respect to total GHG intensity (combined Scopes 1, 2, 3 according to the phase-in), the TEG recommend requiring the following reduction thresholds:

- Minimum reduction of 30% of GHG intensity calculated with total capital at index level compared to the investable universe for EU CTBs
- Minimum reduction of 50% of GHG intensity calculated with total capital at index level compared to the investable universe of all relevant sectors and/or geographies for EU PABs

The reduction targets have been defined after consultations and roundtables with asset managers, index providers and asset owners. They have all confirmed the relevance of such a target for practitioners.

5.4 TECHNICAL CHALLENGES

Benchmark administrators have been developing a wide range of indices aimed at capturing climate considerations more specifically. However, their significance in overall portfolio allocation has remained limited.[37]

These benchmarks, usually described as “low-carbon benchmarks”, have seen limited adoption by the market because:

(i) These benchmarks do not always reflect investment beliefs and constraints of institutional investors.
(ii) There is a lack of harmonization and clarity on objectives and methodologies.
(iii) The underlying GHG emissions data is not yet sufficiently harmonised, despite various initiatives aiming at solving this issue.

The requirement for EU CTBs and EU PABs to include in their weighting methodologies elements related to the decarbonization trajectories of companies issuing underlying assets brings further technical challenges to the construction of these benchmarks. The ability of a company to set itself targets in line with a given decarbonization trajectory, to report on these targets and to continuously follow the trajectory is called “target setting”. Target setting goes one step further compared to footprinting. Setting ambitious, science-based decarbonization targets at corporate level not only implies the above-mentioned barriers and difficulties but other methodological barriers as well:

i) The consistency of the reference scenario used to calculate emissions reduction targets
ii) The ability to treat sectors or activities not covered by emissions scenarios
iii) The ability to treat companies involved in various sectors with different emissions scenarios or only partially covered by emissions scenarios

In addition to methodological challenges, there are also operational challenges around target setting for benchmark administrators.

[37] For example: ESG Indices account for less than 1% of the total AUM benchmarked to MSCI indices.

The first one is how to assess the credibility of the issuer's target: is the target ambitious enough to be in line with a decarbonation trajectory compatible with the Paris agreement. The second challenge is: even if the target is correctly set, does the company report a sufficiently accurate carbon footprint to be able to achieve it?

For the benchmark administrator, another challenge will be to find enough assets that have credible targets, have the means to achieve them so that the resulting financial product has characteristics acceptable for the market, especially in terms of number of underlying and turn over.

The inclusion of these targets in the weighting methodologies of newly created climate benchmarks therefore involves several new concepts like *carbon budgets and climate trajectories, target setting based on reference scenarios, activity constraints and greenwashing* (in the vocabulary around climate benchmarks). The following sections aim to explain these concepts as well as the relevant minimum standards for climate benchmarks.

5.5 CARBON BUDGETS AND CLIMATE TRAJECTORIES

5.5.1 Overview of scenarios and trajectories

As of 2017, the climate has warmed by approximately 1°C relative to preindustrial averages (IEA, 2018). Going forward, the best-case scenario to avoid irreversible, severe negative impacts is to stabilize long-term, global temperature rise at less than 2°C relative to preindustrial averages. This would require immediate and severe emissions cuts.

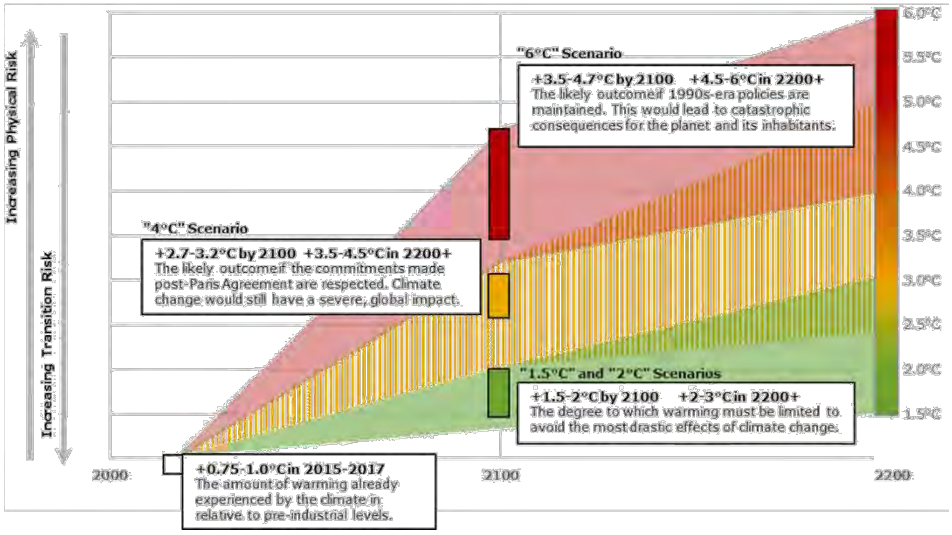

Figure 1: Climate scenarios and long-term stabilization

Notes: All temperatures are global average surface temperatures relative to pre-industrial averages (1850-1900). This means that some areas will experience greater warming than others: the Arctic, for example, has already warmed by +2.5-3°C, while some small areas of the Pacific Ocean have dropped in temperature (Berkeley Earth, 2018). The bars at 2100 and 2200 represent "likely" zones, according to the International Energy Agency and Intergovernmental Panel on Climate Change. Source: Mirova / (IPCC, 2014) / (IEA, 2017)

The Paris Agreement states that signatories agree to follow emission pathways consistent with holding the change in global average temperature to well below +2 °C above pre-industrial levels and pursuing efforts to limit the temperature change to +1.5 °C above pre-industrial levels (UNFCCC, 2015).

The last IPCC report[38] provides 6 categories of emissions pathways; 4 categories that meet the 1.5°C and 2 categories that meet the 2°C goals by 2100, where differences depend on the allowance of an "overshoot" and different probabilities of meeting the temperature goal. If a pathway allows for a temporary overshoot of the carbon budget, it means it relies on large-scale deployment of carbon dioxide removal (CDR) measures, which are uncertain and entail clear risks (Rogelj et al, 2018, p.95). As the IPCC is considering 1.5°C emissions pathways, the TEG recommends using a 1.5°C pathway for the alignment with the Paris Agreement. Based on the Precautionary Principle (UN Rio Earth Summit, 1992, Paragraph 15), we propose the following pathway as consistent with the Paris Agreement:

- "1.5°C with no or limited overshoot" – this is consistent with the scenario used as a basis for the IPCC Special Report on Global Warming of 1.5°C (Table 2.1, Rogelj et al., 2018, see also Appendix B).

There is no consensual methodology on the market to ensure the alignment of benchmark with a climate scenario. There are mainly to categories of methodologies:

- Technological alignment methodologies that will refer to a technical scenario and assess if the technological solutions are represented in a satisfying proportion. For examples, the share of electric cars manufacturing has to be in line with a scenario.
- Emissions dynamic assessment, measuring if the direct, indirect emissions and emissions savings lead to pathways compatible with climate trajectories.

In order to leave space for innovation in this field, the TEG recommends a minimum requirement that will, year after year, imply the reduction of the investments' carbon intensity. Thus, this report defines "alignment" in the context of benchmarks and climate scenarios using the following rationale: a benchmark is considered aligned with a given climate scenario if its own decarbonatization pathway, meaning the year on year reduction of its carbon intensity is in line with the scenario.

The IPCC "1.5°C with no or limited overshoot" scenario provides the total worldwide emissions and the approach could potentially be refined by sectors/geography. However, as corporates eligible to the inclusion in climate benchmarks often operate worldwide, the use of local scenarios becomes irrelevant in most cases. Not every sector can be subject to an emission pathway, which leads to gaps when assessing the climate performance of diversified investments. Considering that a diversified benchmark represents a proxy of the listed economy, the global decarbonization objective of IPCC's most ambitious scenario can be used to drive the emissions reduction of the benchmark as a first approximation.

The continuous integration of Scope 3 GHG emissions into benchmarks' GHG intensity calculations allows for emission reductions of Scopes 1+2 of unlisted corporates and non-corporate actors, likes households, that are – by definition – not included as constituent of climate benchmarks. One example

[38] Special report "Global Warming of 1.5°" - also referred to as SR15 - published in November 2018, , available at https://www.ipcc.ch/sr15/

is IC cars owned by households, whose emissions related to usage are accounted in the scope 1 of households but also in the scope 3 of car manufacturers.

Carbon footprinting assesses for CO_2 emissions, but also for other Kyoto GHG emissions. Thus, the reference pathway we will use to determine the yearly decarbonization will be the Kyoto GHG pathway, which is the next figure.

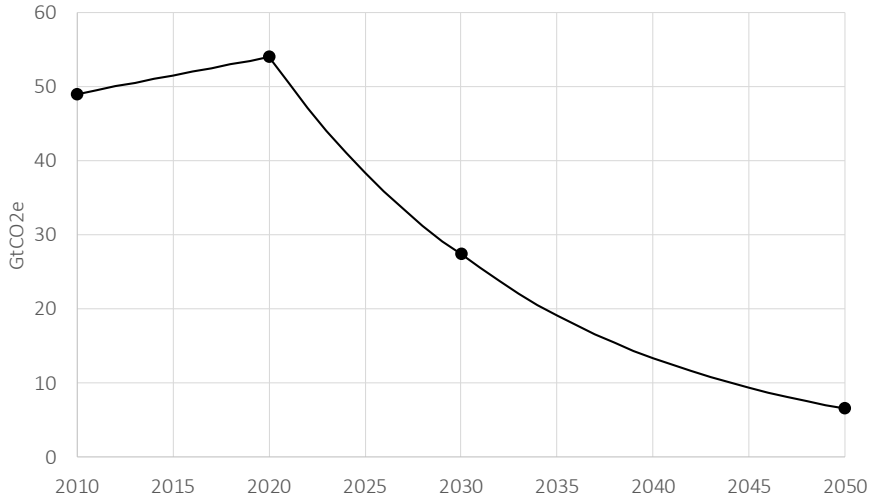

Figure 2: Worldwide emissions trajectory, based on data from IPCC AR5 Climate Change 2014 Synthesis Report, IPCC SR15 report Chapter 2 and Global Carbon Budget, 2018

The resulting yearly decarbonization rate is -7%. The points are calculated with scientific data (IPCC and IEA for past and current emissions, IPCC for future emissions), and the trajectory uses a simple geometric progression, justified by the fact that no technological breakthrough will reduce worldwide emissions at a point in time, but a sum of several actions leading to the reduction of emissions will occur continuously in time, and the fact that the first reductions are easier and cheaper than the last ones, thus an annual constant decrease rate applies.

Current carbon footprints assess only for gross induced emissions into the atmosphere. New practices should assess for gross induced emissions on the one hand and stored emissions on the other hand to encourage the reduction of emissions and the developments of sinks, but not the net emissions that could lead to high overshoot of GHG emissions.

Practically, this means that the index provider will calculate the GHG intensity of its benchmark on the first year and will have to calculate the benchmark's emission intensity trajectory the index shall be compliant with to qualify for the EU PAB or EU CTB label. This is illustrated by the next figure.

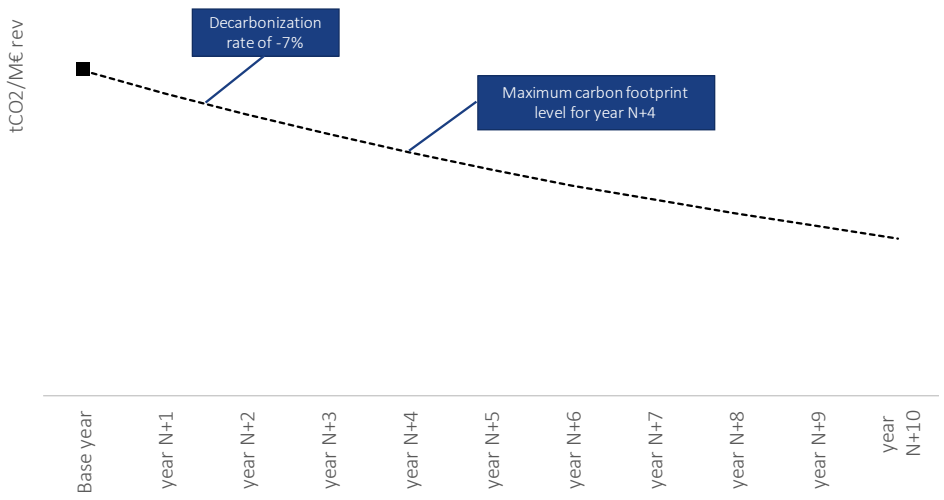

Figure 3: Year-on-year decarbonization trajectory of a climate benchmark

The GHG intensity used for this purpose has to be calculated with total capital as the financial denominator.

5.5.2 Technical advice on dynamic decarbonization for climate benchmarks

Considering that the Paris Agreement emissions reductions should apply to absolute GHG emissions, and that we can only work on GHG intensity, the level of decarbonization should be increased if inflation occurs. Otherwise, a price effect could lead to a reduction of the $tCO_2e/€_{rev}$ ratio without any efficiency. If the yearly inflation is equal to Inf%, then de decarbonization rate should be:

$$1 - (\frac{1 - 7\%}{1 + Inf\%})$$

Any significant change of the GHG emissions calculation methodology, for example the Scope 3 phase-in, requires a new base year with the new data.

5.5.3 Remediation procedure

If an index misses its trajectory target in a given year, the following remediation procedure commences:

- In the year of the target miss, the benchmark administrator has to explain the reason for the miss and list all the steps that will be taken to ensure that the adjusted target for next year (i.e. the target based on the original trajectory) is achieved.
- If the index does not make the adjusted target in two consecutive years, it should be disqualified and loses the right to use the EU label.
- Indices should also be disqualified if they miss their trajectory target on three occasions in any consecutive 10-year period.

5.6 TARGET SETTING FOR COMPANIES BASED ON REFERENCE SCENARIOS

Before COP21, target setting for companies was performed with a bottom-up approach: evaluating the impact of all possible actions that could reduce GHG emissions to determine the possible level of emissions to be achieved in the coming years. A new way of setting targets has been developed, notably by the Science Based Target initiative (SBTi) that has a normative approach, identifying : the level of emission reductions a company needs to achieve to be in line with a given temperature scenario – usually a 1.5°C or 2°C scenario. The challenge here is, however, that an individual firm may or may not be operating in a 1.5°C aligned economy depending on factors not under its control. In other words, while diversified portfolios including securities from all relevant sub-sections of the economy can claim alignment, since they represent self-sufficient economies in themselves, it is conceptually complex to make such a claim for an individual firm.

Furthermore, target setting is only the first step towards a company's alignment – or the second step after reporting an accurate Scope 1, 2 and 3 carbon footprint – but it is not enough in itself, as achieving these normative targets represents a massive challenge for most companies.

Another initiative has started doing research on broader assessment of the alignment of a company: Assessing low-Carbon Transition (ACT). It provides a methodology to assess the overall ability of a company to effectively start its transition to a low-carbon economy. The output of this methodology is a score reflecting the ability of the company to actually transition, not an alignment with a climate scenario.

ACT assesses for:

- Target ambition
- Target achievement
- Material investments
- Immaterial investments
- Performance of sold products
- Management
- Stakeholders engagement
- Business model evolution

This assessment takes into account current, forward looking and backward looking (meeting of targets) indicators, in terms of performance (CO_2 emissions reduction) but also in terms of means (investments, engagement, management, business model, strategy, etc.)

A third way to analyse the alignment of an investment with climate goals is to perform a "silo-analysis". In other words, the investment portfolio is split between different activities, each of which has precise goals in terms of technological deployment or carbon trajectory. This is the angle taken by PACTA, an

initiative led by 2°C Investing Initiative. This kind of analysis allows for the aggregation of several assets together and the assessment of alignment by technology. In the car manufacturing sector for example, the activities of many car manufacturers can be merged so as to understand if the mix financed by the investments in this specific area is in line with the requirements of a 1.5°C scenario (X% of light vehicle, Y% of electric vehicles etc.)

Whereas this type of methodology allows for an assessment at portfolio level, it suffers from the same caveats when companies are being assessed individually: not every sector/activity needed in the energy transition is covered by detailed technological scenarios and the contribution of actors to energy efficiency all along the supply chain can hardly be assessed.

While the ambitions of all the above initiatives are commendable, the ability of corporations to achieve these targets cannot be assessed with sufficient detail and on sufficiently wide investment universes as of 2019, given the relative youth of the initiatives and the lack of fully accurate carbon footprints reported by many firms engaging in target setting as an aspirational activity.

5.7 SECTORAL ALLOCATION IN CLIMATE BENCHMARKS

5.7.1 Rationale for weighting constraints

Achieving minimum requirements set on carbon intensity at index level could be possible by simply divesting from GHG intensive sectors and reallocating to sectors with very little GHG intensities. As one of the key objectives of EU CTBs and EU PABs is to shift capital from GHG intensive assets towards solutions necessary to the energy transition, the weighting schemes of these benchmarks should not allow for a simple divestment from sectors key to this transition. In other words, sectors with marginal impacts on climate change and its mitigation should not be overrepresented in EU CTBs and EU PABs compared to their underlying investment universes.

To avoid the greenwashing risk for EU CTBs and EU PABs that only high-intensity sectors are underweighted (for example, 0il & gas, utility, mining, transportation), a constraint on sector allocation is possible.

Sub-sector neutrality constraints, however, were broadly dismissed in TEG discussions since they reduce flexibility for innovative benchmark solutions and are in contradiction with every ambitious climate scenario for the future, where important shifts occur in the industrial sectors for example.

5.7.2 Technical advice on sectoral allocation for climate benchmarks

Compared to the underlying investment universe, exposure to sectors that are key to the low-carbon transition must be equal or greater. In other words, the exposure of an EU CTB or an EU PAB to ‘high climate impact sectors’ as outlined below cannot be less than the exposure of the investment universe to the same set of sectors.

The rationale for this requirement is that many solutions will come from highly emitting sectors. A simple decarbonization approach can therefore lead to an underweighting of the sectors where most of the solutions necessary to a low-carbon economy lie.

These sector and activity allocation constraints should not apply outside equities.

Table 8: Sectors GICS level2 classified by climate impact

High Climate impact sectors	- Energy equipment's & services - Oil, gas & consumable fuels - Chemicals - Construction materials - Containers & packaging - Metals & mining - Paper & forest products - Capital Goods - Transportation - Automobiles and components - Food Beverage and Tobacco - Real Estate - Semiconductors & Semiconductor Equipment - Technology Hardware and Equipment - Utilities
Low Climate impact sectors	- Commercial and professional Services - Consumer Durables & Apparel - Consumer Services - Food & Staples Retailing - Health Care Equipment and Services - Household & Personal Products - Media & entertainment - Pharmaceuticals Biotechnology & Life Sciences - Retailing - Software & Services - Telecommunication Services - Banks - Diversified Financials - Insurance

While the entire rationale of this Report is based on the logic that the financial system has a central role to play in achieving the objectives of the energy transition, it is obviously questionable why the financial sector (Insurance, Banks and diversified financials) is classified in the 'Low Climate impact sectors' group in the context of the above described allocation constraint.

Since the reason of this allocation constraint is based on the actual climate performance of underlying corporates – approximated by their carbon footprint –, integrating the financial sector in the 'high climate impact' group would likely lead to unintended results, favouring financial actors independently from their actions regarding the financing of the energy transition and to the expense of – mainly – industrial sectors where climate performance is more 'material'. That said, the TEG recommends index providers to favour financial actors with the highest performance in the financing of the energy transition, this assessment being based on indicators not broadly applicable to a diversified investment universe.

5.8 GREEN TO BROWN RATIO

5.8.1 Description and methodologies

Following a logic similar to the allocation constraint, it is possible measure the shift a given benchmark allows from brown activities to green activities. Methodologies to measure the ratio of green to brown are mostly considering the share of revenues of underlying issuers that is attributable to 'green' activities versus 'brown activities'. Summed at index level, this measure allows for an assessment of

the relative presence of green activities (contribution to the energy transition) compared to brown activities (based on fossil fuels).

5.8.2 Technical advice on green to brown share ratio for climate benchmarks

In the context of climate benchmarks, the green share / brown share ratio[39] of EU PABs is expected to be significantly larger (factor 4) than the one of its investable universe, whereas the ratio for EU CTBs is expected to be at the very least equivalent compared to the investable universe.

The rationale for an increase of the green to brown ratio comes from the IPCC 1.5 report, chapter 2, page 155, which shows the average annual investments needed in different scenarios. Energy efficiency, Renewables, Electricity T&D and storage can be considered as green activities whereas Fossil fuels extraction and conversion, fossil electricity and hydrogen w/o CCS can be considered as brown activities. Nuclear and CCS are considered as solutions by the IPCC report, but often not accounted as green activities by data providers.

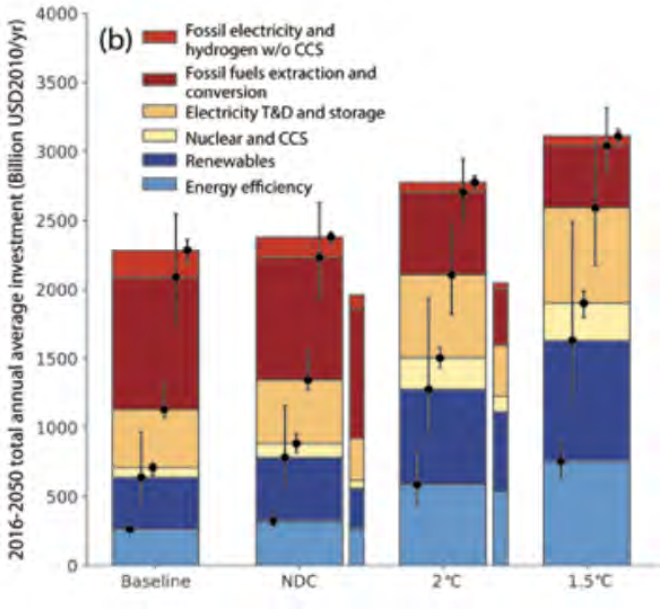

Figure 4: Historical and projected global energy investments. Source IPCC SR15 report, chapter 2

5.9 MINIMUM REQUIREMENT ON EXCLUSIONS

To further align with the objectives of both the EU CTBs and the EU PABs, the TEG does not recommend any climate-related exclusion at this stage.

The rationale is threefold:

[39] Benchmark administrators have discretion in defining green and brown activities in coordination with the asset owner clients until more detailed guidance from the European Commission becomes available.

1. By design both the EU CTBs and the EU PABs are geared towards the future. They do not aim to be backward-looking but rather forward-looking. However, exclusions tend to be backward-looking which seems at odds with the objectives of both benchmarks. If we were to exclude certain activities today, it would be based on past data (e.g. % revenues or fossil fuels reserves) and would not necessarily mean that companies would not be Paris aligned in the future, nor whether they could be on an emission trajectory.
2. There is no consensus among investors around climate exclusions. Investors have different levels of appetite when it comes to exclusions: some investors divest from thermal coal while other also exclude unconventional oil & gas and the strictest of them exclude all types of fossil fuels related activities.
3. Investors vary in their stewardship activities. While some investors prefer to divest from poor climate performers, others prefer to engage and incentivize them to improve their climate resilience. Adding exclusions as part of the minimum requirements would close the door for engagement, while relying on a reweighting approach would allow for engagement and encourage companies to improve. In addition, requiring exclusion could be perceived as prescriptive by institutional investors.

Even though the TEG does not recommend any exclusions based on climate-related considerations, the TEG recommends considering the 'Do no significant harm' principle as part of the minimum requirements. As a result, we suggest the following requirements:

1. Exclusion of controversial weapons: a consensus has emerged over the years around the exclusion of landmines and cluster bombs driven by conventions and UN principles. European countries are signatories of the Convention on Landmines and Cluster Munitions[40] and the vast majority prohibit investments in controversial weapons.
2. Exclusion of companies being found in violations of global norms (e.g. UN Global Compact principles, OECD Guidelines). The group recommends exclusions of violators of global norms as investors are increasingly considering those companies as worst offenders and are excluding them from their ESG investment (including climate strategies).

Lastly, similar to the recommendation on EU CTBs and EU PABs, the TEG encourages benchmark administrators to consider eliminating any exposure of climate benchmarks to corporates significantly harming any other EU environmental objectives[41] or to corporate issuers with low social standards despite achieving GHG goals. This will likely be strengthened once the EU Taxonomy and "do-no-harm" principles are clarified[42].

[40] http://www.clusterconvention.org/
https://www.unog.ch/80256EE600585943/(httpPages)/CA826818C8330D2BC1257180004B1B2E

[41] Sustainable use and protection of water and marine resources; transition to a circular economy; waste prevention and recycling; pollution prevention and control; protection of healthy ecosystems

[42] FAQ: https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/sustainable-finance-teg-frequently-asked-questions_en.pdf

5.10 SUMMARY OF TECHNICAL STANDARDS

The following table summarizes all minimum technical standards for EU CTBs and EU PABs:

Minimum standards	EU CTB	EU PAB
Risk oriented minimum standards:		
Minimum Scope 1+2(+3)[43] carbon intensity reduction compared to investable universe	30%	50%
Scope 3 phase-in	2-4 years	2-4 years
Do no significant harm principle	Yes	Yes
Opportunity oriented minimum standards:		
Minimum green share / brown share ratio compared to investable universe	At least equivalent	Significantly larger (factor 4)
Exposure constraints	Minimum exposure to sectors highly exposed to climate change issues is at least equal to market benchmark value	
Year-on-year self-decarbonization of the benchmark	At least 7%: in line with or beyond the decarbonization trajectory from the IPCC's 1.5°C scenario (with no or limited overshoot)	
Disqualification from label if 2 consecutive years of misalignments with trajectory	Immediate	Immediate

5.11 REVIEW PROCESS FOR MINIMUM STANDARDS

A continuous review process of EU CTBs and especially EU PABs is crucial to ensure that ambitions are aligned with technological and market developments, especially in terms of the trajectory and updates which the IPCC may undertake.

Furthermore, the TEG expects that the quality of Scope 1 GHG emissions data will improve rapidly over the next five years, which will allow for much more accurate Scope 2 data. The TEG is also hopeful that Scope 3 data, at least upstream, become of high quality within a decade. If the TEG had seen such higher quality GHG data available in 2018/2019, it would have probably made more detailed recommendations on minimum standards especially in the area of environmental data science.

Similarly, sectoral scenarios should be transformed into activity-based scenarios once the TEG's green taxonomy is completed. This future update is crucial, as corporations are currently classified

[43] Scope 3 being phased-in during a four-year timeframe.

into just one (sub) sector despite the vast majority of them trading in multiple, often loosely related activities.

5.12 TECHNICAL ADVICE ON MINIMUM REQUIREMENTS FOR EU CTB AND EU PAB

The section below summarizes in ten articles the minimum standards for EU CTBs and EU PABs discussed in this report, using legal language.

Article 1: Scope and definitions

1. Definitions

For the purposes of this Regulation,

(a) 'total capital' means the sum of the book values of common stock, preferred equity, long term debt and minority interest,

(b) 'investable universe' means the set of all investable securities in a given asset class or group of asset classes,

(c) 'climate tail risk' means the probability of severe adverse events caused by climate change such as incidents of extreme weather.

2. Articles 2 to 10 only apply to listed equity and corporate fixed-income benchmarks.

Article 2: Input Data

1. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall ensure that data on all three scopes of emissions is obtained prudentially and is accurate according to the GHG Protocol or ISO 14064 and ISO 14069.

2. The benchmark administrator shall ensure the consistency, the comparability and the quality of GHG emissions data.

3. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall consider Scope 3 emissions for sectors with high stakes regarding climate change and its mitigation (e.g. oil & gas, mining, transportation and buildings, agribusiness).

4. Where an administrator of EU Climate Transition and of EU Paris-aligned Benchmarks uses estimations, it shall disclose the methodology upon which the administrator has based its estimates.

For the purposes of the first subparagraph, the administrator shall at least disclose:

a) whether it has used a bottom-up or a top-down approach to calculate GHG emissions,

b) the main assumptions and the precautionary principles underlying them,

c) the research methodology to estimate missing, unreported, and underreported GHG emissions, and,

d) the external data sets used in the estimation of missing, unreported or underreported GHG emissions.

5. In case the benchmark administrator uses an external GHG data provider for estimated data, it should be exempted from the requirement as referred to in paragraph 4.

Article 3: Carbon intensity

1. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall use the total capital as a denominator to calculate the carbon intensity.

Without prejudice to the first subparagraph, the carbon intensity as referred to in Article 8 shall be disclosed by using tCO_2e/M€ total capital and tCO_2e/M€ revenues.

2. The calculation of an EU Climate Transition and of an EU Paris-aligned Benchmark carbon intensity shall be updated at least on a quarterly frequency.

3. For the purpose of the calculation of an EU Climate Transition and of an EU Paris-aligned Benchmark carbon intensity, the currency shall be the same for all assets of the index.

4. An EU Climate Transition Benchmark shall reduce by at least 30 % its GHG intensity, calculated with total capital at index level, compared to the investable universe.

5. An EU Paris-aligned Benchmark shall reduce by at least 50 % its GHG intensity, calculated with total capital at index level, compared to the investable universe of all relevant sectors and/or geographies.

Article 4: Scope 3 GHG emissions

Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall consider Scope 3 emissions data in the index construction methodology in an incremental way:

a) At the moment of the entry into application of the Regulation XX/XX (proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) 2016/1011 on low carbon benchmarks and positive carbon impact benchmarks), the administrator shall at least consider Scope 3 GHG emissions for energy and mining sectors.

b) Within two years from the entry into application of the Regulation XX/XX (proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) 2016/1011 on low carbon benchmarks and positive carbon impact benchmarks), the administrator shall consider Scope 3 GHG emissions at least for transportation, buildings, materials and industrial sectors.

c) Within four years from the entry into application of the Regulation XX/XXX (proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) 2016/1011 on low carbon benchmarks and positive carbon impact benchmarks), the administrator shall consider Scope 3 GHG emissions for all sectors of activity.

Article 5: Decarbonisation trajectory

1. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall use the IPCC decarbonisation trajectory (1.5°C with no or limited overshoot) for the alignment with the Paris Agreement.

2. The year-on-year self-decarbonisation shall be calculated based on carbon intensity as defined in Article 3 (1).

3. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall, year after year, decrease the index carbon intensity in line with or beyond the decarbonisation pathway of the reference scenario.

For this purpose, the GHG intensity shall be calculated with restated total capital to reflect the potential effects of inflation on the financial denominator of carbon intensity.

4. Any significant changes of the GHG emissions calculation methodology, for example the Scope 3 phase-in, shall imply a new base year with the new data.

5. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall annually report to their competent authority their compliance with trajectory targets as referred to in Article 9.

6. Where an EU Climate Transition or an EU Paris-aligned Benchmark misses its trajectory target in a given year, the benchmark administrator shall in the year of the target miss clearly explain the reason for the miss and list all the steps that will be taken to ensure that the adjusted target for next year is achieved.

Article 6: Withdrawal of label

The competent authority may withdraw the EU Climate Transition or an EU Paris-aligned Benchmark label where:

a) the index misses its trajectory target in two consecutive years,

b) the index misses its trajectory target on three occasions in any consecutive 10-year period.

Article 7: Activity allocation constrains

1. The requirement referred to in paragraph 2 shall only apply to equity benchmarks.

2. Exposure to sectors that are key to the low-carbon transition of an EU Climate Transition Benchmark and of an EU Paris-aligned Benchmark shall at least be equivalent to the exposure of the underlying investment universe.

Article 8: Green share / brown share

1. Where an administrator of an EU Climate Transition Benchmark discloses a green share / brown share ratio, this ratio shall at least be equivalent to the green share/brown share ratio of the investable universe.

2. Where an administrator of an EU Paris-aligned Benchmark discloses a green share / brown share ratio, this ratio shall be four times higher than the green share/brown share ratio of the investable universe.

Article 9: Disclosure

1. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall annually disclose their forward looking year-on-year decarbonisation trajectory in their methodology or benchmark statement.

2. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall annually disclose the degree to which the IPCC decarbonisation trajectory (1.5°C with no or limited overshoot) has been achieved on a year on year basis since creation in their methodology or benchmark statement.

3. Administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall provide a qualitative description of the risk measure(s) or measurement procedure(s) they use to assess the impact of climate tail risk on their performance.

Article 10: Do no harm principle

When selecting underlying assets, administrators of EU Climate Transition and of EU Paris-aligned Benchmarks shall exclude companies involved in controversial weapons activities and companies being found in violations of global norms.

List of abbreviations

ABS	Asset Backed Securities
ACT	Assessing low-Carbon Transition
AIFMD	Alternative Investment Fund Managers Directive
CDS	Credit Default Swaps
CFD	Contract For Difference
CO2	Carbon dioxyde
DNHP	Do No Harm Principle
EAs	Emission Allowances
ESG	Environmental, Social and Governance
EU	European Union
EU CTB	EU Climate Transition Benchmark
EU PAB	EU Paris-aligned Benchmark
FI	Fixed Income
GHG	Green House Gases
HLEG	High-Level Expert Group on sustainable finance
IDD	Insurance Distribution Directive
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standards Organization
MiFID	Markets in Financial Instruments Directive
NAV	Net Asset Value
NGOs	Non-governmental Organizations
OECD	Organisation for Economic Co-operation and Development
OEF	Organisation Environmental Footprint
PEF	Product Environmental Footprint
SAA	Strategic Asset Allocation
SDG	United Nations Sustainable Development Goals
TCFD	Taskforce on Climate related Financial Disclosure
TEG	Technical Expert Group on sustainable finance
UCITS	Undertakings for Collective Investments in Transferable Securities
UN PRI	United Nations Principles for Responsible Investments
UNFCCC	United Nations Framework Convention on Climate Change
UNGC	United Nations Global Compact

Appendix A: Investment Risk in the Age of Climate Change

In the age of the climate crisis with its significant tail risks such as extreme weather, risk needs to be defined as the probability of a negative financial outcome. This negative outcome is that the index delivers less financial return than expected by the investor. This means that an observation is considered risky if and only if it falls short of a set of financial expectations. Observations exceeding the expectations must not be considered a financial risk, since they instead represent an opportunity.

This definition is in line with the original writing of Markowitz (1959: 193-194), who explains that "[a]nalyses based on S[emi-variance] tend to produce better portfolios than those based on V[ariance]. Variance considers extremely high and extremely low returns equally undesirable. An analysis based on V[ariance] seeks to eliminate both extremes. An analysis based on S[emi-variance], on the other hand, concentrates on reducing losses." In other words, analyses based on variance seek to eliminate extremely high returns, which is clearly not in the interest of European investors. Thus, we use appropriate definition of risk as the probability of negative financial outcome as it is applied in measures such as semi-variance, value at risk or lower-partial moments.[44]

To measure the financial performance of an EU CTB / EU PAB index, all relevant risks that can affect this performance need to be considered, climate induced or otherwise, and the ratio of the financial return achieved per unit of financial risk tolerated needs to be computed. This computation ensures that all risk factors including already evident climate risks are included in the financial performance calculation instead of just known financial risks such as beta (i.e. market variability) or classic investment styles[45]. The computation can be applied separately to the EU CTB or EU PAB and the investable universe or in comparison with the investable universe[46].

[44] For examples related to ESG, see https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2874252

[45] While Alpha computed based on the models of Jensen or Fama-French are very common measures of financial performance, they only adjust for known financial risk factors (i.e. beta, size and value) while leaving all other risks such as climate change induced risks unaccounted for in the error term. To ensure that all risks are accounted for in the financial performance measurement, we recommend Financial Return per unit of Financial Risk.

[46] Computing Financial Return per unit of Financial Risk for the EU CTB / EU PAB and the parent separately is equivalent to a Sortino Ratio. The relative computation represents a specific version of the Risk Adjusted Performance Alternative suggested by Modigliani and Modigliani.

Appendix B: Underlying Climate Science Based on IPCC

The Paris Climate Agreement states that signatories agree to follow emission pathways consistent with holding the change in global average temperature to well below +2 °C above pre-industrial levels and pursuing efforts to limit the temperature change to +1.5 °C above pre-industrial levels (UNFCCC, 2015).

The IPCC provides 6 categories of emission pathways; 4 categories that meet the 1.5°C and 2 categories that meet the 2°C goals by 2100, where differences depend on the allowance of an "overshoot" and different probabilities of meeting the temperature goal. If a pathway allows for a temporary overshoot of the temperature, it means it relies on large-scale deployment of carbon dioxide removal (CDR) measures, which are uncertain and entail clear risks (Rogelj et al, 2018, p.95). Based on the Precautionary Principle (UN Rio Earth Summit, 1992, Paragraph 15), we propose the following pathway as consistent with the Paris Agreement:

"1.5°C with no or limited overshoot" – this is consistent with the scenario used as a basis for the IPCC Special Report on Global Warming of 1.5°C: "*Recognizing the very different potential impacts and risks associated with high-overshoot pathways, this report singles out 1.5°C pathways with no or limited (<0.1°C) overshoot in many instances and pursues efforts to ensure that when the term '1.5°C pathway' is used, the associated overshoot is made explicit where relevant."* (P.66, Allen et al., 2018)

Reference list:

Allen, M.R., O.P. Dube, W. Solecki, F. Arag.n-Durand, W. Cramer, S. Humphreys, M. Kainuma, J. Kala, N. Mahowald, Y. Mulugetta, R. Perez, M. Wairiu, and K. Zickfeld, 2018: Framing and Context. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. P.rtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. P.an, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

J. Rogelj, D. Shindell, K. Jiang, S. Fifita, P. Forster, V. Ginzburg, C. Handa, H. Kheshgi, S. Kobayashi, E. Kriegler, L. Mundaca, R. Séférian, M. V. Vilariño, 2018, Mitigation pathways compatible with 1.5°C in the context of sustainable development. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. In Press.

United Nations Framework Convention on Climate Change (UNFCCC, 2015), Conference of Parties. Adoption of the Paris Agreement.

United Nations (1992), Rio declaration on environment and development, Rio de Janeiro.

Appendix C: ESG Disclosure Factors

Further details and guidance on the factors to be reported on per asset class are provided below:

	Disclosure Factors	Criteria Description
OVERALL ESG DISCLOSURE	Consolidated ESG Rating	Weighted average ESG rating for the index
	ESG Ratings Top Ten Constituents	ESG rating of top ten index constituents by weighting in index
	UNGC Violations %	Weighted average percentage of index constituents violating the principles of the UN Global Compact
	International Standards Signatories %	The percentage of underlying fund management companies signed up to International Standards
ENVIRONMENTAL DISCLOSURE	Consolidated Environmental Rating	Weighted average Environmental rating for the index
	Carbon intensity	The carbon intensity of the index as per the recommendations in the methodology chapter of this report (% actuals vs estimated)
	Fossil Fuel Sector Exposure %	Weighted average percentage of index constituents in the fossil fuel sector
	Green Revenues %	The total weighted average green revenues per all revenues of the index constituents
	Green Bonds %	The percentage of green bonds (for all fixed income benchmarks)
	Exposure Climate-Related Physical Risks	Please provide a quantitative indicator (also including a sub-national dispersion measure or the commodity markets exposed)
	Exposure Climate-Related Physical Risks Methodology	The methodology used to calculate it (this could be based on the methodology used for the credit rating assessment).
	Consolidated Social Rating	Weighted average Social rating for the index

	Disclosure Factors	Criteria Description
SOCIAL DISCLOSURE	Social Violations	Number of index constituents with social violations and issues (absolute number and relative divided by all index constituents)
	Controversial Weapons %	Weighted average percentage of index constituents in the controversial weapons sector
	Controversial Weapons Definition	Provide the definition of what is considered under controversial weapons
	Tobacco %	Weighted average percentage of index constituents in the tobacco sector
	Tobacco Definition	Provide the definition of what is considered under tobacco
	Human Rights Index	Please provide a quantitative indicator and the methodology used to calculate it (this could be based on the methodology used for the credit rating assessment).
	Income Inequality	Please provide a quantitative indicator and the methodology used to calculate it (this could be based on the methodology used for the credit rating assessment).
	Freedom of Expression	Please provide a quantitative indicator and the methodology used to calculate it (this could be based on the methodology used for the credit rating assessment).
GOVERNANCE DISCLOSURE	Consolidated Governance Rating	Weighted average Governance rating for the index
	Board Independence %	The weighted average percentage of board members who are independent
	Board Diversity %	The weighted average percentage of female board members
	Corruption	Please provide a quantitative indicator and the methodology used to calculate it (this could be based on the methodology used for the credit rating assessment).
	Political Stability	Please provide a quantitative indicator and the methodology used to calculate it (this could be based on the methodology used for the credit rating assessment).
	Rule of Law	Please provide a quantitative indicator and the methodology used to calculate it (this could be based on the methodology used for the credit rating assessment).

	Disclosure Factors	Criteria Description
	Stewardship Policies	The percentage of underlying funds with stewardship policies in place

Appendix D: ESG Disclosure Templates

1. Template on ESG factors in the methodology (template 1)

Consideration of ESG factors in the benchmark or family of benchmark methodology	
Asset class underlying the benchmark: (please choose from the list provided in section 3.3)	
1. Does the benchmark or family of benchmarks take account of ESG factors in the index design?	☐ Yes ☐ No
If the index methodology takes account of ESG factors (yes answer to 1) , please describe:	
2. The Environmental methodological considerations applied	
3. The Social methodological considerations applied	
4. The Governance considerations applied	
Data use	
5. Source of ESG-related data input	*Describe whether the data is reported, modelled, sourced internally or externally.* *In case the data is externally sourced, please name the third party data provider.*
6. Data verification and quality assurance	*Describe any data verification and quality assurance process in place*
Use of standards	
7. Reference standards	*Describe the international standards informing the ESG factors of the benchmark methodology.*

2. Template on ESG factors in the benchmark statement (template 2)

ESG factors reflected in the benchmark or family of benchmarks	
Asset class underlying the benchmark: (please choose from the list provided in section 3.3 of the Report)	
Benchmark or benchmark family name:	
Depending on the underlying asset class, please provide information on the applicable ESG factors using at least the minimum disclosures provided in Appendix II For each indicator, the % of index constituents covered should be stated.	
1. Overall ESG factors	
2. Environmental factors	
3. Social factors	
4. Governance factors	
Data and standards used	
5. Description of data sources used for the description of ESG factors in the benchmark statement	*Describe how the data used to provide ESG information in the benchmark statement is sourced and whether, and to what extent, data is estimated or reported.*
6. Reference standards	*List the standards on which the disclosures under points 1 to 4 are based.*
EU Climate Transition Benchmark (CTB) and EU Paris-aligned Benchmark (PAB)	
If the benchmark is labeled as EU CTB or EU PAB additional disclosures are to be provided. See section 4 for details.	
Non-disclosure option	
☐ The benchmark or family of benchmarks does not pursue any ESG objectives and the benchmark administrator opts not to provide any ESG information about the benchmark or family of benchmarks.	
Information updated on:	

3. Template on overall degree of alignment with the objectives of the Paris Climate Agreement (template 3)

Overall degree of alignment with the Paris Climate Agreement	
Asset class underlying the benchmark: (please choose from the list provided in section 3.3)	
Benchmark or benchmark family name:	
1. Does the benchmark methodology meet the minimum technical standards for one type of climate benchmarks?	☐ Yes: EU Climate Transition Benchmark ☐ Yes: EU Paris-aligned Benchmark ☐ No
2. If answer to question 1 is 'no', does the benchmark administrator wish to disclose the alignment with a climate scenario?	☐ No ☐ Yes
3. If answer to question 1 or 2 is 'yes', please provide details regarding the alignment with a climate scenario	This benchmark aligns with the following temperature scenario (insert degree Celsius): _____ - Scenario name: - Provided by: - Link to scenario: _____
4. If answer to question 1 or 2 is 'yes', please provide details regarding the methodology used to measure the alignment of the benchmark portfolio to a temperature scenario	
Information updated on: