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A Division of S&P Global

S&P PAB ESG and S&P CTB Indices
Methodology

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Introduction

Index Objective

The S&P CTB Indices and S&P PAB ESG Indices measure the performance of eligible equity securities from an underlying parent index selected and weighted to be collectively compatible with a 1.5ºC global warming climate scenario[1] at the index level. The S&P PAB ESG Indices encompass all the elements of the S&P CTB Indices, but are differentiated by additional restrictiveness and ambition, as evidenced by the additional constraints and eligibility requirements. All indices apply exclusions based on companies' involvement in specific business activities, violations of the principles of the United Nations' Global Compact (UNGC), and involvement in relevant ESG controversies, as defined in *Eligibility Criteria*.

Highlights

Each S&P CTB Index is a European Union (EU) Climate Transition Benchmark, and each S&P PAB ESG Index is an EU Paris-aligned Benchmark. The law prescribes minimum standards for the methodology of any index that is labelled an 'EU Climate Transition Benchmark' (EU CTB), and for the methodology of any index that is labelled an 'EU Paris-aligned Benchmark' (EU PAB), under Regulation (EU) 2019/2089 amending Regulation (EU) 2016/1011.[2] In the case of EU Climate Transition Benchmarks, these include a requirement that its underlying assets are selected, weighted or excluded in such a manner that the resulting benchmark portfolio is on a measurable, science-based and time-bound trajectory towards alignment with the objectives of the Paris Agreement[3]. The EU Paris-aligned Benchmarks include a requirement that the underlying assets must be selected, weighted, or excluded in such a manner that the resulting benchmark's portfolio's carbon emissions are aligned with the Paris Agreement objectives. The indices also incorporate factors that seek to manage transition risk and climate change opportunities in a way that aligns with the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures' (TCFD) 2017 *Final Report*[4], covering transition risk, climate change opportunities, and, for the S&P PAB ESG Indices, stranded asset, and physical risk.

Both families' weighting strategies aim to minimize the difference in constituent weights to the underlying parent index. In addition, the indices incorporate a variety of specified decarbonization targets and align with certain specified criteria through optimization with multiple model constraints, including:

- alignment to a 1.5ºC climate scenario, with no or limited overshoot, using Trucost's Transition Pathway Model
- reduced overall greenhouse gas (GHG expressed in CO_2 equivalents) emissions intensity, as compared to the respective underlying parent index, of at least:
    - **S&P CTB Indices**: 30%
    - **S&P PAB ESG Indices**: 50%
- minimum self-decarbonization rate of GHG emissions intensity in accordance with the trajectory implied by Intergovernmental Panel on Climate Change's (IPCC) most ambitious 1.5ºC scenario,

[1] A climate scenario of 1.5ºC above preindustrial levels has been deemed important by the IPCC: Masson-Delmotte, V., Zhai, P., Pörtner, H. O., Roberts, D., Skea, J., Shukla, P. R. Waterfield, T. (2018). Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C. IPCC, available at www.ipcc.ch/sr15.

[2] Pursuant to Articles 19a(2) and 19c(1) of Regulation (EU) 20169/201189, Commission Delegated Regulation (EU) 2020/1818 lays down the minimum standards for EU CTBs and EU PABs *https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R1818*.

[3] UNFCCC. (2015). The Paris Agreement: *https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement*.

[4] Financial Stability Board's Task Force on Climate-related Financial Disclosures' (TCFD). (2017). *Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures,* available at *www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf*.

with no or limited overshoot, equating to at least 7% GHG intensity reduction on average per annum

- increased exposure to companies with Science Based Targets from the Science Based Target Initiative (SBTI) that are credible and consistent with the above decarbonization trajectory
- improved S&P Global ESG Score compared to the parent index
- exposure to sectors with high impact on climate change at least equivalent to the parent index
- managed exposure to potential climate change opportunities through controlled green-to-brown revenue share in order to align with the recommendations of the TCFD
- capped exposure to non-disclosing carbon companies
- constituent-level weight capping to address liquidity and diversification

In addition to those listed above, the S&P PAB ESG Indices incorporate further constraints to target:

- reduced exposure to physical risks from climate change using Trucost's Physical Risk dataset
- improved exposure to potential climate change opportunities through substantially higher green-to-brown revenue share compared to the parent index
- reduced exposure to fossil fuel reserves compared to the parent index

All indices in the series feature the exclusion of companies from the underlying parent index with:

- involvement in specific business activities
- non-compliant United Nations Global Compact (UNGC) principle violations
- involvement in relevant ESG controversies

In addition to those listed above, the S&P PAB ESG Indices incorporates the further exclusions of companies whose revenues from coal, oil, or natural gas exploration or processing activities, exceed defined thresholds, and electricity generation companies that exceed a stated revenues threshold.

Climate-Related Data

Trucost's Transition Pathway Model

The Trucost Transition Pathway approach is based on two models: the Sectoral Decarbonization Approach ("SDA") (Krabbe, et al., 2015)[5], and the Greenhouse Gas Emissions per unit of Value Added Approach ("GEVA") (Randers, 2012)[6], which are both recommended by the Science Based Targets Initiative (Science Based Targets Initiative, 2019).[7]

The approach allows for a forward-looking perspective on likely future greenhouse gas emissions, and uses a carbon budget allocation method to allocate each company a total amount of carbon emissions per year. These allocations allow companies, as a collective, to be 1.5°C aligned provided their emissions remain within the allocation budgets.

The SDA approach is sector specific and is used for high emitting sectors.[8] The SDA uses carbon intensity based on sector specific measures of output. For example, the unit of output for iron and steel

[5] Krabbe, O., Linthorst, G., Blok, K., Crijns-Graus, W., van Vuuren, D., Höhne, N., Pineda, A. C. (2015). Aligning Corporate Greenhouse-Gas Emissions Targets with Climate Goals. Nature Climate Change.
[6] Randers, J. (2012). Greenhouse gas emissions per unit of value added ("GEVA") – A corporate guide to voluntary climate action. Journal Energy Policy.
[7] Science Based Targets Initiative. (2019, April). Science-Based Target Setting Manual, available at https://sciencebasedtargets.org/wp-content/uploads/2017/04/SBTi-manual.pdf.
[8] As referenced in section 5.7.2. of The EU Technical Expert Group on Sustainable Finance. (2019). *TEG Final Report on Climate Benchmarks and Benchmarks' ESG Disclosures,* available at https://ec.europa.eu/info/files/190930-sustainable-finance-teg-final-report-climate-benchmarks-and-disclosures_en.

companies is "tCO_2 per ton crude steel". This allows an understanding of how carbon efficient companies are per unit of output. The SDA approach also sets carbon budgets for specific sectors as a whole, which allows some sectors to decarbonize more slowly where the opportunities for decarbonization are far lower. This is allowed by setting more aggressive targets for sectors with greater scope for decarbonization.

GEVA is applied to lower emitting or heterogeneous business activities. For GEVA, the unit of output used is gross profit. Companies have diverse business activities, most of which do not have distinct transition pathways defined in climate scenarios. For these companies, the methodology applies a contraction in carbon intensity principle under which a company should make emissions reductions. This is consistent with rates required for the overall economy, but from each company's unique base year emissions intensity.

Trucost's Physical Risk Data

Trucost's Physical Risk dataset[9] allows users to understand the risk and sensitivity of company assets to the physical risks of climate change. Climate modelling datasets and hazard models are overlaid with the asset locations of companies. Sensitivity analysis is carried out for each asset, to assess whether the company's operations would be affected by each specific physical risk, based on the asset type.[10]

These climate modelling datasets and hazard models have been created for each specific physical risk. Physical risk is judged by a score ranging between 1 and 100. The physical risks covered include wildfire, cold wave, heatwave, water stress, sea level rise, flood, and hurricanes. The index methodology uses a composite physical risk score that is an average of all physical risk indicators, weighted for company specific sensitivity to each physical risk type.

Other Trucost Data Used: GHG Emissions, Emissions Disclosure Status, Green-to-Brown Share, Fossil Fuel Reserves, and Sector Revenues.

The indices are generated and published under agreements between S&P Dow Jones Indices and Trucost.

Any Trucost data with a financial year five years or more prior to the rebalancing reference date's year is considered as not covered.[11]

For information on Trucost's methodology, please refer here.

Science Based Target Initiative (SBTI)

The Science Based Targets initiative champions science-based target setting as a powerful way of boosting companies' competitive advantage in the transition to a low-carbon economy. The initiative is a collaboration between CDP, World Resources Institute (WRI), the World Wide Fund for Nature (WWF), and the United Nations Global Compact (UNGC).

Targets adopted by companies to reduce greenhouse gas (GHG) emissions are considered "science-based" if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement—to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

For more information on the initiative, please refer to https://sciencebasedtargets.org/.

S&P Global ESG Score

[9] The 2050 High Climate Scenario is used.
[10] Lord. R, Bullock, S. Birt, M. (2019). 'Understanding Climate Risk at the Asset Level: The Interplay of Transition and Physical Risks'. www.spglobal.com/marketintelligence/en/documents/sp-trucost-interplay-of-transition-and-physical-risk-report-05a.pdf.
[11] For more details, please see *Appendix C*.

The indices use S&P Global ESG Scores. S&P Global Sustainable1 calculates these scores and derives them from the 'Corporate Sustainability Assessment' (CSA). A company's CSA score is derived using either company-provided data, publicly available information, or a combination thereof.

For more information on the CSA Process, please refer to www.spglobal.com/esg/csa.

For more information on S&P Global ESG Scores, please refer here.

For the purposes of ESG assessment, companies are assigned to industries defined by S&P Global, and the assessment is largely specific to each industry. S&P Global uses the Global Industry Classification Standard (GICS®) as its starting point for determining industry classification. At the industry group and sector levels, the S&P Global CSA Industries match the standard GICS classifications, but some non-standard aggregations are done at the industry level.

For information on S&P Global CSA Industry-GICS Sub-Industry Mapping, please refer here.

China Investor Perspective

Subject to S&P Dow Jones Indices' compliance with the applicable law (including, without limitation, sanctions law), the following indices are maintained from a China based investor perspective and may include securities that would not be eligible for inclusion if maintained from a U.S./U.K./EU investor perspective.

- S&P China A 300 CTB Index (NS Series)
- S&P China A 300 PAB Index (NS Series)

Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology	Equity Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology
S&P Dow Jones Indices' Float Adjustment Methodology	Float Adjustment Methodology
S&P Dow Jones Indices' Global Industry Classification Standard (GICS) Methodology	GICS Methodology

The methodology is created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the index continues to achieve its objective.

The Benchmark Administrator for the indices under this methodology is S&P DJI Netherlands B.V.

Eligibility Criteria

Index Universe

At each rebalancing reference date, the index universe for each index is all constituents of an underlying index:

S&P CTB Indices	Underlying Index
S&P 500 CTB Index	S&P 500
S&P China LargeMidCap CTB Index	S&P China LargeMidCap
S&P World CTB Index	S&P World Index
S&P Emerging Plus CTB Index	S&P Emerging Plus LargeMidCap
S&P Europe LargeMidCap CTB Index	S&P Europe LargeMidCap
S&P Eurozone LargeMidCap CTB Index	S&P Eurozone LargeMidCap
S&P Global LargeMidCap CTB Index	S&P Global LargeMidCap
S&P Japan LargeMidCap CTB Index	S&P Japan LargeMidCap
S&P UK CTB Index	S&P United Kingdom BMI
S&P/ASX 300 CTB Index	S&P/ASX 300
S&P China A 300 CTB Index	S&P China A 300
S&P China A 300 CTBIndex (NS Series)	S&P China A 300 (NS Series)

S&P PAB ESG Indices	Underlying Index
S&P 500 PAB ESG Index	S&P 500
S&P China LargeMidCap PAB ESG Index	S&P China LargeMidCap
S&P World PAB ESG Index	S&P World Index
S&P World PAB ESG Ex-Non-Pharma Animal Testing Index	
S&P Emerging Plus PAB ESG Index	S&P Emerging Plus
S&P Europe LargeMidCap PAB ESG Index	S&P Europe LargeMidCap
S&P Eurozone LargeMidCap PAB ESG Index	S&P Eurozone LargeMidCap
S&P Global LargeMidCap PAB ESG Index	S&P Global LargeMidCap
S&P Japan LargeMidCap PAB ESG Index	S&P Japan LargeMidCap
S&P UK PAB ESG Index	S&P United Kingdom BMI
S&P/ASX 300 PAB ESG Index	S&P/ASX 300
S&P China A 300 PAB Index	S&P China A 300
S&P China A 300 PAB Index (NS Series)	S&P China A 300 (NS Series)

For information on an underlying index, please refer to the respective index methodology, available at www.spglobal.com/spdji.

Eligibility Factors

Carbon Emissions Coverage. Companies must have Scopes 1, 2, and 3 (upstream and downstream) GHG emissions data, as provided by Trucost. Any Trucost data with financial year five years or more prior to the rebalancing reference date's year is considered as not covered.

Listing. For the indices listed below, constituents of the respective underlying index must be listed on an exchange in Europe or North America:

- S&P Europe LargeMidCap CTB Index
- S&P Europe LargeMidCap PAB ESG Index
- S&P Eurozone LargeMidCap CTB Index
- S&P Eurozone LargeMidCap PAB ESG Index

Index Exclusions

At each rebalancing reference date, the indices exclude companies from the eligible universe as described below:

Exclusion Type	S&P CTB	S&P PAB
Exclusions Based on Business Activities[12]	Applicable	Applicable
UNGC Principle Violations	Applicable	Applicable
Fossil Fuel Operations and Power Generation	Not Applicable	Applicable
Controversies: Media and Stakeholder Analysis	Applicable	Applicable

Exclusions Based on Business Activities

As of each rebalancing reference date, as relevant for each index family[13], exclude the following:

- companies without coverage
- companies with the following specific business activities, using revenue as a proxy for all categories.

CTB	PAB	S&P Global Business Involvement	S&P Global Category of Involvement and Description	S&P DJI Level of Involvement Threshold	S&P DJI Significant Ownership Threshold
X	X	Controversial Weapons	**Customized Weapons**: The screen covers companies involved in the manufacturing of the components of a weapon. These components are intended solely for use in the production and are essential for the functioning of Anti-Personnel Mines, Biological and Chemical Weapons, Blinding Laser Weapons, Cluster Munitions, Depleted Uranium, Incendiary Weapons, and Nuclear Weapons.	>0%	≥25%
X	X	Tobacco	**Production**: The screen covers companies involved in the manufacturing of tobacco.	>0%	≥25%
X	X		**Related Products and Services**: The screen covers companies that supply essential products/services for the tobacco industry.	≥10%	N/A
X	X		**Retail and Distribution**: The screen covers companies involved in the retail and/or distribution of tobacco as part of their offerings.	≥5% for PA ≥10% for CT	N/A
	X	Small Arms	**Production of Small Arms Weapons for Civilian Use**: The screen covers the companies involved in the manufacturing of small arms weapons for civilian use.	>0%	N/A
	X		**Production of Small Arms Weapons for Non-Civilian Use**: The screen covers the companies involved that are involved in the manufacturing of small arms weapon for non-civilian use.	>0%	N/A
	X		**Production of Key Components:** The screen covers the companies involved in the manufacturing of key components for assault weapons.	>0%	N/A
	X		**Retail and Distribution of Small Arms Weapons**: The screen covers companies involved in the retail or distribution of small arms weapons for civilian customers.	>0%	N/A
	X	Military Contracting	**Integral Military Weapons**: The screen covers companies engaged in the manufacturing, assembling, sale and transportation of integral military weapons.	>0%	N/A
	X		**Weapon Related:** This screen covers companies engaged in the manufacturing and sales of weapon related products.	≥5%	N/A
	X	Thermal Coal	**Generation:** The screen involves companies involved in the electricity generation using coal power plants.	≥5%	N/A
	X	Oil Sands or Tar Sands	**Extraction and/or Production:** The screen involves companies involved in the extraction and/or production of fossil fuels from Oil Sands/Tar Sands.	≥5%	N/A

[12] The specific exclusions differ for each index family.
[13] "CTB" refers to the S&P CTB Indices and "PAB" to the S&P PAB ESG Indices. An "X" indicates an active exclusion for that family.

CTB	PAB	S&P Global Business Involvement	S&P Global Category of Involvement and Description	S&P DJI Level of Involvement Threshold	S&P DJI Significant Ownership Threshold
	X	Shale Oil & Gas	**Extraction and/or Production:** The screen involves companies involved in the extraction and/or production of Shale oil and gas.	≥5%	N/A
	X	Gambling	**Operations**: The screen covers companies that own and/or operate a gambling establishment.	≥10%	N/A
	X	Alcohol	**Production**: The screen covers companies involved in the production of alcoholic beverages.	≥5%	N/A
	X		**Related Products/Services**: The screen covers companies that supply essential products/services for the alcoholic beverage industry.	≥10%	N/A
	X		**Retail**: The screen covers companies involved in the retail and/or distribution of alcoholic beverages as part of their offerings.	≥10%	N/A

Additional Index-Specific Business Activity Exclusions

S&P World PAB ESG Ex-Non-Pharma Animal Testing Index. In addition to the above, exclude companies with the following specific business activities, using revenues as a proxy:

S&P Global Business Involvement	S&P Global Category of Involvement and Description	S&P DJI Level of Involvement Threshold	S&P DJI Significant Ownership Threshold
Animal Welfare (Non-Pharmaceutical)	**Household, Cosmetics and Personal Care Animal Testing**: The screen covers companies that conducts or commissions animal testing for the final product or ingredients of household, cosmetic and personal care products.	>0%	≥25%
	Food and Beverage Animal Testing: The screen covers companies that conducts or commissions animal testing for the final product or ingredients of food and beverages	>0%	≥25%
	Chemicals Animal Testing: The screen covers companies that conducts or commissions animal testing for the final product or ingredients of chemicals.	>0%	≥25%
	Animal Testers and Breeders: The screen covers companies that conduct animal testing on behalf of other companies, and/or operates animal breeding facilities for animal testing.	>0%	≥25%
	Animal Testing Suspected: The screen covers companies that are suspected to be involved in animal testing due to their product offering.	>0%	N/A
Gambling	**Specialized Equipment:** The screen covers companies that manufacture specialized equipment used exclusively for gambling.	≥10%	N/A
	Supporting Products and Services: The screen covers companies that provide supporting products/services to gambling operations	≥10%	N/A

Level of Involvement refers to the company's direct exposure to such products, while Significant Ownership indicates where the company has indirect involvement via some specified level of ownership of a subsidiary company with involvement.

For more information on the S&P Global Business Involvement Screens data set, please refer here.

Exclusions Based on Sustainalytics' Global Standards Screening

Sustainalytics' Global Standards Screening (GSS) provides an assessment of a company's impact on stakeholders and the extent to which a company causes, contributes, or is linked to violations of international norms and standards. The basis of the GSS assessments is the UNGC Principles. Information regarding related standards is also provided in the screening, including the Organization for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, as well as their underlying conventions. Sustainalytics classifies companies into the following three statuses:

- **Non-Compliant.** Classification given to companies that do not act in accordance with the UNGC principles and its associated standards, conventions, and treaties.
- **Watchlist.** Classification given to companies that are at risk of violating one or more principles, for which all dimensions for Non-Compliant status could not be established or confirmed.
- **Compliant.** Classification given to companies that act in accordance with the UNGC principles and its associated standards, conventions, and treaties.

As of each rebalancing reference date, exclude the following:

- companies without coverage
- companies classified as Non-Compliant

Please refer to *www.sustainalytics.com* for more information.

Exclusions Based on Revenue Thresholds in Fossil Fuel Operations and Power Generation

As of each rebalancing reference date, exclude companies whose sum of revenues derived from the relevant sectors breach the below revenue thresholds:

Exclusion Type	Trucost Revenue Sectors	Revenue Threshold
Coal Exploration or Processing	Bituminous Coal and Lignite Surface Mining Bituminous Coal Underground Mining All Other Petroleum and Coal Products Manufacturing Pipeline Transportation	⩾ 1%
Oil Exploration or Processing	All Other Petroleum and Coal Products Manufacturing Crude Petroleum and Natural Gas Extraction Drilling Oil and Gas Wells Support Activities for Oil and Gas Operations Petroleum Lubricating Oil and Grease Manufacturing Mining and Oil and Gas Field Machinery Manufacturing Tar Sands Extraction Petroleum Refineries Petrochemical Manufacturing Pipeline Transportation	⩾ 10%
Natural Gas Exploration or Processing	Crude Petroleum and Natural Gas Extraction Drilling Oil and Gas Wells Support Activities for Oil and Gas Operations Mining and Oil and Gas Field Machinery Manufacturing Natural Gas Liquid Extraction Natural Gas Distribution Industrial Gas Manufacturing Pipeline Transportation	⩾ 50%
Power Generation	Coal Power Generation Petroleum Power Generation Natural Gas Power Generation Biomass Power Generation	⩾ 50%

These exclusions use a sector revenues dataset from Trucost.

Controversies Monitoring: Media and Stakeholder Analysis Overlay

In addition to the above, S&P Global uses RepRisk for daily filtering, screening, and analysis of ESG risk incidents and controversial activities related to companies within the indices.[14] In cases where risks are presented, S&P Global releases a Media and Stakeholder Analysis (MSA), which includes a range of issues such as economic crime and corruption, fraud, illegal commercial practices, human rights issues, labor disputes, workplace safety, catastrophic accidents, and environmental disasters.

[14] RepRisk, an ESG data science company, leverages the combination of AI and machine learning with human intelligence to systematically analyze public information in 23 languages and identify material ESG risks. With daily data updates across 100+ ESG risk factors, RepRisk provides consistent, timely, and actionable data for risk management and ESG integration across a company's operations, business relationships, and investments.

The Index Committee reviews constituents flagged by S&P Global's MSA to evaluate the potential impact of controversial company activities on the composition of the indices. If the Index Committee decides to remove a company in question, the company is ineligible for re-entry into the index for at least one full calendar year, beginning with the subsequent rebalancing.

For more information on RepRisk, please refer to www.reprisk.com. This service is not considered a direct contribution to the index construction process.

Multiple Classes of Stock

All publicly listed multiple share class lines are eligible for index inclusion subject to meeting the eligibility criteria. For more information regarding the treatment of multiple share classes, please refer to Approach A within the Multiple Share Classes section of S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology. All publicly listed multiple share class lines of a company are assigned and assessed using the same S&P Global ESG score.

Index Construction

Constituent Selection

At each rebalancing, select the eligible constituents of each underlying index and form each index, subject to the optimization constraints below.

Constituent Weighting

At each rebalancing reference date, weights are determined to minimize the sum of the squared difference between the parent weight for each constituent (i) and its optimized weight, divided by its parent weight, subject to constraints. The objective function is as follows:

$$\text{Minimize}\left(\frac{1}{n}\sum\left[\frac{(Optimized\ Weight_i\ -\ Parent\ Weight_i)^2}{Parent\ Weight_i}\right] + \frac{1}{k}\sum\left[\frac{(Optimized\ Sector\ Weight_i\ -\ Parent\ Sector\ Weight_i)^2}{Parent\ Sector\ Weight_i}\right] + \frac{1}{m}\sum\left[\frac{(Optimized\ Country\ Weight_i\ -\ Parent\ Country\ Weight_i)^2}{Parent\ Country\ Weight_i}\right]\right)$$

For the indices listed below, the underlying index used as a reference for the optimization process has the weight of stocks not listed on European or North American exchanges transferred to other eligible share class lines from the same company (if available):

- S&P Europe LargeMidCap CTB Index
- S&P Europe LargeMidCap PAB ESG Index
- S&P Eurozone LargeMidCap CTB Index
- S&P Eurozone LargeMidCap PAB ESG Index

Optimization Constraints

As of each rebalancing reference date, the optimizer seeks to minimize the above objective function for each index in the series while satisfying the below constrains.

Table 1. Transition Risk Constraints

Constraint*	S&P CTB	S&P PAB	Data Source
1.5ºC Climate Scenario Transition Pathway Budget Index Alignment	See Table 2 for index specific constraint values.		Trucost
Weighted-average Carbon Intensity (WACI) Target	≤ underlying WACI × 70% × Buffer**	≤ underlying WACI × 50% × Buffer	Trucost
7% Decarbonization Trajectory WACI Target	≤ AnchorWACI*** × $\frac{(1-7\%)\text{^}(q/4)}{1+Inf}$ × Buffer where: *q* = number of rebalances since index anchor date *Inf* = Enterprise Value Including Cash (EVIC) growth of parent index since index Anchor Date[15]		Trucost
Weight of Eligible Science Based Targets Companies	≥ 120% × combined weight of all Eligible Science Based Targets Companies in underlying index		Trucost / Science Based

[15] The index 'Anchor Date' is the date of the reference index composition and base carbon intensity calculation used to determine the index's decarbonization trajectory. Please see *Appendix E* for more details.

Constraint*	S&P CTB	S&P PAB	Data Source
			Targets Initiative
Weighted-average S&P Global ESG Score (waESG)[16]****	≥ of eligible index waESG	≥ underlying index waESG after 20% of the lowest ESG scoring stocks by count are removed and their weight redistributed*****	S&P Global
High Climate Impact Sectors Revenue Proportion (HCISRP)	≥ HCISRP of underlying index		Trucost
Weight of Non-Disclosing Carbon Companies	≤ 110% × weight in underlying index		Trucost
Fossil Fuel Reserves (FFR)	≤ FFR of underlying index	≤ 20% × FFR of underlying index	Trucost

* Constraints are defined in *Constraint-Related Definitions* below.
** Where Buffer = 95% to represent a 5% margin to allow for drift between targeted and realized WACI.
*** WACI of index on the index's Anchor Date. Prior to the index's anchor date, the 7% decarbonization trajectory WACI Target was calculated based on the index Inception Date.
**** For details about treatment of companies without a S&P Global ESG Score, please see *Appendix C*.
***** The calculation of the lowest 20% of stocks by ESG Score selects stocks with ESG scores less than the ESG score associated with the 20th percentile of ESG scores among all stocks in the underlying index.

Table 2. Transition Pathway Constraint Alignment Value

Index	1.5ºC Climate Scenario Transition Pathway Budget Index Alignment Constraint
S&P 500 CTB Index	≤ 0
S&P 500 PAB ESG Index	
S&P China LargeMidCap CTB Index	
S&P China LargeMidCap PAB ESG Index	
S&P World CTB Index	
S&P World PAB ESG Index	
S&P World PAB ESG Ex-Non-Pharma Animal Testing Index	
S&P Emerging Plus CTB Index	
S&P Emerging Plus PAB ESG Index	
S&P Europe LargeMidCap CTB Index	
S&P Europe LargeMidCap PAB ESG Index	
S&P Eurozone LargeMidCap CTB Index	
S&P Eurozone LargeMidCap PAB ESG Index	
S&P China A 300 CTB Index	
S&P China A 300 PAB Index	
S&P China A 300 CTB Index (NS Series)	
S&P China A 300 PAB Index (NS Series)	
S&P Global LargeMidCap CTB Index	
S&P Global LargeMidCap PAB ESG Index	
S&P Japan LargeMidCap CTB Index	
S&P Japan LargeMidCap PAB ESG Index	
S&P UK CTB Index	≤ C where: 0 ≤ C ≤ [50% × (weighted average of TPBA of underlying index)] For more details see *Appendix B*.
S&P UK PAB ESG Index	
S&P/ASX 300 CTB Index	
S&P/ASX 300 PAB ESG Index	

[16] This constraint does not apply to the S&P China A 300 CTB Index, S&P China A 300 PAB ESG, S&P China A 300 CTB (NS Series) and S&P China A 300 PAB ESG (NS Series).

Table 3. Physical Risk Constraints

Constraint	S&P CTB	S&P PAB	Data Source
Weighted-average Physical Risk Score (waPR)	≤ waPR of underlying index	≤ 90% × waPR of underlying index	Trucost
Physical Risk Max Company Weight	$\leq A_i * Parent\ Weight_i$ where: $A_i = \rho * \frac{PR_i - 100}{PR_i - 10}$ PR_i= is the Physical Risk score of the company i $\rho = \frac{Physical\ Risk\ Score\ 95th\ percentile - 10}{Physical\ Risk\ Score\ 95th\ percentile - 100}$ See *Appendix A* for more details. (This constraint is only applied to companies with a PR such that $A_i \leq 4$. And a Physical Risk Score higher than 10)		Trucost

Table 4. Climate Opportunities Constraint

Constraint	S&P CTB	S&P PAB	Data Source
Green-to-Brown Revenue Share (GBR)	≥ GBR of underlying index	≥ 4 × GBR of underlying index	Trucost

Table 5. Index Construction Constraints

Constraint	S&P CTB & S&P PAB ESG Indices
Diversification Relative Company Weight	± 2% from underlying index company weight
Diversification Absolute Max Company Weight	≤ max(5%, underlying company weight)
Liquidity Max Stock Weight	$\leq \frac{\text{Hypothetical Days to Buy/Sell} \times \text{Daily Participation} \times \text{Liquidity}_i}{\text{Notional Portfolio Size}}$ where: Hypothetical Days to Buy/Sell = 5 Daily Participation = 10% Liquidity = 3-month Median Daily Value Traded For Liquidity Currency and Notional Portfolio Size for each index see Table 6.
Minimum Stock Weight Lower Threshold	Existing constituents: ≥ 0.01%[17] New constituents: ≥ max(0.01%, min(0.05,0.5 × underlying stock weight))

Table 6. Index Specific Liquidity Currency and Notional Portfolio Size Values

Index	Liquidity Currency	Notional Portfolio Size
S&P 500 CTB Index	USD	1 billion
S&P 500 PAB ESG Index		
S&P China LargeMidCap CTB Index		
S&P China LargeMidCap PAB ESG Index		
S&P World CTB Index		
S&P World PAB ESG Index		
S&P World PAB ESG Ex-Non-Pharma Animal Testing Index		
S&P China A 300 CTBIndex		
S&P China A 300 PAB Index		
S&P China A 300 CTB Index (NS Series)		
S&P China A 300 PAB Index (NS Series)		
S&P Emerging Plus CTB Index		
S&P Emerging Plus PAB ESG Index		
S&P Global LargeMidCap CTB Index		
S&P Global LargeMidCap PAB ESG Index		
S&P Europe LargeMidCap CTB Index	EUR	
S&P Europe LargeMidCap PAB ESG Index		
S&P Eurozone LargeMidCap CTB Index		
S&P Eurozone LargeMidCap PAB ESG Index		
S&P UK CTB Index	GBP	500 million
S&P UK PAB ESG Index		

[17] Constraints relating to existing constituents do not apply to the historical rebalance on the index 'Anchor Date'. Please see *Appendix E* for more details on the 'Anchor Date'.

Index	Liquidity Currency	Notional Portfolio Size
S&P/ASX 300 CTB Index	AUD	1 billion
S&P/ASX 300 PAB ESG Index		
S&P Japan LargeMidCap CTB Index	JPY	100 billion

Constraint Relaxation Hierarchy

If the optimization fails to find a solution, the optimizer partially relaxes each constraint in the order listed below, and repeats, if necessary, until a solution is found. In each attempt at optimization the constraints are further relaxed in the stated order, however, the Index Committee may revise the order of relaxation hierarchy if a particular constraint prevents the optimizer from finding a solution.

- Weighted-average S&P Global ESG Score
- Weighted-average Physical Risk Score
- Weight of Non-Disclosing Carbon Companies
- Diversification Absolute Max Stock Weight
- Diversification Relative Stock Weight
- Liquidity Max Stock Weight
- Fossil Fuel Reserves
- Physical Risk Max Stock Weight
- Green-to-Brown Revenue Share
- 1.5ºC Climate Scenario Transition Pathway Budget Index Alignment

The following constraints are considered hard constraints and do not relax:

- Weighted-average Carbon Intensity (WACI) Target
- 7% Decarbonization Trajectory WACI Target
- High Climate Impact Sectors Revenue Proportion
- Weight of Eligible Science Based Targets Companies

Constraint-Related Definitions

1.5ºC Climate Scenario Transition Pathway Budget Index Alignment

The alignment of the index[18] is calculated as follows:

$$\sum \mathrm{w_i} \times \frac{\text{Winsorized TPBA}_i}{\mathrm{EVIC_i}}$$

where:

w_i = weight of the company i in the index

$Winsorized\ TPBA_i = \max(2.5 \text{ percentile of the TPBA of underlying index}, \mathrm{TPBA}_i)$

$EVIC_i$ = enterprise value including cash of the company i

The Transition Pathway Budget Alignment (TPBA) of each company *i* is calculated as the sum of the difference between a company's carbon budget and emissions (either realized or predicted) both using history and future projections. A TPBA of 0 would be compatible with a 1.5ºC climate scenario, a budget

[18] For history prior to November 2018, only the realized GHG data available at that point-in-time was used in the calculation of the Transition Pathway Budget Alignment (i.e., Predicted GHG was included from December 2018 onwards).

below 0 would be compatible with better than a 1.5ºC climate scenario and a budget above 0 would not be compatible with a 1.5ºC climate scenario.

This metric is calculated using the GHG emissions dataset and the 1.5ºC Climate Transition Pathway Model Scenario dataset provided by Trucost.

Weighted-Average Carbon Intensity (WACI)[19]

$$\sum \mathrm{w_i} \times \frac{\mathrm{GHG1_i} + \mathrm{GHG2_i} + \mathrm{GHG3_i}}{\mathrm{EVIC_i}}$$

where:

w_i= weight of the company i in the index

$GHG1_i$ = Scope 1 GHG emissions in tCO_2e for the company i

$GHG2_i$ = Scope 2 GHG emissions in tCO_2e for the company i

$GHG3_i$ = Scope 3[20] (upstream and downstream) GHG emissions in tCO_2e for the company i

$EVIC_i$ = enterprise value including cash of the company i

This metric is calculated using the GHG emissions dataset provided by Trucost.

Eligible Science Based Targets

Eligible Science Based Targets Companies are those companies with publicly disclosed near-term targets from the Science Based Targets Initiative (SBTI), subject to the following conditions:

1. The target is publicly disclosed and is 1.5ºC aligned
2. The targets set include all scope 1, scope 2 and scope 3 (upstream and downstream) emissions
3. The company discloses their scope 1, scope 2 and scope 3 emissions sufficiently
4. Companies must show a 7% decarbonization year-on-year, for the past 3 years
5. Companies' targets must represent an annualized decarbonization rate of 7% when accounting for scopes 1, 2 and 3 (upstream and downstream) targets assuming the companies' current composition of emissions.

This metric is calculated using the GHG emissions dataset and the 1.5ºC Climate Transition Pathway Model Scenario dataset provided by Trucost, and the register of approved science-based company targets from the SBTI.

High Climate Impact Sectors Revenue Proportion (HCISRP)

$$\frac{\sum w_i \times \frac{HCISR_i}{EVIC_i}}{\sum w_i \times \frac{TR_i}{EVIC_i}}$$

where:

w_i = weight of the company i in the index

$HCISR_i$ = revenue of the company i derived from High Climate Impact Sectors

TR_i = total revenue of the company i

[19] Exclude companies without full GHG emissions coverage from the calculation.

[20] For history prior to February 2020 the WACI calculation for the S&P China A 300 Net Zero 2050 Climate Transition Index, S&P China A 300 Net Zero 2050 Paris-Aligned Index, S&P China A 300 Net Zero 2050 Climate Transition Index (NS Series), and S&P China A 300 Net Zero 2050 Paris-Aligned Index (NS Series) only used Scopes 1 and 2.

$EVIC_i$ = enterprise value including cash of the company i

High Climate Impact Sectors are defined by the follow NACE sections:

- Agriculture, Forestry and Fishing
- Mining and Quarrying
- Manufacturing
- Electricity, Gas, Steam and Air Conditioning Supply
- Water Supply; Sewerage, Waste Management and Remediation Activities
- Construction
- Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles
- Transportation and Storage
- Real Estate Activities

NACE sections have been mapped to Trucost Sectors. This metric is calculated using the sector revenues dataset provided by Trucost.

For more information on High Climate Impact Sectors, including the classification of Trucost revenue sectors as either 'high' or 'low' climate impact sectors, please refer to the Trucost Climate Impact Sectors Classification.

Non-Disclosing Carbon Companies

Non-disclosing carbon companies are those companies identified by Trucost as having insufficiently disclosed their GHG emissions (expressed in CO_2 equivalents). A 'Disclosed' status is achieved when Trucost identifies companies as having full or partial disclosure in its largest GHG emissions scope in absolute emissions terms (between scope 1 and 2).

This metric is calculated using the GHG emissions disclosure level dataset provided by Trucost.

Fossil Fuel Reserves (FFR)

$$\sum \mathrm{w_i} \times \frac{\mathrm{Fossil\ Fuel\ Reserves_i}}{\mathrm{EVIC_i}}$$

where:

w_i = weight of the company i in the index

$Fossil\ Fuel\ Reserves_i$ = the embedded emissions (tCO_2) within the fossil fuel reserves owned by company i

$EVIC_i$ = enterprise value including cash of the company i

This metric is calculated using the fossil fuel reserves dataset provided by Trucost.

Green-to-Brown Revenue Share (GBR)

$$\frac{\sum w_i \times \frac{GR_i}{EVIC_i}}{\sum w_i \times \frac{BR_i}{EVIC_i}}$$

where:

w_i = weight of the company i in the index

GR_i = revenue of the company i derived from Green Sectors

BR_i = revenue of the company i derived from Brown Sectors

$EVIC_i$ = enterprise value including cash of the company i

S&P DJI defines Green Sectors as the following Trucost Sectors:

- Nuclear Electric Power Generation
- Biomass Power Generation
- Geothermal Power Generation
- Hydroelectric Power Generation
- Solar Power Generation
- Wave & Tidal Power Generation
- Wind Power Generation

S&P DJI defines Brown Sectors as the following Trucost Sectors:

- Coal Power Generation
- Petroleum Power Generation
- Natural Gas Power Generation

This metric is calculated using the sector revenues dataset provided by Trucost.

Please refer to www.trucost.com for more information.

Index Calculations

The indices calculate by means of the divisor methodology used in all S&P Dow Jones Indices' equity indices.

For more information on the index calculation methodology, please refer to the Non-Market Capitalization Weighted Indices and Capped Market Capitalization Weighted Indices sections, respectively, of S&P Dow Jones Indices' Index Mathematics Methodology.

Index Maintenance

Rebalancing

The indices rebalance quarterly, effective after the close of the third Friday of March, June, September, and December. The rebalancing reference date for each rebalance is the third Friday of the prior month. As part of the rebalancing process, constituent stock weights are updated. Weights calculated as a result of the reference date data are implemented in the indices using closing prices seven business days prior to the rebalancing effective date.

S&P Dow Jones Indices monitors UNGC compliance on a best-efforts basis until the initial announcement of the rebalancing results. If a company's UNGC compliance status changes any time prior to the rebalancing results announcement and no longer qualifies for the index, S&P Dow Jones Indices may, at its discretion, exclude the company in conjunction with the rebalancing.

Ongoing Maintenance

Index constituents are drawn from the underlying index or component indices. Specific changes to index constituents, such as share changes, Investable Weight Factor (IWF) changes, dividend distributions, and price adjustments, follow the policies of the underlying index.

For more information on Share Updates, Float Adjustment, and IWFs, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology and S&P Dow Jones Indices' Float Adjustment Methodology.

The indices are reviewed on an ongoing basis to account for corporate events such as mergers, takeovers, delistings, suspensions, spin-offs/demergers, or bankruptcies. Changes to index composition and related weight adjustments are made as soon as they are effective. These changes are typically announced prior to the implementation date.

Quarterly Updates

Changes to a constituent's shares and IWF as a result of the quarterly updates are effective after the close on the third Friday in March, June, September, and December.

Additions and Deletions

Additions. Except for spin-offs, no stocks are added to the indices between rebalance dates. Spinoffs are added to all indices where the parent security is a constituent at a zero price at the market close of the day before the ex-date (with no divisor adjustment) and are removed after at least one day of regular way trading (with a divisor adjustment).

Deletions. If a stock is dropped from an underlying index, the stock is removed from the respective S&P CTB and/or S&P PAB ESG Indices simultaneously. Between rebalancings, a stock can be deleted from an index due to corporate events such as mergers, takeovers, delistings, suspensions, spin-offs/demergers, or bankruptcies.

In addition, at the discretion of the Index Committee, a deletion may occur if an MSA is raised.

Corporate Actions

For more information on Corporate Actions, please refer to the Non-Market Capitalization Indices section of S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Currency of Calculation and Additional Index Return Series

WMR foreign exchange rates are taken daily at 4:00 PM London Time and used in the calculation of the indices. These mid-market fixings are calculated by WMR based on LSEG data and appear on LSEG pages.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to the following: currency, currency hedged, decrement, fair value, inverse, leveraged, and risk control versions. For a list of available indices, please refer to the *S&P DJI Methodology & Regulatory Status Database*.

For information on various index calculations, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

For the inputs necessary to calculate certain types of indices, including decrement, dynamic hedged, fair value, and risk control indices, please refer to the Parameters documents available at www.spglobal.com/spdji.

Base Dates and History Availability

Index history availability, base dates, and base values are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
S&P 500 CTB Index	06/01/2020	12/31/2016	12/31/2016	1000
S&P 500 PAB ESG Index	06/01/2020	12/31/2016	12/31/2016	1000
S&P China LargeMidCap CTB Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P China LargeMidCap PAB ESG Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P World CTB Index	06/01/2020	12/31/2016	12/31/2016	1000
S&P World PAB ESG Index	06/01/2020	12/31/2016	12/31/2016	1000
S&P Emerging Plus CTB Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P Emerging Plus PAB ESG Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P Europe LargeMidCap CTB Index	05/04/2020	12/31/2016	12/31/2016	1000
S&P Europe LargeMidCap PAB ESG Index	05/04/2020	12/31/2016	12/31/2016	1000
S&P Eurozone LargeMidCap CTB Index	04/20/2020	12/31/2016	12/31/2016	1000
S&P Eurozone LargeMidCap PAB ESG Index	04/20/2020	12/31/2016	12/31/2016	1000
S&P Global LargeMidCap CTB Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P Global LargeMidCap PAB ESG Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P Japan LargeMidCap CTB Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P Japan LargeMidCap PAB ESG Index	02/27/2023	12/31/2016	12/31/2016	1000
S&P UK CTB Index	10/25/2021	12/31/2016	12/31/2016	1000
S&P UK PAB ESG Index	10/25/2021	12/31/2016	12/31/2016	1000
S&P/ASX 300 CTB Index	11/14/2022	12/31/2016	12/31/2016	1000
S&P/ASX 300 PAB ESG Index	11/14/2022	12/31/2016	12/31/2016	1000
S&P China A 300 CTB Index	11/28/2022	12/31/2016	12/31/2016	1000
S&P China A 300 PAB Index	11/28/2022	12/31/2016	12/31/2016	1000
S&P China A 300 CTB Index (NS Series)	11/28/2022	12/31/2016	12/31/2016	1000
S&P China A 300 PAB Index (NS Series)	11/28/2022	12/31/2016	12/31/2016	1000
S&P World PAB ESG Ex-Non-Pharma Animal Testing Index	02/20/2023	12/31/2016	12/31/2016	1000

Index Data

Calculation Return Types

S&P Dow Jones Indices calculates multiple return types which vary based on the treatment of regular cash dividends. The classification of regular cash dividends is determined by S&P Dow Jones Indices.

- Price Return (PR) versions are calculated without adjustments for regular cash dividends.
- Gross Total Return (TR) versions reinvest regular cash dividends at the close on the ex-date without consideration for withholding taxes.
- Net Total Return (NTR) versions, if available, reinvest regular cash dividends at the close on the ex-date after the deduction of applicable withholding taxes.

In the event there are no regular cash dividends on the ex-date, the daily performance of all three indices will be identical.

For a complete list of indices available, please refer to the daily index levels file (".SDL").

For more information on the classification of regular versus special cash dividends as well as the tax rates used in the calculation of net return, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

For more information on the calculation of return types, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Index Governance

Index Committee

An S&P Dow Jones Indices Index Committee maintains the indices. The Index Committee meets regularly. At each meeting, the Index Committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the index to the market, companies that are being considered as candidates for addition to the index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

S&P Dow Jones Indices considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Index Policy

Announcements

All index constituents are evaluated daily for data needed to calculate index levels and returns. All events affecting the daily index calculation are typically announced in advance via the Index Corporate Events report (.SDE), delivered daily to all clients. Any unusual treatment of a corporate action or short notice of an event may be communicated via email to clients.

Pro-forma Files

In addition to the corporate events file (.SDE), S&P Dow Jones Indices provides constituent pro-forma files each time the indices rebalance. The pro-forma file is typically provided daily in advance of the rebalancing date and contains all constituents, and their corresponding weights and index shares effective for the upcoming rebalancing.

Please visit www.spglobal.com/spdji for a complete schedule of rebalancing timelines and pro-forma delivery times.

Holiday Schedule

The indices calculate daily, throughout the calendar year. The only days an index is not calculated are on days when all exchanges where an index's constituents are listed are officially closed or if WM/Reuters' exchange rates services are not published.

A complete holiday schedule for the year is available at *www.spglobal.com/spdji*.

Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

Unexpected Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Contact Information

For any questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at *www.spglobal.com/spdji*, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All versions of the below indices that may exist are also covered by this document. Please refer to the *S&P DJI Methodology & Regulatory Status Database* for a complete list of indices covered by this document.

Index	Return Type	BBG
S&P 500 CTB Index (EUR)	Price Return Total Return Net Total Return	SP50CTEP SP50CTET SP50CTEN
S&P 500 CTB Index (USD)	Price Return Total Return Net Total Return	SP50CTUP SP50CTUT SP50CTUN
S&P 500 PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SP50PAEP SP50PAET SP50PAEN
S&P 500 PAB ESG Index (USD)	Price Return Total Return Net Total Return	SP50PAUP SP50PAUT SP50PAUN
S&P World CTB Index (EUR)	Price Return Total Return Net Total Return	SPDKCTEP SPDKCTET SPDKCTEN
S&P World CTB Index (USD)	Price Return Total Return Net Total Return	SPDKCTUP SPDKCTUT SPDKCTUN
S&P World PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPDPACEP SPDPACET SPDPACEN
S&P World PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPDPACUP SPDPACUT SPDPACUN
S&P World PAB ESG Ex-Non-Pharma Animal Testing Index (NZD)	Price Return Total Return Net Total Return	SPDPAXNP SPDPAXNT SPDPAXNN
S&P Europe LargeMidCap CTB Index (EUR)	Price Return Total Return Net Total Return	SPEUCTEP SPEUCTET SPEUCTEN
S&P Europe LargeMidCap CTB Index (USD)	Price Return Total Return Net Total Return	SPEUCTUP SPEUCTUT SPEUCTUN
S&P Europe LargeMidCap PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPEUPAEP SPEUPAET SPEUPAEN
S&P Europe LargeMidCap PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPEUPAUP SPEUPAUT SPEUPAUN
S&P Eurozone LargeMidCap CTB Index (EUR)	Price Return Total Return Net Total Return	SPEUCTEP SPEUCTET SPEUCTEN
S&P Eurozone LargeMidCap CTB Index (USD)	Price Return Total Return	SPEUCTUP SPEUCTUT

Index	Return Type	BBG
	Net Total Return	SPEUCTUN
S&P Eurozone LargeMidCap PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPEUPAEP SPEUPAET SPEUPAEN
S&P Eurozone LargeMidCap PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPEUPAUP SPEUPAUT SPEUPAUN
S&P UK CTB Index (EUR)	Price Return Total Return Net Total Return	SPGBCTEP SPGBCTET SPGBCTEN
S&P UK CTB Index (USD)	Price Return Total Return Net Total Return	SPGBCTUP SPGBCTUT SPGBCTUN
S&P UK PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPGBPAEP SPGBPAET SPGBPAEN
S&P UK PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPGBPAUP SPGBPAUT SPGBPAUN
S&P/ASX 300 CTB Index (AUD)	Price Return Total Return Net Total Return	SPAUPAAP SPAUPAAT SPAUPAAN
S&P/ASX 300 PAB ESG Index (AUD)	Price Return Total Return Net Total Return	SPAUCTAP SPAUCTAT SPAUCTAN
S&P China A 300 CTBIndex (CNY)	Price Return Total Return Net Total Return	SPCCT3CP SPCCT3CT SPCCT3CN
S&P China A 300 PAB Index (CNY)	Price Return Total Return Net Total Return	SPCPA3CP SPCPA3CT SPCPA3CN
S&P China A 300 CTB Index (NS Series) (CNY)	Price Return Total Return Net Total Return	SPCCTNCP SPCCTNCT SPCCTNCN
S&P China A 300 PAB Index (NS Series) (CNY)	Price Return Total Return Net Total Return	SPCPANCP SPCPANCT SPCPANCN
S&P Global LargeMidCap CTB Index (USD)	Price Return Total Return Net Total Return	SPGXCTUP SPGXCTUT SPGXCTUN
S&P Global LargeMidCap CTB Index (EUR)	Price Return Total Return Net Total Return	SPGXCTEP SPGXCTET SPGXCTEN
S&P Global LargeMidCap PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPGXPAUP SPGXPAUT SPGXPAUN
S&P Global LargeMidCap PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPGXPAEP SPGXPAET SPGXPAEN
S&P Emerging Plus CTB Index (USD)	Price Return Total Return Net Total Return	SPEXCTUP SPEXCTUT SPEXCTUN
S&P Emerging Plus CTB Index (EUR)	Price Return Total Return Net Total Return	SPEXCTEP SPEXCTET SPEXCTEN
S&P Emerging Plus PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPEXPAUP SPEXPAUT SPEXPAUN
S&P Emerging Plus PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPEXPAEP SPEXPAET SPEXPAEN
S&P China LargeMidCap CTB Index (USD)	Price Return Total Return	SPCXCTUP SPCXCTUT

Index	Return Type	BBG
	Net Total Return	SPCXCTUN
S&P China LargeMidCap CTB Index (EUR)	Price Return Total Return Net Total Return	SPCXCTEP SPCXCTET SPCXCTEN
S&P China LargeMidCap CTB Index (CNY)	Price Return Total Return Net Total Return	SPCXCTCP SPCXCTCT SPCXCTCN
S&P China LargeMidCap CTB Index (CNH)	Price Return Total Return Net Total Return	SPCXCTNP SPCXCTNT SPCXCTNN
S&P China LargeMidCap PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPCXPAUP SPCXPAUT SPCXPAUN
S&P China LargeMidCap PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPCXPAEP SPCXPAET SPCXPAEN
S&P China LargeMidCap PAB ESG Index (CNY)	Price Return Total Return Net Total Return	SPCXPACP SPCXPACT SPCXPACN
S&P China LargeMidCap PAB ESG Index (CNH)	Price Return Total Return Net Total Return	SPCXPANP SPCXPANT SPCXPANN
S&P Japan LargeMidCap CTB Index (USD)	Price Return Total Return Net Total Return	SPJXCTUP SPJXCTUT SPJXCTUN
S&P Japan LargeMidCap CTB Index (EUR)	Price Return Total Return Net Total Return	SPJXCTEP SPJXCTET SPJXCTEN
S&P Japan LargeMidCap CTB Index (JPY)	Price Return Total Return Net Total Return	SPJXCTJP SPJXCTJT SPJXCTJN
S&P Japan LargeMidCap PAB ESG Index (USD)	Price Return Total Return Net Total Return	SPJXPAUP SPJXPAUT SPJXPAUN
S&P Japan LargeMidCap PAB ESG Index (EUR)	Price Return Total Return Net Total Return	SPJXPAEP SPJXPAET SPJXPAEN
S&P Japan LargeMidCap PAB ESG Index (JPY)	Price Return Total Return Net Total Return	SPJXPAJP SPJXPAJT SPJXPAJN

Index Data

Daily constituent and index level data are available via subscription.

For product information, please contact S&P Dow Jones Indices, www.spglobal.com/spdji/en/contact-us.

Website

For further information, please refer to S&P Dow Jones Indices' Web site at www.spglobal.com/spdji.

Appendix A

Physical Risk Max Stock Weight Constraint

This constraint is designed to avoid excessively overweighting companies with high physical risk score. The constraint is applied in proportion to the weight in the parent index.

$$Strategy\ Weight_i \leq A_i * Parent\ Weight_i$$

where:

$A_i = \rho * \frac{Physical\ Risk\ Score_i - 100}{Physical\ Risk\ Score_i - 10}$,

and $\rho = \frac{Physical\ Risk\ Score\ 95th\ percentile - 10}{Physical\ Risk\ Score\ 95th\ percentile - 100}$

where $Physical\ Risk\ Score\ 95th\ percentile$ is the Physical Risk Score value greater that the 95% of the parent index

This constraint is only applied to companies that have a Physical Risk Score higher than 10 and such that $A_i \leq 4$.

Any stock with Physical Risk value greater than $Physical\ Risk\ Score\ 95th\ percentile$ cannot have a weight greater than its parent index weight ($A_i \leq 1$). If the Physical Risk score is 100, A_i will be zero.

For example, for the indices where the 95th percentile Physical risk value for the stocks in the universe is 40, if a company has a Physical Score of 30 and a weight in the parent of 2%, the maximal allowed weight in the indices is 2%*1.75 = 3.5%. If instead the company's Physical Risk Score were 70, the maximum allowed weight would be 2%*0.25 = 0.5%.

The following table shows the values of the multiplier A for each Physical Risk Score rounded to the third decimal point, for when the 95th percentile Physical risk value for the stocks in the universe is 40.

Physical Risk Score	A	Physical Risk Score	A	Physical Risk Score	A	Physical Risk Score	A
20	4.000	40	1.000	60	0.400	80	0.143
21	3.591	41	0.952	61	0.382	81	0.134
22	3.250	42	0.906	62	0.365	82	0.125
23	2.962	43	0.864	63	0.349	83	0.116
24	2.714	44	0.824	64	0.333	84	0.108
25	2.500	45	0.786	65	0.318	85	0.100
26	2.313	46	0.750	66	0.304	86	0.092
27	2.147	47	0.716	67	0.289	87	0.084
28	2.000	48	0.684	68	0.276	88	0.077
29	1.868	49	0.654	69	0.263	89	0.070
30	1.750	50	0.625	70	0.250	90	0.063
31	1.643	51	0.598	71	0.238	91	0.056
32	1.545	52	0.571	72	0.226	92	0.049
33	1.457	53	0.547	73	0.214	93	0.042
34	1.375	54	0.523	74	0.203	94	0.036
35	1.300	55	0.500	75	0.192	95	0.029
36	1.231	56	0.478	76	0.182	96	0.023
37	1.167	57	0.457	77	0.172	97	0.017
38	1.107	58	0.438	78	0.162	98	0.011
39	1.052	59	0.418	79	0.152	99	0.006
						100	0.000

Appendix B

1.5ºC Climate Scenario Transition Pathway Budget Index Alignment Constraint

For the indices where the 1.5ºC Climate Scenario Transition Pathway Budget Index Alignment constraint is not zero, the value of C is used as the constraint.

At each rebalancing reference date, C is defined as the Transition Pathway Budget Alignment (TPBA)[21] of a specific underlying index stock that represents where the sum of Absolute Transition Pathway Budget Contributions for stocks with a TPBA below C is closest to 5% of the sum of Absolute Transition Pathway Budget Contributions for stocks with a TPBA above C.

The following steps describe the calculation of C in more detail:

1. Sort stocks by their TPBA values in ascending order (see *Table 7*).
2. Calculate the 'Transition Pathway Budget Contribution' for all stocks in the universe, by multiplying their TPBA by their weight in the underlying index as at the rebalancing reference date.
3. For each stock i calculate (S_i) as the sum of Absolute Transition Pathway Budget Contributions for all the stocks with a TPBA that is lower or equal than that of stock i.
4. For each stock i calculate ($\mathrm{T_i}$) as the sum of Absolute Transition Pathway Budget Contributions for all the stocks with a TPBA that is higher than that of stock i.
5. The value C is the 1.5ºC Climate Scenario Transition Pathway Budget Index Alignment constraint for the index and is defined as the TPBA of the stock whose $\frac{\mathrm{S_i}}{\mathrm{T_i}}$ ratio is closest to 5%. This can also be stated as the TPBA of the stock with the minimum absolute value of $\frac{\mathrm{S_i}}{\mathrm{T_i}}$ ratio minus 5% ($|\frac{\mathrm{S_i}}{\mathrm{T_i}} - 0.05|$).
    - If C is less than zero, zero is used instead.
    - If $\mathrm{C} \geq$ [50% × (weighted average TPBA of underlying index)] then C is set to equal [50% × (weighted average TPBA of underlying index)].

The following table illustrates an example of how to calculate the value C. The $\frac{\mathrm{S_i}}{\mathrm{T_i}}$ ratio value of 0.050575 (shown in bold in second-to-last column) is the closest $\frac{\mathrm{S_i}}{\mathrm{T_i}}$ ratio to 5%, just as the $|\frac{\mathrm{S_i}}{\mathrm{T_i}} - 0.05|$ value in that column is the lowest among all others. Therefore C will be taken to be equal to 10, as it is the Transition Pathway Budget Index Alignment constraint. It is also greater than 0 and less than half of the weighted average of the parent (40.89 × 50%).

[21] The Transition Pathway Budget Alignment (TPBA) of each company *i* is calculated as the sum of the difference between a company's carbon budget and emissions (either realized or predicted) both using history and future projections. A TPBA of 0 would be compatible with a 1.5ºC climate scenario, a budget below 0 would be compatible with better than a 1.5ºC climate scenario and a budget above 0 would not be compatible with a 1.5ºC climate scenario.

Table 7. Transition Pathway Budget Alignment Value Calculation Example

Stock	Transition Pathway Budget Alignment (TPBA)	Underlying Index Weight	Transition Pathway Budget Contribution	Absolute Transition Pathway Budget Contribution	S_i	T_i	$\frac{S_i}{T_i}$	$\lvert\frac{S_i}{T_i} - 0.05\rvert$
Stock A	-24	3%	-0.72	0.72	0.72	43.11	0.016701	0.033299
Stock B	-3	25%	-0.75	0.75	1.47	42.36	0.034703	0.015297
Stock C	4	6%	0.24	0.24	1.71	42.12	0.040598	0.009402
Stock D	10	4%	0.40	0.40	2.11	41.72	0.050575	0.000575
Stock E	27	9%	2.43	2.43	4.54	39.29	0.115551	0.065551
Stock F	55	19%	10.45	10.45	14.99	28.84	0.519764	0.469764
Stock G	68	21%	14.28	14.28	29.27	14.56	2.010302	1.960302
Stock H	112	13%	14.56	14.56	43.83	0	Inf	Inf
TOTAL		100%	40.89	43.83				

Appendix C

Data Coverage Treatment

For companies without coverage for the data points described below, values are assigned according to the following table:

Data	Value Assigned
Transition Pathway	The index's 1.5ºC Climate Scenario Transition Pathway Budget Index Alignment
Physical Risk	The underlying index's Weighted-average Physical Risk Score
Green-to-Brown Share	0
Fossil Fuel Reserves	0
Sector Revenues	0
S&P Global ESG Score	The underlying index's waESG after excluding companies without an S&P Global ESG Score from the calculation

Appendix D

Methodology Changes

Methodology changes since April 20, 2020, are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
• Index Names	02/27/2026	The indices names are: • S&P Emerging Plus LargeMidCap CTB Index • S&P Emerging Plus LargeMidCap PAB ESG Index	The indices names are: • S&P Emerging Plus CTB Index • S&P Emerging Plus PAB ESG Index
Index Names: S&P CTB Indices S&P PAB ESG Indices	11/06/2025	The indices names are: • S&P Net Zero 2050 Climate Transition ESG Index Series • S&P Net Zero 2050 Paris-Aligned ESG Index Series	The index names are: • S&P CTB Indices • S&P PAB ESG Indices
Exclusions based on Business Activities: S&P World Net Zero 2050 Paris-Aligned ESG Ex-Non-Pharma Animal Testing Index	09/19/2025	--	S&P Global Category of Involvement and Description / S&P DJI Level of Involvement Threshold / S&P DJI Significant Ownership Threshold **Specialized Equipment:** The screen covers companies that manufacture specialized equipment used exclusively for gambling. / ≥10% / N/A **Supporting Products and Services:** The screen covers companies that provide supporting products/services to gambling operations. / ≥10% / N/A
ESG Score Data	06/21/2024	The index uses S&P DJI ESG Scores as part of the constituent selection process.	The indices use S&P Global ESG Scores as part of the constituent selection process.
Exclusions Based on Business Activities: Data Provider	06/21/2024	Sustainalytics provides the data for exclusions based on business activities	S&P Global provides the data for exclusions based on business activities.
Eligibility Factors: Carbon Emissions Coverage	03/15/2024	-	Carbon Emissions Coverage: Companies must have GHG emissions data, as provided by Trucost. Any Trucost data with a financial year five years or more prior to the rebalancing reference date's year is considered not covered.
Index Name change: S&P Developed Ex-Korea LargeMidCap Net Zero 2050, Climate Transition ESG, and Paris-Aligned ESG Index Series	02/26/2024	Index names are: • S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Climate Transition ESG Index • S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Paris-Aligned ESG Index • S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Paris-Aligned ESG Index • S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Paris-Aligned ESG Ex-Non-Pharma Animal Testing Index	Index names are: • S&P World Net Zero 2050 Climate Transition ESG Index • S&P World Net Zero 2050 Paris-Aligned ESG Index • S&P World Net Zero 2050 Paris-Aligned ESG Index • S&P World Net Zero 2050 Paris-Aligned ESG Ex-Non-Pharma Animal Testing Index
Rebalancing: All Indices	09/15/2023	The indices rebalance quarterly, effective after the close of the last business day of March, June, September, and December. The rebalancing reference date for each rebalance is the last trading day of the prior month.	The indices rebalance quarterly, effective after the close of the third Friday of March, June, September, and December. The rebalancing reference date for each rebalance is the third Friday of the prior month.

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Exclusions based on Business Activities: All Indices	12/30/2022	'Tobacco: Significant ownership (related products/services)': ≥25% Ownership of Company 'Tobacco: Significant ownership (retail)': ≥25% Ownership of Company	'Tobacco: Significant ownership (related products/services)': N/A 'Tobacco: Significant ownership (retail)': N/A
Diversification Relative Stock Weight: All Indices	03/31/2022	± 2% from underlying index **stock** weight	± 2% from underlying index **company** weight
Diversification Absolute Max Stock Weight: All Indices	03/31/2022	≤ max(5%, underlying **stock** weight)	≤ max(5%, underlying **company** weight)
Physical Risk Constraint: All Indices except S&P UK Net Zero 2050 Paris-Aligned ESG Index and S&P UK Net Zero 2050 Climate Transition ESG Index	03/31/2022	$\rho = -0.5$ Constraint is applied at the **stock** level	$\rho = \frac{Physical\ Risk\ Score\ 95th\ percentile - 10}{Physical\ Risk\ Score\ 95th\ percentile - 100}$ Constraint is applied at the **company** level
Physical Risk Constraint: S&P UK Net Zero 2050 Paris-Aligned ESG Index and S&P UK Net Zero 2050 Climate Transition ESG Index	03/31/2022	Constraint is applied at the **stock** level	Constraint is applied at the **company** level
Exclusions based on Business Activities: Alcoholic Beverages: Production S&P Net Zero 2050 Paris-Aligned ESG Indices	03/31/2022	level of involvement threshold: **>0%**	level of involvement threshold: **≥5%**
Exclusions based on Business Activities: Military Contracting: Weapon Related Products and/or Services S&P Net Zero 2050 Paris-Aligned ESG Indices	03/31/2022	level of involvement threshold: **>0%**	level of involvement threshold: **≥5%**
Objective Function: All Indices	03/31/2022	$\textbf{Minimize}\left(\sum\frac{(\boldsymbol{Parent\ Weight_i - Optimized\ Weight_i})^2}{\boldsymbol{Parent\ Weight_i}}\right)$	$\textbf{Minimize}\left(\frac{1}{n}\sum\left[\frac{(\boldsymbol{Optimized\ Weight_i - Parent\ Weight_i})^2}{\boldsymbol{Parent\ Weight_i}}\right] + \frac{1}{k}\sum\left[\frac{(\boldsymbol{Optimized\ Sector\ Weight_i - Parent\ Sector\ Weight_i})^2}{\boldsymbol{Parent\ Sector\ Weight_i}}\right] + \frac{1}{m}\sum\left[\frac{(\boldsymbol{Optimized\ Country\ Weight_i - Parent\ Country\ Weight_i})^2}{\boldsymbol{Parent\ Country\ Weight_i}}\right]\right)$
Index Names: S&P Net Zero 2050 Climate Transition ESG Index Series and S&P Net Zero 2050 Paris-Aligned Climate ESG Index Series	06/26/2021	The index names are: • S&P 500 Climate Transition ESG Index • S&P 500 Paris-Aligned ESG Index • S&P Developed Ex-Korea LargeMidCap Climate Transition ESG Index • S&P Developed Ex-Korea LargeMidCap Paris-Aligned ESG Index • S&P Europe LargeMidCap Climate Transition ESG Index	The index names are: • S&P 500 Net Zero 2050 Climate Transition ESG Index • S&P 500 Net Zero 2050 Paris-Aligned ESG Index • S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Climate Transition ESG Index • S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Paris-Aligned ESG Index

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
		• S&P Europe LargeMidCap Paris-Aligned ESG Index • S&P Eurozone LargeMidCap Climate Transition ESG Index • S&P Eurozone LargeMidCap Paris-Aligned ESG Index	• S&P Europe LargeMidCap Net Zero 2050 Climate Transition ESG Index • S&P Europe LargeMidCap Net Zero 2050 Paris-Aligned ESG Index • S&P Eurozone LargeMidCap Net Zero 2050 Climate Transition ESG Index • S&P Eurozone LargeMidCap Net Zero 2050 Paris-Aligned ESG Index
Environmental Score Constraint to ESG Score Constraint: S&P Net Zero 2050 Climate Transition ESG Indices	06/30/2021	Weighted-average S&P DJI Environmental Score (waE) of the CT Index should be ≥ the waE of the eligible universe.	Weighted-average S&P DJI ESG Score (waESG) of the CT Index should be ≥ the eligible waESG of the eligible universe.
Environmental Score Constraint to ESG Score Constraint: S&P Net Zero 2050 Paris-Aligned ESG Indices	06/30/2021	Weighted-average S&P DJI Environmental Score (waE) of the PA Index should be ≥ the waE of the eligible universe + (20% × (max E score in eligible universe – eligible universe's waE))	Weighted-average S&P DJI ESG Score (waESG) of the PA Index should be ≥ the waESG of the universe after 20% of the worst ESG score performing companies by count are removed and weight redistributed
Introduce buffer rule and revise stock cap: All Indices	06/30/2021	No buffer, minimum stock weight lower threshold of 0.01%, maximum weight of 5%.	Minimum stock weight threshold ≥1 bps for existing constituents and max(1bps, min (5bps, 0.5 x weight in underlying index) for new constituents. Max stock weight: max(5% weight in underlying index)
UNGC Exclusion: All Indices	06/30/2021	All companies at or below the bottom 5% of the Arabesque GC score universe globally are ineligible.	Companies that are deemed by Sustainalytics to be non-compliant are ineligible.
Exclusions based on Business Activities: S&P Net Zero 2050 Paris-Aligned ESG Indices	06/30/2021	Stocks are excluded for involvement in Controversial Weapons and Tobacco only. <u>Involvement Exclusion Threshold:</u> 'Controversial Weapons: Tailor Made and Essential': >0% (no proxy) 'Controversial Weapons: Significant Ownership (Tailor Made and Essential)': ≥25% Ownership of company 'Tobacco: Production': >0% Revenue 'Tobacco: Related Products/Services': ≥10% Revenue 'Tobacco: Retail': ≥10% Revenue 'Tobacco: Significant ownership (production)': ≥25% Ownership of company 'Tobacco: Significant ownership (related products/services)': ≥25% Ownership of company 'Tobacco: Significant ownership (retail)': ≥25% Ownership of company	Stocks are excluded for involvement in Controversial Weapons, Tobacco, Small Arms, Military Contracting, Thermal Coal, Oil Sands, Shale Energy, Gambling and Alcohol, as defined in the methodology. 'Tobacco: Retail' exclusion amended from ≥10% to ≥5%. All other pre-existing exclusions remain unchanged.

Appendix E

Index Anchor Date of Decarbonization Trajectory

The index 'Anchor Date' is the date of the reference index composition and base carbon intensity calculation used to determine the index's decarbonization trajectory. Prior to the index 'Anchor Date' the index 'First Value Date' is used to determine the index's decarbonization trajectory.

Index	First Value Date	Anchor Date	Launch Date
S&P 500 CTB ESG Index	12/31/2016	02/28/2020	06/01/2020
S&P 500 PAB ESG Index	12/31/2016	02/28/2020	06/01/2020
S&P China LargeMidCap CTB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P China LargeMidCap PAB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P World CTB ESG Index	12/31/2016	02/28/2020	06/01/2020
S&P World PAB ESG Index	12/31/2016	02/28/2020	06/01/2020
S&P World PAB ESG Ex-Non-Pharma Animal Testing Index	12/31/2016	02/28/2020	02/20/2023
S&P Emerging Plus CTB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P Emerging Plus PAB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P Europe LargeMidCap CTB ESG Index	12/31/2016	02/28/2020	05/04/2020
S&P Europe LargeMidCap PAB ESG Index	12/31/2016	02/28/2020	05/04/2020
S&P Eurozone LargeMidCap CTB ESG Index	12/31/2016	02/28/2020	04/20/2020
S&P Eurozone LargeMidCap PAB ESG Index	12/31/2016	02/28/2020	04/20/2020
S&P Global LargeMidCap CTB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P Global LargeMidCap PAB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P Japan LargeMidCap CTB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P Japan LargeMidCap PAB ESG Index	12/31/2016	02/28/2020	02/27/2023
S&P UK CTB ESG Index	12/31/2016	08/31/2021	10/25/2021
S&P UK PAB ESG Index	12/31/2016	08/31/2021	10/25/2021
S&P/ASX 300 CTB ESG Index	12/31/2016	02/28/2020	11/14/2022
S&P/ASX 300 PAB ESG Index	12/31/2016	02/28/2020	11/14/2022
S&P China A 300 CTB Index	12/31/2016	02/28/2020	11/28/2022
S&P China A 300 PAB Index	12/31/2016	02/28/2020	11/28/2022
S&P China A 300 CTB Index (NS Series)	12/31/2016	02/28/2020	11/28/2022
S&P China A 300 PAB Index (NS Series)	12/31/2016	02/28/2020	11/28/2022

If there are significant changes in the calculation methodology for GHG emissions, the index's decarbonization trajectory will be re-anchored.

The GHG intensity is calculated using the same currency as the underlying assets of the benchmark.

Appendix F

Indices in this Methodology Employing Backward Data Assumption

S&P 500 PAB ESG Index
S&P 500 CTB ESG Index
S&P Europe LargeMidCap CTB ESG Index
S&P Europe LargeMidCap PAB ESG Index
S&P World PAB ESG Index
S&P World PAB ESG Ex-Non-Pharma Animal Testing Index
S&P World CTB ESG Index
S&P Eurozone LargeMidCap CTB ESG Index
S&P China LargeMidCap CTB ESG Index
S&P China LargeMidCap PAB ESG Index
S&P Japan LargeMidCap CTB ESG Index
S&P Japan LargeMidCap PAB ESG Index
S&P UK PAB ESG Index
S&P Eurozone LargeMidCap PAB ESG Index
S&P/ASX 300 CTB ESG Index
S&P/ASX 300 PAB ESG Index
S&P China A 300 CTB Index
S&P China A 300 PAB Index
S&P China A 300 CTB Index (NS Series)
S&P China A 300 PAB Index (NS Series)
S&P Emerging Plus CTB ESG Index
S&P Emerging Plus PAB ESG Index
S&P Global LargeMidCap CTB ESG Index
S&P Global LargeMidCap PAB ESG Index
S&P UK CTB ESG Index

Backward Data Assumption

The index employs a "Backward Data Assumption" method for some datapoints used in the derivation of historical index membership prior to the Live Data Effective Date (defined below). The "Backward Data Assumption" method involves applying the earliest available actual live data point for an index constituent to all prior, historical instances of that constituent in the index universe.

Backward Data Assumption affects only the historical, hypothetical constituents of any index back-test. Only actual live data is ever used in live index rebalancings and in the historical rebalancing calculation of an index after its Live Data Effective Date.

For more information on S&P DJI's principles and processes for using Backward Data Assumption, please refer to the FAQ.

Designated Datasets Subject to Backward Data Assumption

The Backward Data Assumption within the historical back-test, with respect to the indices identified above, applies only to designated datasets and associated time horizons as defined below. For each designated dataset, all historical rebalancing events prior to the Live Data Reference Date listed below are subject to use of the Backward Data Assumption.

Data Provider	Designated Dataset	Live Data Reference Date	Live Data Effective Date
Trucost	Physical Risk	2/28/2020	3/31/2020
Trucost	Scope 3 Emissions	2/28/2020	3/31/2020

The Live Data Reference Date refers to the first rebalancing reference date from which only actual live data is used.

The Live Data Effective Date refers to the first date from which index constituents are determined solely on actual live data for each respective dataset.

Historical Coverage Assessment per Designated Dataset

Trucost Physical Risk Coverage (with respect to underlying index universe)**:**

S&P 500 CTB ESG Index & S&P 500 PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	505	0	0%	502	99.7%
2017	505	0	0%	504	99.9%
2018	505	0	0%	504	99.9%
2019	505	0	0%	504	99.9%
2020	505	500	99.7%	n/a	n/a

S&P China LargeMidCap CTB ESG Index & S&P China LargeMidCap PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	183	0	0%	159	93.8%
2017	156	0	0%	134	95.3%
2018	154	0	0%	134	95.4%
2019	620	0	0%	531	92.7%
2020	620	527	92.5%	n/a	n/a

S&P Emerging Plus CTB ESG Index & S&P Emerging Plus PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	1170	0	0%	1113	96.3%
2017	1188	0	0%	1136	97.1%
2018	1167	0	0%	1122	97.1%
2019	1619	0	0%	1462	93.5%
2020	1622	1458	93.5%	n/a	n/a

S&P Europe LargeMidCap CTB ESG Index & S&P Europe LargeMidCap PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	485	0	0%	460	96.1%
2017	472	0	0%	453	97.0%
2018	476	0	0%	462	97.6%
2019	459	0	0%	440	97.6%
2020	458	439	97.6%	n/a	n/a

S&P Eurozone LargeMidCap CTB ESG Index & S&P Eurozone LargeMidCap PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	271	0	0%	259	97.2%
2017	270	0	0%	260	97.1%
2018	271	0	0%	265	98.4%
2019	255	0	0%	246	97.7%
2020	255	246	97.6%	n/a	n/a

S&P World CTB ESG Index, S&P World PAB ESG Ex-Non-Pharma Animal Testing Index & S&P World PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	1776	0	0%	1713	97.1%
2017	1741	0	0%	1699	98.1%
2018	1766	0	0%	1740	99.2%
2019	1690	0	0%	1643	98.9%
2020	1686	1639	98.9%	n/a	n/a

S&P Global LargeMidCap CTB ESG Index & S&P Global LargeMidCap PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	2951	0	0%	2832	97.1%
2017	2926	0	0%	2830	98.0%
2018	2935	0	0%	2859	98.7%

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2019	3309	0	0%	3109	98.3%
2020	3308	3099	98.3%	n/a	n/a

S&P Japan LargeMidCap CTB ESG Index & S&P Japan LargeMidCap PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	404	0	0%	401	99.8%
2017	410	0	0%	409	100%
2018	422	0	0%	421	100%
2019	413	0	0%	411	99.4%
2020	412	410	99.4%	n/a	n/a

S&P/ASX 300 CTB ESG Index & S&P/ASX 300 PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	300	0	0%	271	96.8%
2017	299	0	0%	278	95.8%
2018	296	0	0%	282	96.4%
2019	297	0	0%	274	96.4%
2020	296	273	96.6%	n/a	n/a

S&P China A 300 CTB Index & S&P China A 300 PAB Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	300	0	0.0%	280	89.1%
2017	300	0	0.0%	280	89.9%
2018	300	0	0.0%	279	89.6%
2019	300	0	0.0%	277	89.9%
2020	300	274	90.3%	n/a	n/a

S&P China A 300 CTB Index (NS Series) & S&P China A 300 PAB Index (NS Series)

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	300	0	0.0%	280	89.1%
2017	300	0	0.0%	280	89.9%
2018	300	0	0.0%	279	89.6%
2019	300	0	0.0%	277	89.9%
2020	300	274	90.3%	n/a	n/a

S&P UK CTB ESG Index & S&P UK PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	447	0	0%	408	95.6%
2017	361	0	0%	342	96.7%
2018	357	0	0%	349	97.6%
2019	345	0	0%	327	99.2%
2020	359	329	98.1%	n/a	n/a

Trucost Scope 3 Emissions Coverage (with respect to underlying index universe)**:**

S&P 500 CTB ESG Index & S&P 500 PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	505	0	0%	466	95.7%
2017	505	0	0%	483	97.4%
2018	505	0	0%	493	98.6%
2019	505	0	0%	504	99.9%
2020	505	500	99.7%	n/a	n/a

S&P Europe LargeMidCap CTB ESG Index & S&P Europe LargeMidCap PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	485	0	0%	469	96.9%
2017	472	0	0%	461	97.3%
2018	476	0	0%	471	97.9%
2019	459	0	0%	448	97.8%
2020	458	447	97.7%	n/a	n/a

S&P Eurozone LargeMidCap CTB ESG Index & S&P Eurozone LargeMidCap PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	271	0	0%	265	98.8%
2017	270	0	0%	266	98.8%
2018	271	0	0%	271	100.0%
2019	255	0	0%	252	99.2%
2020	255	252	99.2%	n/a	n/a

S&P World CTB ESG Index, S&P World PAB ESG Ex-Non-Pharma Animal Testing Index & S&P World PAB ESG Index

Rebalancing Date	Underlying Index Stock Count	Point-in-Time Data		After Using the Data Assumption	
		Stock Count	Index Weight	Stock Count	Index Weight
2016	1776	0	0%	1725	97.4%
2017	1741	0	0%	1712	98.3%
2018	1766	0	0%	1754	99.4%
2019	1690	0	0%	1658	99.1%
2020	1686	1654	99.1%	n/a	n/a

Appendix G

ESG Disclosures

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY[22]				
1.	**Name of the Benchmark Administrator.**	S&P DJI Netherlands B.V.		
2.	**Type of benchmark of family of benchmarks.[23]**	Equity		
3.	**Name of the S&P Dow Jones Indices benchmark or family of benchmarks.**	S&P Paris-Aligned & Climate Transition (PACT) Index Family Benchmark Statement		
4.	**Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?**	Yes		
5.	**If the response to (4) is "Yes," the indices stated here take into account ESG factors.**	For a list of the benchmarks within this family that take in account ESG factors, please refer to the S&P DJI Methodology & Regulatory Database.		
6.	**Where the response to (4) is 'Yes', the section below lists those ESG factors that are taken into account by the ESG indices governed by the methodology, including those ESG factors listed in Annex II to Delegated Regulation (EU) 2020/1816.**			
		ESG Factor[24]	**S&P DJI ESG Factor**	**Comment**
6.a Combined ESG Factors		Weighted average ESG rating of the benchmark (voluntary).	*Weighted-average S&P Global ESG Score.*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
6.b List of Environmental factors considered		Exposure of the benchmark portfolio to climate-related physical risks, measuring the effects of extreme weather events on companies' operations and production or on the different stages of the supply chain (based on issuer exposure) (voluntary).	Physical Risk Constraint: *Weighted-average Physical Risk Score; Physical Risk Max Stock Weight*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
		Degree of exposure of the portfolio to the sectors listed in Sections A to H and Section L of Annex I to	Transition Risk Constraints: *High Climate Impact Sectors Revenue Proportion (HCISRP)*	Weighting. For more information, please refer to the *'Index Construction'*

[22] The information contained in this Appendix is intended to meet the requirements of the European Union Commission Delegated Regulation (EU) 2020/1817 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the minimum content of the explanation of how environmental, social and governance factors are reflected in the benchmark methodology and the retained EU law in the UK [The Benchmarks (amendment and Transitional Provision) (EU Exit) Regulations 2019].

[23] The "type of benchmark" refers to the type of 'underlying asset', as selected from the list provided in Annex II to European Union Commission Delegated Regulation (EU) 2020/1816 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published.

[24] 'ESG factors' are defined in Annex II of European Union Commission Delegated Regulation (EU) 2020/1816 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published.

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY[22]			
	Regulation (EC) No 1893/2006 of the European Parliament and of the Council as a percentage of the total weight in the portfolio.		section of the methodology.
	Greenhouse gas (GHG) intensity of the benchmark.	Transition Risk Constraints: *Weighted-average Carbon Intensity (WACI) Target; 7% Decarbonization Trajectory WACI Target*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
	Percentage of GHG emissions reported versus estimated.	Transition Risk Constraints: *Weight of Non-Disclosing Carbon Companies*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
	N/A	Transition Risk Constraints: *Fossil Fuel Reserves*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
	N/A	Transition Risk Constraints: *1.5°C Climate Scenario Transition Pathway Budget Index Alignment*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
	N/A	Transition Risk Constraints: *Eligible Science Based Targets Companies*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
	N/A	Climate Opportunities Constraints: *Green-to-Brown Revenue Share (GBR)*	Weighting. For more information, please refer to the *'Index Construction'* section of the methodology.
	Regulation (EU) 2020/1818. Article 12(1)(d): companies that derive 1 % or more of their revenues from exploration, mining, extraction, distribution or refining of hard coal and lignite.	Revenue Thresholds in Fossil Fuel Operations and Power Generation: *Coal Exploration or Processing*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only
	Regulation (EU) 2020/1818. Article 12(1)(e): companies that derive 10 % or more of their revenues from the exploration, extraction, distribution or refining of oil fuels.	Revenue Thresholds in Fossil Fuel Operations and Power Generation: *Oil Exploration or Processing*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only
	Regulation (EU) 2020/1818. Article 12(1)(f): companies that derive 50 % or more of their revenues from the exploration, extraction, manufacturing or distribution of gaseous fuels.	Revenue Thresholds in Fossil Fuel Operations and Power Generation: *Natural Gas Exploration or Processing*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only
	Regulation (EU) 2020/1818. Article 12(1)(g): companies that derive 50 % or more of their revenues from electricity generation with a	Revenue Thresholds in Fossil Fuel Operations and Power Generation: *Power Generation*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY[22]			
	GHG intensity of more than 100 g CO2 e/kWh.		Note: This exclusion applies to Paris-Aligned Benchmarks only
	Regulation (EU) 2020/1818. Article 12(2): companies that are found or estimated by them or by external data providers to significantly harm one or more of the environmental objectives referred to in Article 9 of Regulation (EU) 2020/852 of the European Parliament and of the Council (8), in accordance with the rules on estimations laid down in Article 13(2) of this Regulation	Controversies Monitoring: Media and Stakeholder Analysis	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.
	N/A	Business Activities: *Thermal Coal*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only.
	N/A	Business Activities: *Oil Sands or Tar Sands*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only.
	N/A	Business Activities: *Shale Oil & Gas*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only.
6.c **List of Social factors considered.**	International treaties and conventions, United Nations principles or, where applicable, national law used in order to determine what constitutes a 'controversial weapon'.	Business Activities: *Controversial Weapons*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.
	Weighted average percentage of benchmark constituents in the controversial weapons sector. *Regulation (EU) 2020/1818. Article 12(1)(a): companies involved in any activities related to controversial weapons*	Business Activities: *Controversial Weapons*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.
	Weighted average percentage of benchmark constituents in the tobacco sector.	Business Activities: *Tobacco*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY[22]			
	Regulation (EU) 2020/1818. Article 12(1)(b): companies involved in any activities related to controversial weapons		
	Number of benchmark constituents subject to social violations (absolute number and relative divided by all benchmark constituents), as referred to in international treaties and conventions, United Nations principles and, where applicable, national law. *Regulation (EU) 2020/1818. Article 12(1)(c): companies that benchmark administrators find in violation of the United Nations Global Compact (UNGC) principles or the Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises*	Sustainalytics Global Standards Screening: UNGC Non-Compliant Companies	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.
	N/A	Controversies Monitoring: Media and Stakeholder Analysis	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.
	N/A	Business Activities: *Small Arms*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only.
	N/A	Business Activities: *Military Contracting*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only.
	N/A	Business Activities: *Gambling*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only.
	N/A	Business Activities: *Alcohol*	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology. Note: This exclusion applies to Paris-Aligned Benchmarks only.

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY[22]				
6.d **List of Governance factors considered.**		N/A	Controversies Monitoring: Media and Stakeholder Analysis	Exclusion. For more information, please refer to the *'Eligibility Criteria'* section of the methodology.
7.	**Data and standards used.**			
7.a	**Data input: Data sources, verification and quality of data.**	The datasets are defined as either: - Reported: All data in the dataset are provided as disclosed by companies, or as stated in the public domain. - Modeled: All data are derived using a proprietary modelling process with only proxies used in the creation of the dataset. - Reported and Modeled: The dataset is either a mix of reported and Modeled data or is derived by the vendor using reported data/information in a proprietary scoring or determination process. The index methodology uses the following ESG datasets.		
7.b	**Data Source.**	**Dataset.**		
	S&P Trucost Limited (a part of S&P Global) (external data source)	This methodology uses several datasets provided by S&P Trucost Limited: • Transition pathway model (Reported and Modeled) • Physical risk scores dataset (Reported and Modeled) • Greenhouse gas emissions and emissions disclosure dataset (Reported and Modeled) • Green-to-brown share dataset (Reported and Modeled) • Fossil fuel reserves (Reported and Modeled) • Trucost sector revenues dataset (Reported and Modeled) *For information on Trucost's methodology, please refer here.*		
	S&P Global (external data source)	Media & Stakeholder Analysis (Reported and Modeled) – S&P Global uses RepRisk, a leading provider of business intelligence on environmental, social, and governance risks, for daily filtering, screening, and analysis of controversies related to companies within the indices. In cases where risks are presented, S&P Global releases a Media and Stakeholder Analysis (MSA) which includes a range of issues such as economic crime and corruption, fraud, illegal commercial practices, human rights issues, labor disputes, workplace safety, catastrophic accidents, and environmental disasters. The Index Committee will review constituents that have been flagged by S&P Global's MSA to evaluate the potential impact of controversial company activities on the composition of the indices. If a company is removed due to an MSA, that company is not eligible for re-entry into the index for one full calendar year, beginning with the subsequent rebalancing. *For more information about S&P Global's Media and Stakeholder Analysis, please refer to the MSA Methodology Guidebook, available via www.spglobal.com/esg/csa/csa-resources/csa-methodology.* ESG score (Reported and Modeled) – The indices use S&P Global ESG Scores. S&P Global Sustainable1 calculates these scores and derives them from their 'Corporate Sustainability Assessment' (CSA). A company's CSA score is derived using either company-provided data, publicly available information, or a combination thereof. *For more information about the S&P Global ESG scores please refer here.* S&P Global Business Involvement Screens (Reported and Modeled) – The dataset tracks the business activities, products and services that companies are involved in. The S&P Global Business Involvement Screens provide detailed assessments of common areas of investor concern pinpointing the precise level of involvement, from production to operations and distribution, to inform values-based investment strategies. *For more information about S&P Global's Business Involvement Screens, please refer to https://www.spglobal.com/esg/solutions/portfolio-analytics-business-involvement-analytics.*		
	Sustainalytics (external data source)	This methodology uses the following datasets provided by Sustainalytics, a global leader in sustainability research and analytics: • Global Standards Screening (Reported and Modeled)		

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY[22]		
		For more information, please refer to www.sustainalytics.com.
7.c	**Verification and quality of data.**	The data quality process involves regular reviews of new data received, and includes comparison with previous data, outlier and error checks and escalation of suspect data to data vendors. S&P DJI also holds regular feedback sessions with data partners and vendors to share any quality concerns and to remedy any issues that are observed during data validations performed by the Global Data Management Team. In addition, all users of third-party data perform their own review of data used in the maintenance of indices. Many of the third-party data used by S&P DJI is reviewed against secondary and tertiary data sources for cross comparison and validation. Some more thematic or specific datasets may not have a comparable data source that can be used for comparison, but these datasets are still reviewed for internal consistency and self-comparison over time.
7.d	**Reference standards.**	Data is sourced from Trucost, which uses the following standards: • *Scopes 1 and 2*: the GHG Protocol Corporate Standard. • *Scope 3 (upstream & downstream)*: The Corporate Value Chain Standard, which is a supplement to the GHG Protocol specific to Scope 3.
Appendix latest update:		May 2025 – Minor wording updates and ESG Factors added to the ESG Appendix template
Appendix updates:		May 2024 – Changes to reflect methodology updates, effective June 2024 June 2023 – Added section 7c. June 2021 – Updated disclosures to account for June 2021 methodology changes (see *Appendix E*).
Appendix first publication:		December 2020

Disclaimer

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Where applicable, S&P Dow Jones Indices and its index-related affiliates ("S&P DJI") defines various dates to assist our clients by providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P DJI defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Information presented prior to an index's launch date is hypothetical back-tested performance, not actual performance, and is based on the index methodology in effect on the launch date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. In addition, forks have not been factored into the back-test data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Also, the treatment of corporate actions in back-tested performance may differ from treatment for live indices due to limitations in replicating index management decisions. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

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will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used. Index returns shown do not represent the results of actual trading of investable assets/securities. S&P DJI maintains the index and calculates the index levels and performance shown or discussed but does not manage any assets.

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