

**S&P BOCHK China Hong Kong
Greater Bay Area Net Zero
2050 Climate Transition Index
*Methodology***

July 2022

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Introduction

Index Objective

The S&P BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index measures the performance of eligible equity securities from the S&P China-Hong Kong Greater Bay Area Index (the “underlying index”) selected and weighted to be collectively compatible with a 1.5°C global warming climate scenario¹ at the index level. The index applies exclusions based on companies’ involvement in specific business activities, performance against the principles of the United Nations’ Global Compact (UNGC), and involvement in relevant ESG controversies, all defined in *Eligibility Criteria*.

For information on the underlying index, please refer to the *S&P China Indices Methodology*, available at www.spglobal.com/spdji.

Highlights

The index aims to meet the minimum standards for EU Climate Transition Benchmarks (EU CTBs) under Regulation (EU) 2019/2089 amending Regulation (EU) 2016/1011.² The law proposes the definitions of minimum standards for the methodology of any ‘EU Climate Transition’ and ‘EU Paris-Aligned’ benchmark indices that would be aligned with the objectives of the Paris Agreement³, and addresses the risk of greenwashing. The indices also incorporate factors that seek to manage transition risk and climate change opportunities in a way that aligns them 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.

Should a material change to the methodology be required as a consequence of any change made by the EU to the minimum standards for EU CTBs (and/or EU PABs), S&P Dow Jones Indices will issue an announcement before the change is implemented (and in these circumstances, S&P Dow Jones Indices would not conduct a formal consultation). For clarity, any other methodology change will follow S&P Dow Jones Indices’ standard processes, which may include a consultation.

The index weighting strategy aims to minimize the difference in constituent weights to the underlying parent index. In addition, the index incorporates a variety of specified decarbonization targets and align with certain specified criteria through the use of optimization with multiple model constraints, including:

- alignment to a 1.5°C climate scenario using the S&P Trucost Limited (Trucost) Transition Pathway Model
- reduced overall greenhouse gas (GHG expressed in CO₂ equivalents) emissions intensity compared to their respective underlying parent index by at least 30%
- minimum self-decarbonization rate of GHG emissions intensity in accordance with the trajectory implied by Intergovernmental Panel on Climate Change’s (IPCC) most ambitious 1.5°C scenario, equating to at least 7% GHG intensity reduction on average per annum

¹ A climate scenario of 1.5°C 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 <https://www.ipcc.ch/sr15/>.

² Pursuant to Articles 19(a)(2) and 19(b)(1) of Regulation (EU) 2019/2089, 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 <https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf>.

- 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
- exposure to sectors with high impact on climate change at least equivalent to the parent index
- decreased or equivalent exposure to fossil fuel reserve compared to the parent index
- decreased or equivalent physical risk compared 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

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

- involvement in specific business activities
- non-compliant UNGC Principles violations
- involvement in relevant ESG controversies

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 companies is “tCO₂ 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.

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.

Trucost's Physical Risk Data

Trucost's Physical Risk dataset⁹ 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 are as follows: 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 7 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.

For information on Trucost, 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/>.

Partnership

The index is designed, developed and owned jointly by S&P Dow Jones Indices and the Bank of China. The index is calculated and maintained by S&P Dow Jones Indices, and distributed by S&P Dow Jones Indices and the Bank of China.

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'. <https://www.spglobal.com/marketintelligence/en/documents/sp-trucost-interplay-of-transition-and-physical-risk-report-05a.pdf>.

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 is all constituents of the underlying index.

Index Exclusions

At each rebalancing reference date, companies are excluded from the eligible universe based on Business Activities, UNGC Principle Violations, and Controversies (Media and Stakeholder Analysis).

Exclusions Based on Business Activities

As of each rebalancing reference date, companies with the following specific business activities are excluded from the eligible universe:

Sustainalytics Product Involvement	Sustainalytics Category of Involvement and Description	Sustainalytics Involvement Proxy	S&P DJI Level of Involvement Threshold	S&P DJI Significant Ownership Threshold
Controversial Weapons	Tailor Made and Essential: The company is involved in the core weapon system, or components/services of the core weapon system that are considered tailor-made and essential for the lethal use of the weapon.	NA	>0%	≥25%
Tobacco	Production: The company manufactures tobacco products.	Revenue	>0%	≥25%
	Related Products/Services: The company supplies tobacco-related products/services.		≥10%	N/A
	Retail: The company derives revenues from the distribution and/or retail sale of tobacco products.		≥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. These exclusions use business involvement datasets from Sustainalytics. Companies not covered by Sustainalytics are excluded from index inclusion.

Please refer to <http://www.sustainalytics.com/> for more information.

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, companies classified as Non-Compliant, and any company not covered, are ineligible for index inclusion.

Please refer to <http://www.sustainalytics.com/> for more information.

Controversies Monitoring: Media and Stakeholder Analysis Overlay

In addition to the above, S&P Global uses RepRisk¹¹ for daily filtering, screening, and analysis of ESG risk incidents and controversial activities 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 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, that company is ineligible for re-entry for 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 the S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

¹¹ 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.

Index Construction

Constituent Selection

At each rebalancing, the eligible companies are selected and form the 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:

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

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

Optimization Constraints

As of each rebalancing reference date, the optimizer seeks to minimize the above objective function for the index while satisfying the criteria that all index constituents have an index weight of at least 0.01%, and all applicable combinations of the below transition risk, physical risk, climate opportunities, and index construction constraints.

Table 1. Transition Risk Constraints

Constraint*	Index	Data Source
1.5°C Climate Scenario Transition Pathway Budget Index Alignment	$\leq C$ where: $0 \leq C \leq [50\% \times (\text{weighted average of TPBA of underlying index})]$ <i>For more details see Appendix II.</i>	Trucost
Weighted-average Carbon Intensity (WACI) Target	\leq underlying WACI \times 70% \times Buffer**	Trucost
7% Decarbonization Trajectory WACI Target	\leq AnchorWACI*** $\times \frac{(1-7\%)^{(q/4)}}{1+Inf} \times$ Buffer where: q = number of rebalances since index launch date Inf = Enterprise Value Including Cash (EVIC) growth of the parent index since the index's Anchor Date ¹²	Trucost
Weight of Eligible Science Based Targets Companies	$\geq 120\% \times$ weight of group in underlying index	Trucost / Science Based Targets Initiative

¹² 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. It is the rebalancing reference date for the most recent index rebalancing prior to the index's launch date. Please see Appendix V for more details.

Constraint*	Index	Data Source
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	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 launch date, the 7% Decarbonization Trajectory WACI Target was reset to the index Anchor Date. Prior to launch, the 7% decarbonization Trajectory WACI Target was calculated based on the index Inception Date.

Table 2. Physical Risk Constraints

Constraint	Index	Data Source
Weighted-average Physical Risk Score (waPR)	≤ waPR of underlying index	Trucost
Physical Risk Max Company Weight	$\leq A_i * \text{Parent Weight}_i$ <p>where:</p> $A_i = \rho * \frac{PR_i - 100}{PR_i - 10}$ <p>PR_i = is the Physical Risk score of the company i</p> $\rho = \frac{\text{Physical Risk Score 95th percentile} - 10}{\text{Physical Risk Score 95th percentile} - 100}$ <p>See <i>Appendix I</i> 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)</p>	Trucost

Table 3. Climate Opportunities Constraint

Constraint	Index	Data Source
Green-to-Brown Revenue Share (GBR)	≥ GBR of underlying index	Trucost

Table 4. Index Construction Constraints

Constraint	Index
Diversification Relative Company Weight	± 2% from underlying index company weight
Diversification Absolute Max Company Weight	≤ max(5%, underlying company weight)
Liquidity Max Stock Weight	$\leq \frac{\text{Hypothetical Days to Buy/Sell} \times \text{Daily Participation} \times \text{Liquidity}_i}{\text{Notional Portfolio Size}}$ <p>where:</p> <p>Hypothetical Days to Buy/Sell = 5</p> <p>Daily Participation = 10%</p> <p>Liquidity = 3-month Median Daily Value Traded</p> <p>Notional Portfolio Size = US \$1 billion</p>
Minimum Stock Weight Lower Threshold	Existing constituents: ≥ 0.01% ¹³ New constituents: ≥ max(0.01%, min(0.05, 0.5 × underlying stock weight))

¹³ Constraints relating to existing constituents do not apply to the historical rebalancing on the index 'Anchor Date'. For more information on the Anchor Date, please refer to *Appendix V*.

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 Physical Risk Score
- Weight of Non-Disclosing Carbon Companies
- Diversification Absolute Max Company Weight
- Diversification Relative Company Weight
- Liquidity Max Stock Weight
- Fossil Fuel Reserves
- Physical Risk Max Company Weight
- Green-to-Brown Revenue Share
- 1.5°C Climate Scenario Transition Pathway Budget Index Alignment

The following constraints are considered hard constraints and will not be relaxed:

- 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

1.5°C Climate Scenario Transition Pathway Budget Index Alignment

The alignment of the index¹⁴ is calculated as follows:

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

where:

w_i = weight of the company i in the index

Winsorized TPBA_i = max (2.5 percentile of the TPBA of underlying index, 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 1.5°C climate scenario, a budget below 0 would be compatible with better than a 1.5°C climate scenario and a budget above 0 would not be compatible with a 1.5°C climate scenario.

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

¹⁴ 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).

Weighted-Average Carbon Intensity (WACI)

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

where:

w_i = weight of the company i in the index

$GHG1_i$ = Scope 1 GHG emissions in tCO₂e for the company i

$GHG2_i$ = Scope 2 GHG emissions in tCO₂e for the company i

$GHG3_i$ = Scope 3 (upstream and downstream) GHG emissions¹⁵ in tCO₂e 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 targets from the Science Based Targets Initiative (SBTI), subject to the following conditions:

1. The target is publicly disclosed and is 1.5°C 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 three 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 1.5°C 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

$EVIC_i$ = 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

¹⁵ For history prior to the Anchor Date, only scopes 1 and 2 were used in the WACI calculation. Beginning with the Anchor Date, Scopes 1, 2, and 3 emissions are used.

- 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 CO₂ 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)

$$\sum w_i \times \frac{\text{Fossil Fuel Reserves}_i}{EVIC_i}$$

where:

- w_i = weight of the company i in the index
- $\text{Fossil Fuel Reserves}_i$ = the embedded emissions (tCO₂) 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.

For more information, please refer [here](#).

Index Calculations

The index calculates 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 Indices section of S&P Dow Jones Indices' Index Mathematics Methodology.

Index Maintenance

Rebalancing

The index rebalances 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. 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.

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 index is 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 additions are made intra-rebalancing.

Spin-offs. 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 the underlying index, it is also removed from the index 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

The index calculates in Hong Kong dollars (HKD), U.S. dollars (USD), and China offshore/onshore renminbi (CNH/CNY).

The index uses spot exchange rates taken at 4:17 PM Sydney Time as supplied by Refinitiv so that closing values can be provided in local time zones.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to: 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/BOC China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index	07/08/2022	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 index. 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.

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

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 index calculates 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/Refinitiv 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 (Currency)	Return Type	Bloomberg
S&P BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index (USD)	Price Return Total Return Net Total Return	SPCHGCUP SPCHGCUT SPCHGCUN
S&P BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index (HKD)	Price Return Total Return Net Total Return	SPCHGCHP SPCHGCHT SPCHGCHN
S&P BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index (CNH)	Price Return Total Return Net Total Return	SPCHGCNP SPCHGCNT SPCHGCNN
S&P BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index (CNY)	Price Return Total Return Net Total Return	SPCHGCCP SPCHGCCCT SPCHGCCN

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/contact-us.

Website

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

Appendix I

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.

$$\text{Strategy Weight}_i \leq A_i * \text{Parent Weight}_i$$

where:

$$A_i = \rho * \frac{\text{Physical Risk Score}_i - 100}{\text{Physical Risk Score}_i - 10}$$

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

where *Physical Risk Score 95th percentile* is the Physical Risk Score value greater than 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 S&P Climate Transition Index Series is $2\% * 1.75 = 3.5\%$. If instead its 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

Physical Risk Score	<i>A</i>	Physical Risk Score	<i>A</i>	Physical Risk Score	<i>A</i>	Physical Risk Score	<i>A</i>
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 II

1.5°C Climate Scenario Transition Pathway Budget Index Alignment Constraint

For the indices where the 1.5°C 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)¹⁶ 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 (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 1.5°C Climate Scenario Transition Pathway Budget Index Alignment constraint for the index and is defined as the TPBA of the stock whose $\frac{S_i}{T_i}$ ratio is closest to 5%. This can also be stated as the TPBA of the stock with the minimum absolute value of $\frac{S_i}{T_i}$ ratio minus 5% ($|\frac{S_i}{T_i} - 0.05|$).
 - If C is less than zero, zero is used instead.
 - If $C \geq [50\% \times (\text{weighted average TPBA of underlying index})]$ then C is set to equal $[50\% \times (\text{weighted average TPBA of underlying index})]$.

The following table illustrates an example of how to calculate the value C. The $\frac{S_i}{T_i}$ ratio value of 0.050575 (shown in bold in second-to-last column) is the closest $\frac{S_i}{T_i}$ ratio to 5%, just as the $|\frac{S_i}{T_i} - 0.05|$ 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 ($40.89 \times 50\%$).

¹⁶ 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 1.5°C climate scenario, a budget below 0 would be compatible with better than a 1.5°C climate scenario and a budget above 0 would not be compatible with a 1.5°C 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	$\frac{S_i}{T_i}$	$ \frac{S_i}{T_i} - 0.05 $
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 III

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. It is the rebalancing reference date for the most recent index rebalancing prior to the index's launch date. 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 BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index	12/31/2016	02/28/2022	06/27/2022

Appendix IV

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	02/28/2020	04/01/2020

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.

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

S&P BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition 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	306	0	0%	288	94.9%
2017	309	0	0%	288	94.5%
2018	310	0	0%	284	94.5%
2019	308	0	0%	279	94.0%
2020	311	277	91.8%	n/a	n/a

Appendix V

Historical Back-Test Rule Deviations

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).

For history prior to the Anchor Date, only scopes 1 and 2 were used in the WACI calculation. Beginning with the Anchor Date, Scopes 1, 2, and 3 emissions are used.

Appendix VI

EU Required ESG Disclosures

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY ¹⁷			
1.	Name of the benchmark administrator.	S&P DJI Netherlands B.V.	
2.	Underlying asset class of the ESG benchmark. ¹⁸	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.	Do any of the indices maintained by this methodology 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 Factor¹⁹	S&P DJI ESG Factor
6.a	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	Physical Risk Constraints: <i>Weighted-average Physical Risk Score; Physical Risk Max Stock Weight</i>
			Comment
			Weighting. For more information, please refer to the ‘Index Construction’ section of the methodology.

¹⁷ 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.

¹⁸ The ‘underlying assets’ are defined in 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.

¹⁹ ‘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 ¹⁷			
	issuer exposure) (voluntary).		
	Degree of exposure of the portfolio to the sectors listed in Sections A to H and Section L of Annex I to Regulation (EC) No 1893/2006 of the European Parliament and of the Council as a percentage of the total weight in the portfolio.	Transition Risk Constraints: <i>High Climate Impact Sectors Revenue Proportion (HCISRP)</i>	Weighting. For more information, please refer to the 'Index Construction' section of the methodology.
	Greenhouse gas (GHG) intensity of the benchmark.	Transition Risk Constraints: <i>Weighted-average Carbon Intensity (WACI) Target; 7% Decarbonization Trajectory WACI Target</i>	Weighting. For more information, please refer to the 'Index Construction' section of the methodology.
	Percentage of GHG emissions reported versus estimated.	Transition Risk Constraints: <i>Weight of Non-Disclosing Carbon Companies</i>	Weighting. For more information, please refer to the 'Index Construction' section of the methodology.
	N/A	Transition Risk Constraints: <i>Fossil Fuel Reserves</i>	Weighting. For more information, please refer to the 'Index Construction' section of the methodology.
	N/A	Transition Risk Constraints: <i>1.5°C Climate Scenario Transition Pathway Budget Index Alignment</i>	Weighting. For more information, please refer to the 'Index Construction' section of the methodology.
	N/A	Transition Risk Constraints: <i>Eligible Science Based Targets Companies</i>	Weighting. For more information, please refer to the 'Index Construction' section of the methodology.
	N/A	Climate Opportunities Constraints: <i>Green-to-Brown Revenue Share (GBR)</i>	Weighting. For more information, please refer to the 'Index Construction' 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.
6.b 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: <i>Controversial Weapons</i>	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.	Business Activities: <i>Controversial Weapons</i>	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 ¹⁷				
		Weighted average percentage of benchmark constituents in the tobacco sector.	Business Activities: <i>Tobacco</i>	Exclusion. For more information, please refer to the 'Eligibility Criteria' section of the methodology.
		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.	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.
6.c	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 sources, verification and quality of data.	<p>The datasets are defined as either:</p> <ul style="list-style-type: none"> - <u>Reported</u>: All data in the dataset are provided as disclosed by companies, or as stated in the public domain. - <u>Modeled</u>: All data are derived using a proprietary modelling process with only proxies used in the creation of the dataset. - <u>Reported and Modeled</u>: 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. <p>The index methodology uses the following ESG datasets.</p>		
	Data Source.	Dataset.		
	S&P Trucost Limited (a part of S&P Global) (external data source)	<p>This methodology uses several datasets provided by S&P Trucost Limited:</p> <ul style="list-style-type: none"> • 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) <p><i>For more information on Trucost, please refer to http://www.trucost.com/.</i></p>		
	S&P Global (external data source)	<p>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</p>		

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY ¹⁷		
		<p>to an MSA, that company is not eligible for re-entry into the index for one full calendar year, beginning with the subsequent rebalancing.</p> <p><i>For more information about S&P Global's Media and Stakeholder Analysis, please refer to the MSA Methodology Guidebook, available via https://www.spglobal.com/esg/csa/csa-resources/csa-methodology.</i></p>
	Sustainalytics (external data source)	<p>This methodology uses the following datasets provided by Sustainalytics, a global leader in sustainability research and analytics:</p> <ul style="list-style-type: none"> • Business Activities (Reported and Modeled) – Product involvement data • Global Standards Screening (Reported and Modeled) <p><i>For more information, please refer to www.sustainalytics.com.</i></p>
7.b	Reference standards and index methodology.	<p>Whilst there are no specific reference standards that apply to the data, where possible, S&P DJI uses international sustainability disclosure frameworks such as, SASB, GRI, UN Global Compact and the recommendations of the Financial Stability Board's Task Force for Climate-related Financial Disclosures as published in the 2017 Final Report.</p>
Appendix latest update:		June 2022
Appendix first publication:		June 2022

Disclaimer

Performance Disclosure/Back-Tested Data

S&P Dow Jones Indices defines various dates to assist our clients in 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 Dow Jones Indices 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. 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.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate S&P DJI's ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the FAQ. The methodology and factsheets of any index that employs backward assumption in the back-tested history 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.

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