

# **S&P BSE Sustainability Indices** *Methodology*

**S&P Dow Jones  
Indices**

A Division of **S&P Global**



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# Introduction

## Index Objective

**S&P BSE CARBONEX.** The index measures the performance of the companies in the S&P BSE 100 with constituent weights modified in accordance with the companies’ relative carbon performance.

**S&P BSE GREENEX.** The index measures the performance of 25 companies from the S&P BSE 100 selected based on size, liquidity and low greenhouse gas emissions. Constituents are weighted based on float-adjusted market capitalization, subject to a single stock weight cap of 6% of the total index weight.

## Partnership and Collaboration

S&P Dow Jones Indices and the BSE Ltd. have established a partnership, Asia Index Private Limited, to calculate, disseminate, and license the S&P BSE suite of indices.

**S&P BSE CARBONEX.** Asia Index Private Limited has partnered with SAM, a part of S&P Global, a specialist in sustainability investing to provide the Carbon Performance Scores.

**S&P BSE GREENEX.** Greenhouse gas (GHG) emission numbers are provided by Trucost, a part of S&P Global.

## Index Family

The S&P BSE Sustainability Indices are part of the suite of S&P BSE indices.

For information on the other S&P BSE indices, please refer to [www.spdji.com](http://www.spdji.com) and [www.asiaindex.co.in](http://www.asiaindex.co.in).

## 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	<a href="#">Equity Indices Policies &amp; Practices</a>
S&P Dow Jones Indices’ Index Mathematics Methodology	<a href="#">Index Mathematics Methodology</a>
S&P Dow Jones Indices’ Float Adjustment Methodology	<a href="#">Float Adjustment Methodology</a>
S&P Dow Jones Indices’ Global Industry Classification Standard (GICS) Methodology	<a href="#">GICS Methodology</a>

This methodology was created by Asia Index Private Limited 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 Asia Index Private Limited so that the index continues to achieve its objective.

# Eligibility Criteria and Index Construction

## S&P BSE CARBONEX

**Index Eligibility and Construction.** The S&P BSE CARBONEX is composed of the constituents of the S&P BSE 100. Only common stocks are eligible for index inclusion.

For more information on index construction and eligibility factors of the S&P BSE 100, please refer to the S&P BSE Indices Methodology document available at [www.spdji.com](http://www.spdji.com) and [www.asiaindex.co.in](http://www.asiaindex.co.in).

**Constituent Weights.** Each stock in the index is weighted based on its carbon adjusted float market capitalization, which is calculated based on the Carbon Performance Scores provided by SAM.

Stock weight calculations consist of two steps as follows:

1. **Carbon Re-Weighting Factors.** Carbon Re-Weighting Factors are calculated for all stocks in the S&P BSE 100 using the current year’s Industry Tilt Factors and Carbon Performance Scores provided by SAM. New Carbon Performance Scores are calculated annually in March and are based on the annual CSA figures released in the previous year.

Carbon Performance Scores calculated by SAM encompass the following themes:

Theme	Weight in the Carbon Performance Score
Strategy & Governance	40%
Reporting & Disclosures	30%
Performance & Achievement	20%
Ecosystem Action	10%

Each of the themes includes three to ten specific carbon-related indicators.

If a company does not have a Carbon Performance Score, the Carbon Re-Weighting Factor applied to its stock is 1.

Industry Tilt Factors are provided by SAM and calculated to represent each industry’s relative exposure to carbon-related risks and opportunities. They are calculated based on the weights of the carbon-related questions in each overall industry-specific SAM CSA questionnaire. In the course of the CSA process, companies are assigned to one of the 59 industries defined by SAM (the “SAM Industries”). SAM uses the Global Industry Classification System (GICS®) as its starting point for determining industry classification.<sup>1</sup> At the industry group and sector levels, the SAM Industries match the standard GICS classifications. However, some non-standard aggregations are made at the industry level. Please see *Appendix I* for a list of SAM Industries.

<sup>1</sup> For more information about GICS®, please refer to the Global Industry Classification Standard (GICS®) Methodology.

SAM reviews the mapping of CSA questions to the Carbonex framework on an annual basis, to reflect any changes made to the CSA methodology, such as the deletion or addition of questions. This is done on an industry-specific level as well as at the general and cross-industry level, looking at common carbon-related themes that apply to all industries or a majority of industries – in order to preserve the relative importance of topics within the questionnaires and the importance of carbon-related risks and opportunities to companies within each industry.

The stocks of companies in industries with greater exposure to carbon-related risks and opportunities receive a higher Industry Tilt Factor and therefore, a higher weight restatement compared to the stocks of companies in other industries belonging to the same sector.

2. **Carbon Adjusted Float Weights.** Once the Carbon Re-Weighting Factors are determined, the float weights of the stocks are tilted based on their Carbon Re-Weighting Factors.

After the float weight tilting, the overall sector exposure is again realigned with that of S&P BSE 100 to arrive at the Carbon Adjusted Float Weight of each constituent stock in the index.

*For details on formulas used in steps 1 and 2 above, please refer to Appendix II.*

Stock weights are adjusted at each semi-annual rebalancing to reflect each constituent's Carbon Adjusted Float Weight.

*For more information on the constituent weighting scheme, please refer to the Non-Market Capitalization Weighted Indices section in S&P Dow Jones Indices' Index Mathematics Methodology.*

## S&P BSE GREENEX

**Index Eligibility and Construction.** The S&P BSE GREENEX is formed from companies in the S&P BSE 100. Only common stocks are eligible for index inclusion.

*For more information on index construction and eligibility factors of the S&P BSE 100, please refer to the S&P BSE Indices Methodology document available at [www.spdji.com](http://www.spdji.com) and [www.asiaindex.co.in](http://www.asiaindex.co.in).*

Greenhouse gas (GHG) emission numbers are provided by S&P Trucost Limited, a subsidiary of S&P Dow Jones Indices LLC, for the eligible universe. Stocks of companies for which Asia Index Private Limited is not able to obtain GHG emission numbers are excluded from the eligible universe.

The GHG emission numbers (C), average six-month float market capitalization (M), and six-month median annualized traded value (T) are scaled from 0 to 100 within the sector.

Annualized traded value is calculated by taking the median of the monthly medians of the daily traded values over the six-month period. The annualization is calculated using 250 trading days in a year.

Points are assigned to the above mentioned parameters from 1-50 within the sector.

- For C: For 0-2, 1 point is assigned; for 2-4, 2 are assigned, etc. For scale of 48-50, 25 points are assigned. For scale beyond 50, 1000 are assigned.
- For M & T: For 0-2, 50 points are assigned; for 2-4, 49 are assigned, etc.

For sectors where there is only one stock, 25 points are assigned for GHG emission numbers (C), average six-month float market capitalization (M) and six-month median annualized traded value (T).

The composite point for a stock is arrived by taking the summation of the points multiplied by their respective weights, where C is weighted 50%, M is weighted 40%, and T is weighted 10%. Stocks are ranked on the basis of composite points. The top 25 stocks are selected for the base composition.

During semi-annual rebalancings, the following inclusion/exclusion rules are applied:

- If a non-constituent ranks within the top 15 stocks, it is automatically selected for index inclusion.
- If an existing constituent ranks beyond the top 35 stocks, it is removed from the index.

In cases where two or more stocks have the same composite rank, the stock selection is performed based on the following order:

1. GHG emission numbers (C).
2. Average six-month float market capitalization (M).
3. Six-month median annualized traded value (T).

**Constituent Weightings.** Each stock in the index is weighted based on its float-adjusted market capitalization, subject to a stock capping limit. The stock capping limit is 6% and is applied in conjunction with the quarterly share updates (see *Index Maintenance*). Stocks that exceed the 6% cap between share updates are brought back to 6% at the subsequent quarterly share update.

*For more information on the constituent weighting scheme, please refer to the Capped Market Capitalization Indices section in S&P Dow Jones Indices' Index Mathematics Methodology.*

# Index Maintenance

## Rebalancing

**Frequency.** Index rebalancing follows that of the S&P BSE 100 and is detailed in the table below.

*Note: The effective dates are at the market open and reference dates are after the market close.*

Index	Frequency	Effective Date	Reference Date
S&P BSE CARBONEX	Semi-annual	Monday following the third	Last trading day of April and
S&P BSE GREENEX		Friday of June and December	

The reference date for the prices used in the weighting process is after the close on the Wednesday prior to the second Friday of each rebalancing.

**Float Adjustment.** Foreign investment limits are not applied while calculating the IWF for S&P BSE index constituents.

*For information on share updates and float-adjustment, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology and S&P Dow Jones Indices' Float Adjustment Methodology, respectively.*

## Ongoing Maintenance

The indices are also reviewed on an ongoing basis to account for events such as mergers, takeovers, delistings, group changes, suspensions, surveillance objections, graded surveillance measure objections, 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 one to five business days prior to the implementation date.

## Additions

**S&P BSE CARBONEX.** No stocks are added to the index between semi-annual rebalancings. As such, the number of stocks in the index may fall below the targeted constituent count of 100 due to any deletions made between rebalancings.

**S&P BSE GREENEX.** Between rebalancings, stocks may be added to the index as replacements for those removed from the index between rebalancings in order to maintain a fixed constituent count of 25.

## Deletions

Between rebalancings, a company can be deleted from an index due to events such as mergers, takeovers, delistings, group changes, suspensions, surveillance objections, graded surveillance measure objections, spin-offs/demergers or bankruptcies.

- Index constituents removed from an index's underlying universe are also deleted from the index on the same effective date. Whenever possible, changes in an index's components are announced at least one to five business days prior to implementation.
- Whenever practicable, Asia Index Private Limited uses the closing price for all deletions.



## Graded Surveillance Measure (GSM)

On a monthly basis, companies added to the GSM list are dropped. The effective date of the drop is at the open of the Tuesday following the first Monday of each month. The reference date for the GSM list data is the third Friday of the previous month.

Any company dropped due to inclusion on the GSM list must remain off the list for six consecutive months prior to the rebalancing reference date to be reconsidered for index inclusion

## Corporate Actions

### S&P BSE CARBONEX

Corporate Action	Adjustment made to index	Divisor Adjustment?
Spin off	In general, the parent company is dropped from the index. However, if information regarding price adjustment is available, the parent company may remain in the index with an adjusted price, at the discretion of the Index Committee.	Yes
Rights offering	The price is adjusted to the Price of the Parent Company minus the Price of the Rights Offering/Rights Ratio. Index Shares change so that the company's weight remains the same as its weight before the rights offering.	No
Stock Dividend (Bonus), Stock split, Reverse Stock Split	Index shares are multiplied by and price is divided by the split factor.	No
Change in shares (new issue, repurchase, warrant conversion etc.)	None.	No
Special Dividend	Price of stock making special dividend is reduced by the per share special dividend amount after the close of trading on the day before the dividend ex-date.	Yes
Constituent Change	No intraday rebalancing.	No
	Deletions due to delisting, acquisition or any other corporate event resulting in the deletion of the stock from the Index will cause the weights of the rest of the stocks in the index to change. Relative weights will stay the same.	Yes
	A change to a constituent's industry classification, as defined in <i>Appendix I</i> , is reflected in the index at the subsequent semi-annual rebalancing.	No
	Rebalancing changes including additions, deletions and weight changes.	Yes
	Stocks that are reclassified into Z group between rebalancings are removed from the index as soon as practicable.	Yes

## S&P BSE GREENEX

Corporate Action	Adjustment made to index	Divisor Adjustment?
Spin Off	In general, the parent company is dropped from the index. However, if information regarding price adjustment is available, the parent company may remain in the index with an adjusted price, at the discretion of the Index Committee.	Yes
Rights Offering	Rights price is adjusted and index shares will be increased as per the Rights Ratio.	Yes
Stock Dividend (Bonus), Stock split, Reverse Stock Split	Index shares are multiplied by and price is divided by the split factor.	No
Change in Shares (new issue, repurchase, warrant conversion etc.)	Index shares and weights will change as per the corporate action.	Yes
Special Dividend	Price of stock making special dividend is reduced by the per share special dividend amount after the close of trading on the day before the dividend ex-date.	Yes

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

### Currency of Calculation and Additional Index Return Series

The indices are calculated in Indian rupees and U.S. dollars.

Spot foreign exchange rates provided by Thomson Reuters are taken daily at 3:00 PM India Time and used in the end-of-day calculation to calculate these indices in U.S. dollars.

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 [S&P DJI's All Indices by Methodology Report](#).

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

### 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 BSE CARBONEX	30-Nov-12	30-Sep-10	30-Sep-10	1000
S&P BSE GREENEX	22-Feb-12	01-Oct-08	01-Oct-08	1000

# Index Data

## Calculation Return Types – Equity Indices

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**

The S&P BSE Index Committee oversees the indices. The Index Committee is composed of full time employees of S&P Dow Jones Indices and the BSE. The Index Committee meets regularly. At each meeting, the Index Committee may review pending corporate actions that may affect index constituents, statistics comparing the composition of the indices to the market, companies that are being considered as candidates for addition to an 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.

Asia Index Private Limited considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

Asia Index Private Limited's 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 its daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews this methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, Asia Index Private Limited 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), Asia Index Private Limited 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. Since index shares are assigned based on prices prior to the rebalancing, the actual weight of each stock at the rebalancing differs from these weights due to market movements.

Please visit [www.spdji.com](http://www.spdji.com) for a complete schedule of rebalancing timelines and pro-forma delivery times.

## Holiday Schedule

The indices are calculated on all business days when the BSE is open.

A complete holiday schedule for the year is available on the BSE Ltd. Web site at [www.bseindia.com](http://www.bseindia.com).

**Special Trading Sessions.** The indices will be calculated on special trading sessions as declared by the Bombay Stock Exchange. Some examples include, but are not limited to, special trading sessions on Saturday and Mahurat trading. Asia Index Private Limited will issue a notice to inform market participants regarding such special trading sessions.

If the special trading session falls on the Saturday following the third Friday of any rebalancing month, the new portfolio will be effective at the discretion of the Index Committee. Asia Index Private Limited will issue a notice to inform market participants detailing when the new portfolio will become effective.

## 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.

**Real-Time Calculation**

Real-time, intra-day index calculations are executed for certain S&P BSE Indices on the BSE real-time platform, "EPIC". Real-time indices are not restated.

*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.*

**End-of-Day Calculation**

End of day index calculations are executed on an S&P proprietary platform.

**Contact Information**

For questions regarding an index, please contact: [index\\_services@spglobal.com](mailto:index_services@spglobal.com).

# Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at [www.spdji.com](http://www.spdji.com), Asia Index Private Limited's Web site at [www.asiaindex.co.in](http://www.asiaindex.co.in), 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 [S&P DJI's All Indices by Methodology Report](#) for a complete list of indices covered by this document.

Index	Bloomberg	Reuters
S&P BSE CARBONEX	BSECRBN	.BSECRBX
S&P BSE CARBONEX (TR)	BSECRBNR	--
S&P BSE CARBONEX (USD)	BSECRBUP	--
S&P BSE CARBONEX (USD) TR	BSECRBUT	--
S&P BSE GREENEX	BSEGREEN	.BSEGRNX
S&P BSE GREENEX (TR)	SPBSEGIT	--
S&P BSE GREENEX (USD)	SPBSEGUP	--
S&P BSE GREENEX (USD) TR	SPBSEGUT	--

## Index Data

Daily constituent and index level data are available via subscription.

For product information, please contact S&P Dow Jones Indices, [www.spdji.com/contact-us](http://www.spdji.com/contact-us).

## Web site

For further information, please refer to S&P Dow Jones Indices' Web site at [www.spdji.com](http://www.spdji.com).

# Appendix I

## SAM Industries

Industry Tilt Factors are calculated and specific Corporate Sustainability Assessment Questionnaires are created for the following SAM Industries:

GICS Sector Code	GICS Sector	SAM Industry	SAM Industry Code
10	Energy	Coal & Consumable Fuels	COL
		Energy Equipment & Services	OIE
		Oil & Gas Upstream & Integrated	OGX
		Oil & Gas Refining & Marketing	OGR
		Oil & Gas Storage & Transportation	PIP
15	Materials	Aluminum	ALU
		Chemicals	CHM
		Construction Materials	COM
		Containers & Packaging	CTR
		Metals & Mining	MNX
		Paper & Forest Products	FRP
		Steel	STL
20	Industrials	Aerospace & Defense	ARO
		Airlines	AIR
		Building Products	BLD
		Commercial Services & Supplies	ICS
		Construction & Engineering	CON
		Electrical Components & Equipment	ELQ
		Industrial Conglomerates	IDD
		Machinery and Electrical Equipment	IEQ
		Professional Services	PRO
		Trading Companies & Distributors	TCD
		Transportation and Transportation Infrastructure	TRA
25	Consumer Discretionary	Auto Components	ATX
		Automobiles	AUT
		Casinos & Gaming	CNO
		Diversified Consumer Services	CSV
		Homebuilding	HOM
		Hotels, Resorts & Cruise Lines	TRT
		Household Durables	DHP
		Leisure Equipment & Products and Consumer Electronics	LEG
		Restaurants & Leisure Facilities	REX
		Retailing	RTS
		Textiles, Apparel & Luxury Goods	TEX
30	Consumer Staples	Beverages	BVG
		Food & Staples Retailing	FDR
		Food Products	FOA
		Household Products	HOU
		Personal Products	COS
		Tobacco	TOB



<b>GICS Sector Code</b>	<b>GICS Sector</b>	<b>SAM Industry</b>	<b>SAM Industry Code</b>
35	Health Care	Biotechnology	BTC
		Health Care Equipment & Supplies	MTC
		Health Care Providers & Services	HEA
		Life Sciences Tools & Services	LIF
		Pharmaceuticals	DRG
40	Financials	Banks	BNK
		Diversified Financial Services and Capital Markets	FBN
		Insurance	INS
45	Information Technology	Communications Equipment	CMT
		Computers & Peripherals and Office Electronics	THQ
		Electronic Equipment, Instruments & Components	ITC
		IT services	TSV
		Semiconductors & Semiconductor Equipment	SEM
		Software	SOF
50	Telecommunication Services	Interactive Media, Services & Home Entertainment	IMS
		Media, Movies & Entertainment	PUB
		Telecommunication Services	TLS
55	Utilities	Electric Utilities	ELC
		Gas Utilities	GAS
		Multi and Water Utilities	MUW
60	Real Estate	Real Estate	REA

# Appendix II

## Carbon Re-Weighting Factors

1. Sector specific Z scores are calculated for all index constituents as follows:

$$Z_c = \frac{S_c - \mu_c}{\sigma_c}$$

where:

$Z_c$  = Standardized Carbon Performance Score for the company

$S_c$  = Carbon Performance Score for the company provided by SAM

$\mu_c$  = Mean of the Carbon Performance Scores for the sector

$\sigma_c$  = Standard deviation of the Carbon Performance Scores for the sector

Note:  $Z_c$  has a cap of -3 on the negative side and 3 on the positive side.

Therefore:

- when  $Z_c < -3$ ,  $Z_c = -3$
  - when  $Z_c > 3$ ,  $Z_c = 3$
2. Carbon Re-Weighting Factors for all common stocks in the BSE 100 are calculated as follows:

$$C_f = 1 + \frac{(1 + I_i) \times Z_c}{6}$$

where:

$C_f$  = Carbon Re-Weighting Factor for the company

$I_i$  = Industry Tilt Factor provided by SAM

$Z_c$  = Standardized Carbon Performance Score for the company

Note: If a company does not have a score, the  $C_f$  applied to its stock is 1.

## Carbon Adjusted Float Weight

1. Tilted weight with respect to the Carbon Re-Weighting Factor is calculated as follows:

$$T_w = F_w \times C_f$$

where:

$T_w$  = Tilted weight for the stock

$F_w$  = Float Market Cap weight for the stock

$C_f$  = Carbon Re-Weighting Factor applied to the company's stock

2. Realignment of the overall sector exposure to that of the S&P BSE 100 is calculated as follows:

$$C_w = \frac{T_w}{T_{ws}} \times F_{ws}$$

where:

$C_w$  = Carbon Adjusted Float Weight for the stock

$T_w$  = Tilted weight for the stock

$F_w$  = Float Market Cap weight for the stock

$T_{ws}$  = Sum of all  $T_w$  in the sector the stock belongs to

$F_{ws}$  = Sum of all  $F_w$  in the sector the stock belongs to

# Appendix III

## **S&P Trucost Methodology**

S&P Trucost Limited (“S&P Trucost”) has analyzed the environmental performance of over 4,200 companies worldwide. S&P Trucost has the world’s largest bank of standardized greenhouse gas (“GHG”) emissions data, which provides a proxy for carbon performance. To calculate the carbon intensity of any company included in the indices, S&P Trucost reviews company annual reports and accounts, environmental/sustainability reports, public disclosures and corporate Web sites.

However many companies do not disclose their environmental or carbon impacts. Where there is no public disclosure, S&P Trucost employs its environmental profiling system. This proprietary Input-Output model maps the GHG impacts of business activities in 464 sectors. S&P Trucost’s broad coverage seeks to ensure that all non-disclosing companies are considered for index eligibility, not just those that disclose environmental information.

Six greenhouse gases (GHGs) are included in the analysis; these are all the GHGs regulated under the Kyoto protocol. Each gas has a different capacity to cause global warming. Although carbon dioxide (“CO<sub>2</sub>”) is the least potent of the GHGs, it is one of the most prevalent in terms of man-made emissions. The GHGs are calculated for each company and converted into tons of carbon dioxide equivalents based on the appropriate Global Warming Potential factors. The Global Warming Potential (“GWP”) index, published by the Intergovernmental Panel on Climate Change (“IPCC”), assesses the effect of the emissions of different gases over a 100-year time period, relative to the emission of an equal mass of CO<sub>2</sub>. GWP enables all the GHGs to be expressed in terms of CO<sub>2</sub> equivalents, or CO<sub>2</sub>e, and is used as the basis for the analysis and for index calculation.

Quantities of greenhouse gas emissions are, then, normalized by sales to calculate the company’s carbon footprint, or “carbon intensity”. The smaller the carbon footprint, the less investments contribute to climate change and the lower an index’s exposure to the rising costs of emitting carbon dioxide.

# Appendix IV

## Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Index	Change	Effective Date (After Close)	Methodology	
			Previous	Updated
All Indices	Index Maintenance:  Graded Surveillance Measure (GSM)	21-Sept-18	--	<p>On a monthly basis, companies added to the GSM list are dropped. The effective date of the drop is at the open of the Tuesday following the first Monday of each month. The reference date for the GSM list data is the third Friday of the previous month.</p> <p>Any company previously dropped due to its inclusion on the GSM list must remain off the GSM list for six consecutive months prior to the rebalancing reference date in order to be reconsidered for index inclusion.</p>
S&P BSE GREENEX	Reference Period	16-June-17	Float-adjusted market capitalization and value traded data used for the rebalancing is based on a three-month reference period.	Float-adjusted market capitalization and value traded data used in the rebalancing is based on a six-month reference period.
S&P BSE GREENEX	Liquidity	16-June-17	Average three-month value traded is used for the rebalancing.	<p>Six-month median annualized value traded is used for the rebalancing.</p> <p>Annualized traded value is calculated by taking the median of the monthly medians of the daily traded values over the reference period. The annualization is calculated using 250 trading days in a year.</p>
S&P BSE GREENEX	Vendor Change	18-Dec-15	Greenhouse gas (GHG) emission numbers were provided by gTrade Carbon Ex Rating Services Private Limited ("gTrade") for the eligible universe, according to gTrade's methodology.	Greenhouse gas (GHG) emission numbers are provided by S&P Trucost Limited ("S&P Trucost") for the eligible universe, according to S&P Trucost's methodology.

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