MSCI ACWI EU CTB Overlay Select Index

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1 **Introduction**

The MSCI ACWI EU CTB Overlay Select Index\(^1\) (the ‘Index’) is designed to meet the minimum standards of the EU Climate Transition Benchmark (CTB)\(^2\). The MSCI EU CTB/PAB Overlay Indexes are constructed from their corresponding Parent Index using an optimization process and aim to:

- Reduce the weighted average greenhouse gas intensity by 30% compared to the underlying investment universe.
- Reduce the weighted average greenhouse gas (GHG) intensity by 7% on an annualized basis.
- Achieve a low turnover and a modest tracking error compared to the Parent Index.
- Exclude companies based on the following criteria:
  - The Index excludes companies involved in Controversial Weapons businesses, Red Flag ESG Controversies, Red and Orange Flag Environmental Controversies, Tobacco Manufacturing\(^3\) and Thermal Coal Mining.

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\(^1\) The Index is governed by a set of methodology and policy documents ("Methodology Set"), including the present index methodology document. The Methodology Set for the Indexes can be accessed from MSCI’s webpage [https://www.msci.com/index-methodology](https://www.msci.com/index-methodology) in the section ‘Search Methodology by Index Name or Index Code’.

The Methodology Set includes a document ‘ESG Factors in Methodology’ that contains the list of environmental, social, and governance factors considered, and how they are applied in the methodology (e.g., selection, weighting or exclusion).

\(^2\) In case there are changes in the EU delegated acts and an update to the Index methodology is required, MSCI will issue an announcement prior to implementing the changes in the methodology. MSCI will not conduct a formal consultation for such an update.

\(^3\) Exclusions for Tobacco Manufacturers will be applied in MSCI EU CTB Overlay Indexes starting from 2023.
2 Constructing the Index

The Index uses company ratings and research provided by MSCI ESG Research⁴ for the Index construction.

2.1 Eligible Universe

The Eligible Universe is constructed from the Parent Index by excluding securities of companies based on the implementation schedule and criteria from Section 2.3 of the MSCI EU CTB/PAB Overlay Indexes Methodology and the additional ESG Screening criteria below:

1. **Arctic Oil & Gas:** All companies which derive an aggregate revenue of 10% or more from Arctic Oil or Gas production. The definition of Arctic is geographic and includes production activities north of the 66.5 latitude and the screen includes offshore or onshore oil production.

2. **Nuclear Weapons:** All companies which have any tie to Nuclear Weapon businesses. For more details on the nuclear weapons exclusion, please refer to Appendix II.

3. **Oil Sands:** All companies that derive 10% or more revenue (reported or estimated) from oil sands extraction. This does not include revenue from non-extraction activities (e.g. exploration, surveying, processing, refining), ownership of oil sands reserves with no extraction revenues or revenue from intra-company sales.

4. **Thermal Coal Mining:** All companies that derive 1% or more revenue (reported or estimated) from thermal coal mining and its sale to external parties. This does not include revenue from metallurgical coal, coal mined for power generation, intra-company sales of mined thermal coal or revenues from coal trading.

5. **UN Global Compact:** All companies assessed as having misalignment with the United Nations Global Compact Principles.

2.2 Reference Index

The Reference Index aims to represent the Investment Universe for the Parent Index. This Index is the free float-adjusted market capitalization weighted index ("Reference Index") corresponding to the Parent Index as per the MSCI Global Investible Markets Index (GIMI) methodology⁵. For Parent Indexes which follow the GIMI methodology, the Reference Index is the same as the Parent Index. The Reference Index for MSCI ACWI EU CTB Overlay Index is the MSCI ACWI Index.

For further details regarding the Reference Index, kindly refer to Appendix III.

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⁴ See section 4 for further information regarding ESG and climate data used in the Indexes that MSCI Limited sources from MSCI ESG Research LLC, a separate subsidiary of MSCI Inc. MSCI ESG Research is solely responsible for the creation, determination and management of such data. MSCI Limited is the benchmark administrator for the MSCI indexes.

⁵ For further details regarding the MSCI Global Investible Markets Index methodology, kindly refer to [https://www.msci.com/index-methodology](https://www.msci.com/index-methodology)
2.3 Security Selection and Weighting

Securities in the Eligible Universe are selected and weighted following an optimization process described below in Section 2.5 of this methodology book.

2.4 Optimization Process

At each Semi-Annual Index Review, the Index is constructed using an optimization process that aims to achieve replicability and investability as well as minimize ex-ante tracking error relative to the Parent Index subject to the following constraints:

1. Climate objectives – constraints detailed in Table 2
2. Diversification objectives – constraints detailed in Table 3

The definitions of the target metrics for the optimization are detailed in Appendix I.

<table>
<thead>
<tr>
<th>No.</th>
<th>ESG &amp; Climate Objectives</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Minimum reduction in Greenhouse Gas (GHG) Intensity relative to EVIC (Scope 1+2+3(^6)) relative to the Reference Index</td>
<td>30%</td>
</tr>
<tr>
<td>2.</td>
<td>Minimum average reduction (per annum) in GHG Intensity (relative to EVIC) relative to GHG Intensity of the index at the Base Date(^7)</td>
<td>7%</td>
</tr>
<tr>
<td>3.</td>
<td>Minimum active weight in High Climate Impact Sector relative to Reference Index as defined in Appendix I</td>
<td>0%</td>
</tr>
<tr>
<td>4.</td>
<td>ESG Score Improvement relative to the Parent Index</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 3: Constraints imposed to meet diversification objectives

<table>
<thead>
<tr>
<th>No.</th>
<th>Diversification Objective</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Constituent Active Weight relative to the Parent Index</td>
<td>+/- 2%</td>
</tr>
<tr>
<td>5.</td>
<td>Security Weight as a multiple of its weight in the Parent Index</td>
<td>20x</td>
</tr>
</tbody>
</table>

\(^6\) Prior to the May 2020 Semi-Annual Index Review (SAIR) of the Indexes, the Weighted Average Carbon Emissions Intensity relative to EVIC has been calculated based on Scope 1+2 Emissions.

\(^7\) Prior to the May 2020 Semi-Annual Index Review (SAIR) of the Indexes, the average reduction in Weighted Average Carbon Emissions Intensity relative to EVIC has been calculated using Scope 1+2 Emissions since Inception.
<table>
<thead>
<tr>
<th>No.</th>
<th>Diversification Objective</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Active Sector Weights (the Energy GICS® Sector is not constrained) relative to the Parent Index</td>
<td>+/-5%</td>
</tr>
<tr>
<td>7.</td>
<td>Active Country Weights relative to the Parent Index</td>
<td>+/-5%</td>
</tr>
<tr>
<td>8.</td>
<td>One Way Turnover</td>
<td>5%</td>
</tr>
<tr>
<td>9.</td>
<td>Common Factor Risk Aversion</td>
<td>0.0075</td>
</tr>
<tr>
<td>10.</td>
<td>Specific Risk Aversion</td>
<td>0.075</td>
</tr>
</tbody>
</table>

During the Semi-Annual Index Review, in the event that there is no optimal solution that satisfies all the optimization constraints, the following constraints will be relaxed, until an optimal solution is found:

- Relax the one-way index turnover constraint in steps of 1% up to 20%.
- Relax the active sector weight constraint in steps of 1% up/down to +/-20%.
- The one-way index turnover constraint and the active sector weight constraint are alternately relaxed until a feasible solution is achieved.

In the event that no optimal solution is found after the above constraint relaxations are exhausted, the relevant Index will not be rebalanced for that Semi-Annual Index Review.

2.5 Determining the Optimized Index

The Index is constructed using the Barra Open Optimizer\(^\text{10}\) in combination with the relevant Barra Equity Model. The optimization uses the universe of eligible securities and the specified optimization objectives and constraints to determine the constituents of and the weights of constituents in the Index.

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8. GICS, the global industry classification standard jointly developed by MSCI Inc. and S&P Global.

9. In case there are countries in the parent index which weigh less than 2.5% in the parent index then for such countries the active country upper bound of +5% is not applicable. When a country weighs less than 2.5% in parent index then the upper bound of country weight in the Index is set at three times of the country’s weight in parent index.

10. Please refer to Appendix II and III for more details.
3 Maintaining the Index

3.1 Semi-Annual Index Reviews

The Index is rebalanced on a semi-annual basis, as of the close of the last business day of May and November, coinciding with the May and November Index Reviews of the MSCI Global Investable Market Indexes. The pro forma Index is in general announced nine business days before the effective date.

In general, MSCI uses MSCI ESG Research data (including MSCI Climate Change Metrics, MSCI ESG Controversies and MSCI ESG Business Involvement Screening Research) as of the end of the month preceding the Index Reviews for the rebalancing of the Index.

3.2 Ongoing Event Related Changes

The general treatment of corporate events in the Index aims to minimize turnover outside of Index Reviews. The methodology aims to appropriately represent an investor’s participation in an event based on relevant deal terms and pre-event weighting of the index constituents that are involved. Further, changes in index market capitalization that occur as a result of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

Additionally, if the frequency of Index Reviews in the Parent Index is greater than the frequency of Index Reviews in the Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the Index.

The following section briefly describes the treatment of common corporate events within the Index.

New securities will not be added (except where noted below) to the Index between Index Reviews. Parent Index deletions will be reflected simultaneously.

<table>
<thead>
<tr>
<th>EVENT TYPE</th>
<th>EVENT DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>New additions to the Parent Index</td>
<td>A new security added to the Parent Index (such as IPO and other early inclusions) will not be added to the Index.</td>
</tr>
<tr>
<td>Spin-Offs</td>
<td>All securities created as a result of the spin-off of an existing Index constituent will be added to the Index at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.</td>
</tr>
<tr>
<td>Merger/Acquisition</td>
<td>For Mergers and Acquisitions, the acquirer’s post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index.</td>
</tr>
</tbody>
</table>
If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.

**Changes in Security Characteristics**

A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Further detail and illustration regarding specific treatment of corporate events relevant to this Index can be found in the MSCI Corporate Events Methodology book under the sections detailing the treatment of events in Capped Weighted and Non-Market Capitalization Weighted indexes.

The MSCI Corporate Events methodology book is available at: [https://www.msci.com/index-methodology](https://www.msci.com/index-methodology).
4 MSCI ESG Research

The Index is a product of MSCI Inc. that utilizes information such as company ratings and research produced and provided by MSCI ESG Research LLC (MSCI ESG Research), a subsidiary of MSCI Inc. In particular, the Index uses the following MSCI ESG Research products: MSCI Climate Change Metrics, MSCI Climate Value-at-Risk, MSCI Impact Solutions, MSCI ESG Controversies and MSCI ESG Business Involvement Screening Research. MSCI Indexes are administered by MSCI Limited.

4.1 MSCI Climate Change Metrics

MSCI Climate Change Metrics provides climate data & tools to support institutional investors seeking to integrate climate risk & opportunities into their investment strategy and processes. This includes investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, alignment with temperature pathways and factoring climate change research into their risk management processes, in particular through climate scenario analysis for both transition and physical risks.

The dataset spans across the four dimensions of a climate strategy: transition risks, green opportunities, physical risks and 1.5°C alignment.

For more details on MSCI Climate Change Metrics, please refer to https://www.msci.com/climate-solutions

4.2 MSCI ESG Ratings

MSCI ESG Ratings provides research, analysis and ratings of how well companies manage environmental, social and governance risks and opportunities.

MSCI ESG Ratings provides an overall company ESG rating - a seven point scale from ‘AAA’ to ‘CCC’. In addition, the product provides scores and percentiles indicating how well a company manages each key issue relative to industry peers.

For more details on MSCI ESG Ratings, please refer to: https://www.msci.com/esg-and-climate-methodologies

4.3 MSCI ESG Controversies

MSCI ESG Controversies provide assessments of controversies concerning the potential negative environmental, social, and/or governance impact of company operations, products and services. The evaluation framework used in MSCI ESG Controversies is designed to be consistent with international norms represented by the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact. MSCI ESG Controversies Score falls on a 0-10 scale, with “0” being the most severe controversy.
4.4 MSCI ESG Business Involvement Screening Research

MSCI ESG Business Involvement Screening Research (BISR) aims to enable institutional investors to manage environmental, social and governance (ESG) standards and restrictions reliably and efficiently.

For more details on MSCI ESG Business Involvement Screening Research, please refer to http://www.msci.com/resources/factsheets/MSCL_ESG_BISR.pdf
Appendix I: Calculation of Target Metrics

Calculation of GHG Intensity relative to EVIC

For Parent Index constituents where the Scope 1+2+3 Emissions Intensity is not available, the average Scope 1+2+3 Emissions Intensity of all the constituents of the MSCI ACWI in the same GICS Industry Group in which the constituent belongs is used.

Security Level GHG Intensity =

\[
\text{Security Level GHG Intensity} = \frac{\text{Scope 1 + 2 + 3 Carbon Emissions} \times (1 + \text{EVIAF})}{\text{Enterprise Value} + \text{Cash (in M$)}}
\]

Enterprise Value Inflation Adjustment Factor (EVIAF) =

\[
\text{EVIAF} = \left( \frac{\text{Average(Enterprise Value + Cash)}}{\text{Previous(Average(Enterprise Value + Cash))}} \right) - 1
\]

Weighted Average GHG Intensity of Parent Index =

\[
\sum (\text{Weight in Parent Index} \times \text{Security Level GHG Intensity})
\]

Weighted Average GHG Intensity of Derived Index =

\[
\sum (\text{Index Weight} \times \text{Security Level GHG Intensity})
\]

Calculation of Average Decarbonization

On average, the Index follows a 7% decarbonization trajectory since the Base Date. The Weighted Average GHG Intensity relative to EVIC at the Base Date (W_1) is used to compute the target Weighted Average GHG Intensity relative to EVIC at any given Semi-Annual Index Review (W_t) as per the below formula.

\[
W_t = W_1 \times 0.93^{(t-1)/2}
\]

Where ‘t’ is the number of Semi-Annual Index Reviews since the Base Date.

Thus, for the 3rd Semi-Annual Index Review since the Base Date (t=3), the target Weighted Average GHG Intensity relative to EVIC will be W_1*0.93.

Climate Impact Sectors

NACE\textsuperscript{11} is the European Union’s classification of economic activities. As per the draft DA, stocks in the NACE Section codes A, B, C, D, E, F, G, H, L are classified as “High Climate Impact” sector and

other stocks are classified 'Low Climate Impact' sector. The GICS\textsuperscript{12} Sub-Industry code for each security is mapped to the corresponding "Climate Impact Sector" using a mapping. This mapping is constructed in the following steps:

1. MSCI has published a mapping\textsuperscript{13} between the NACE classes and GICS Sub-Industry.

2. For each GICS Sub-Industry, the number of NACE classes which fall under the High Climate Impact Sector (say the number of classes is \(N_H\)) and Low Climate Impact Sector (say the number of classes is \(N_L\)) is identified.

3. If all the NACE classes for a given GICS Sub-Industry are identified in the High Climate Impact Sector (\(N_L = 0\)), then the GICS Sub-Industry is mapped to the High Climate Impact Sector. Conversely, if all the NACE classes for a given GICS Sub-Industry are identified in the Low Climate Impact Sector (\(N_H = 0\)) then the GICS Sub-Industry is mapped to the Low Climate Impact Sector.

4. In case a GICS Sub-Industry is mapped to some NACE classes in the High Climate Impact Sector and the others in the Low Climate Impact Sector, the GICS Industry is mapped to the Climate Impact Sector in the following manner:
   a. \(N_H \geq N_L\): If the number of NACE classes in the High Climate Impact Sector is at least equivalent to the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the High Climate Impact Sector.
   b. \(N_H < N_L\): If the number of NACE classes in the High Climate Impact Sector is less than the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the Low Climate Impact Sector.

5. Using the GICS Sub-Industry to Climate Impact Sector mapping created in Step 4, and the security-level GICS Sub-Industry, each security in the Parent Index is classified in either High Climate Impact Sector or Low Climate Impact Sector.

\textsuperscript{12} For further information regarding GICS, please refer to [https://www.msci.com/gics](https://www.msci.com/gics)

\textsuperscript{13} This mapping is available in the Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks' ESG Disclosures
Appendix II: Companies Involved in Nuclear Weapons Business

Companies, whose activities meet the following criteria, as determined by MSCI ESG Research, are excluded from the Index:

- All companies that manufacture nuclear warheads and/or whole nuclear missiles. This includes companies with contracts to operate or manage government-owned facilities that manufacture nuclear warheads or missiles.
- All companies that manufacture nuclear weapons, including nuclear warheads, intercontinental ballistic missiles and ballistic submarines which are capable of the delivery of nuclear warheads.
- All companies that manufacture components that were developed or are significantly modified for exclusive use in nuclear weapons (warheads and missiles). This includes companies with contracts to operate or manage government-owned facilities that manufacture components for nuclear warheads and missiles, such as fissile materials, non-nuclear components, explosives, triggers and detonators etc.
- All companies that manufacture or assemble delivery platforms that were developed or significantly modified for the exclusive delivery of nuclear weapons.
- All companies that provide auxiliary services related to nuclear weapons.
- All companies that manufacture components that were not developed or not significantly modified for exclusive use in nuclear weapons (warheads and missiles). These components can be used in both nuclear and conventional weapons.
- All companies that manufacture or assemble delivery platforms that were not developed or not significantly modified for the exclusive delivery of nuclear weapons. These platforms are capable of delivering nuclear or conventional weapons.
- All companies that manufacture components delivery platforms that are for the exclusive use of nuclear weapons.
- All companies that manufacture components for dual-use delivery platforms.
- All companies that own 20% to 49.99% of a company with nuclear weapons involvement. When a company owns 50 percent or more of a subsidiary with involvement, MSCI treats it as a consolidated subsidiary.
- All companies that are 50 percent or more owned by a company with nuclear weapons involvement.
Appendix III: Identifying the Reference Index

For Indexes where the Parent Index follows the MSCI Global Investible Markets Index (GIMI) methodology, the Reference Index is the same as the Parent Index. For Indexes where the Parent Index does not follow the MSCI GIMI methodology, the methodology\(^\text{1}\) of the Parent Index defines the Global Investible Markets Index on which the Parent Index is constructed.

The below table provides select examples which may help identify the Reference Index based on the Parent Index for the corresponding MSCI EU CTB/PAB Overlay Index.

*Table 4: Select Examples for identifying Reference Index*

<table>
<thead>
<tr>
<th>Parent Index</th>
<th>Reference Index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parent Index follows the GIMI Methodology</strong></td>
<td></td>
</tr>
<tr>
<td>MSCI World</td>
<td>MSCI World</td>
</tr>
<tr>
<td>MSCI World ex Financials</td>
<td>MSCI World ex Financials</td>
</tr>
<tr>
<td><strong>Parent Index does not follow the GIMI Methodology</strong></td>
<td></td>
</tr>
<tr>
<td>MSCI Europe ex Financials ESG Universal</td>
<td>MSCI Europe ex Financials</td>
</tr>
<tr>
<td>MSCI World ex Fossil Fuels</td>
<td>MSCI World</td>
</tr>
<tr>
<td>MSCI World ex Australia Enhanced Value</td>
<td>MSCI World ex Australia</td>
</tr>
</tbody>
</table>

\(^{1}\) For further details regarding Index methodologies, please refer to https://www.msci.com/index-methodology
Appendix IV: Barra Equity Model Used in The Optimization

The Index currently uses an optimization setup using the MSCI Barra Global Equity Model for Long-Term Investors (GEMLTL).
Appendix V: New release of Barra® Equity Model or Barra® Optimizer

A major new release of the relevant Barra Equity Model or Barra Optimizer may replace the former version within a suitable timeframe.
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