



EQM BATTERY METALS AND MINING INDEX (BATTIDX)

Methodology Guide

Version 2.4

29 August 2019



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INDEX GUIDELINE

Introduction

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INTRODUCTION

This document (the “Index Manual”) is to be used as a guideline with regard to the composition, calculation and management of the EQM Battery Metals and Mining Index. Any changes made to the Index Manual are initiated by the Committee specified in Section 1.6. This version of the Index Manual is correct as of the date on the cover of this document. The EQM Battery Metals and Mining Index is calculated and published by Refinitiv.



INDEX GUIDELINE

Index Specifications

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1 INDEX SPECIFICATIONS

- > The EQM Battery Metals and Mining Index (the “**Index**”) is an Index of EQM Indexes LLC is calculated and published by Refinitiv. It tracks the price movements in shares of publicly traded global companies engaged in the exploration, production, development, processing, and/or recycling of the materials and metals used in **advanced battery chemistries** such as **Lithium, Cobalt, Nickel, Manganese, Vanadium and/or Graphite**.
- > The Index is a Gross Total Return index.
- > The Index is published in USD.

1.1 SHORT NAME

The EQM Battery Metals and Mining Index (BATTIDX) published in Bloomberg under the code BATTIDX and in Reuters under the code .BATTIDX.

1.2 INITIAL VALUE

The Index is based on 100 at the close of trading on the start date, May 1, 2018.

1.3 DISTRIBUTION

The Index is published via the price marketing services of Refinitiv and is distributed to all affiliated vendors. Each vendor decides on an individual basis as to whether he will distribute/display the Index via his information systems.

1.4 PRICES AND CALCULATION FREQUENCY

The level of the Index is calculated on each Business Day based on the prices on the respective Exchanges on which the Index Components are listed. For each update, the most recent prices of all Index Components are used. Prices of Index Components not listed in the Index Currency are converted using spot foreign exchange rates quoted by Reuters. The daily index closing value is calculated using Reuters/WMCO closing spot rates from 4pm London time. Should there be no current price available on Reuters, the most recent price or the Trading Price on Reuters for the preceding Trading Day is used in the calculation.

The Index is calculated continuously every Business Day from 9:00am to 10:30pm, CET, with updates every 15 seconds. In the event that data cannot be provided to Reuters or to the pricing service, the Index cannot be distributed.

Any incorrect calculation is adjusted on a retrospective basis. Please note that at the time of the calculation and publication of the Index, the prices used for the calculation may already have changed.



1.5 WEIGHTING

On each Adjustment Day each Index Component of the EQM Battery Metals and Mining Index (BATTIDX) is equally weighted within its respective metal and mining industry group as defined by the Index provider, with each constituent mapping to one of four categories:

- 1) Lithium,
- 2) Cobalt,
- 3) Nickel, and
- 4) Other, which includes Graphite, Manganese, Vanadium, and Metal Recyclers.

The index weight of the metal and mining industry group is determined by the Index provider based on a **proprietary top-down quantitative model** considering the following macro factor inputs:

- 1) supply/demand balance,
- 2) battery chemistry,
- 3) new supply,
- 4) forecasted demand growth,
- 5) commodity price outlook, and
- 6) regulatory and geo-political risk.

Top-down metal weights will be reviewed each quarter by the Index Committee at the **time of rebalance**.

1.6 OVERSIGHT

A Committee composed of staff from EQM Indexes LLC and designated industry specialists. is responsible for decisions regarding the composition of the Index as well as any amendments to the rules (in this Index Manual referred to as the "**Committee**" or the "**Index Committee**"). The future composition of the Index is set by the Committee on the Selection Days by choosing from the Selection Pool. The Committee shall also decide about the future composition of the Index in the event that any Extraordinary Events occurs or any necessary adjustments are implemented by the Index Calculator.

Members of the Committee can recommend at any time changes to the composition of the Index or to the Index Manual and submit them to the Committee for approval.

The Committee shall make all decisions and any amendments to the Index or Index Manual on a reasonably commercial basis.



1.7 PUBLICATION

All specifications and information relevant for calculating the Index are made available on the www.eqmindexes.com web page and sub-pages (or any successor pages thereto).

1.8 HISTORICAL DATA

Historical data will be maintained from the launch of the Index on 5/1/2018. Backtested performance history goes back two years, commencing 3/31/2016.

1.9 LICENSING

Licenses to use the Index as the underlying value for derivative instruments are issued to stock exchanges, banks, financial services providers and investment houses by Toroso Investments LLC.



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Composition of the Index

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2 COMPOSITION OF THE INDEX

2.1 SELECTION OF THE INDEX COMPONENTS

The initial composition of the Index as well as any ongoing adjustment are based on the following non-discretionary rules.

On the Selection Days, EQM Indexes provides the Selection Pool. From the Selection Pool the index selects global companies engaged in the production, mining, and or integration or recycling of the metals used in batteries which fulfil the quantitative requirements defined in section 4.

2.2 ORDINARY ADJUSTMENT

The composition of the Index is ordinarily adjusted quarterly at the close of trading on the second Wednesday in August, November, February, and May. If this happens to be no Business Day the adjustment is conducted on the preceding Business Day.

The composition of the EQM Battery Metals and Mining Index (BATTIDX) is reviewed (see 2.1) on the Selection Day and the appropriate decision made is announced.

The first adjustment will be made on August 8, 2018 based on the Trading Prices of the Index Components on the Adjustment Day.

TBD shall publish any changes made to the Index composition on the Selection Day and consequently with sufficient notice before the Adjustment Day.

2.3 EXTRAORDINARY ADJUSTMENT

If a company included in the EQM Battery Metals and Mining Index is removed from the Index between two Adjustment Days due to an Extraordinary Event, if necessary, the Committee shall designate a successor. The EQM Battery Metals and Mining Index is adjusted on the same day. This is announced after the close of business on the day on which the new composition of the Index was determined by the Committee.

In the event of an IPO, in the case of a listing change from an over-the-counter exchange to a regulated stock exchange of a company, or if an exchange listed company has a change in business model that makes it of high importance to the EQM Battery Metals and Mining Index, the index committee can decide to include these companies on an extraordinary adjustment event. The company has to fulfil all quantitative requirements as outlined in section 4 in this document to be eligible for inclusion. The inclusion will be published on the index calculator's webpage. The Index will be reweighted according to section 1.5 at this occasion.

An extraordinary adjustment, if applicable, is triggered and applied in compliance with the rules set forth in the [Solactive Guideline for Extraordinary Corporate Actions](#).



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Calculation of the Index

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3 CALCULATION OF THE INDEX

3.1 INDEX FORMULA

The Index Value on a Business Day at the relevant time is calculated in accordance with the following formula:

$$Index_t = \sum_{i=1}^n x_{i,t} * p_{i,t}$$

With:

- $x_{i,t}$ = Number of Shares of the Index Component i on Trading Day t
- $p_{i,t}$ = Price of Index Component i on Trading Day t in Index Currency

3.2 ACCURACY

- > The value of the Index will be rounded to 2 decimal places.
- > The Number of Shares of the Index Components and foreign exchange will be rounded to four decimal places.

3.3 ADJUSTMENTS

Indices need to be adjusted for systematic changes in prices once these become effective. This requires the new Number of Index Shares of the affected Index Component.

Following the Committee's decision, the Index is adjusted for distributions, capital increases and stock splits.

This procedure ensures that the first ex quote can be properly reflected in the calculation of the Index. This ex-ante procedure assumes the general acceptance of the Index calculation formula as well as open access to the parameter values used. The calculation parameters are provided by the Index Calculator.

3.4 DIVIDENDS AND OTHER DISTRIBUTIONS

Dividend payments and other distributions are included in the Index. They cause an adjustment of the Number of Shares. The new Number of Shares is calculated as follows:

$$x_{i,t} = x_{i,t-1} * \frac{p_{i,t-1}}{p_{i,t-1} - D_{i,t}}$$

with:



$x_{i,t}$ = Number of Shares of the Index Component i on Trading Day t

$D_{i,t}$ = Payment on Trading Day t multiplied by the Dividend Correction Factor of the respective country

3.5 CORPORATE ACTIONS

3.5.1 Principles

Following the announcement by an issuer of Index Components of the terms and conditions of a corporate action, the Index Calculator determines whether such corporate action has a dilutive, concentrative or similar effect on the price of the respective Index Component.

If this should be the case, the Index Calculator shall make the necessary adjustments that are deemed appropriate in order to take into account the dilutive, concentrative or similar effect and shall determine the date on which this adjustment shall come into effect.

Amongst other things, the Index Calculator can take into account the adjustment made by an Affiliated Exchange as a result of the corporate action with regard to option and futures contracts on the respective share traded on this Affiliated Exchange.

3.5.2 Capital increases

In the case of capital increases (from the company's own resources or through cash contributions) the new Numbers of Shares are calculated as follows:

$$x_{i,t} = x_{i,t-1} * \frac{p_{i,t-1}}{p_{i,t-1} - rB_{i,t-1}} \quad \text{with:} \quad rB_{i,t-1} = \frac{p_{i,t-1} - B - N}{BV + 1}$$

with:

$x_{i,t}$ = Number of Shares of Index Component i on the day of the distribution

$x_{i,t-1}$ = Number of Shares of Index Component i on the day prior to the distribution

$p_{i,t-1}$ = Closing price on the day prior to ex-date

$rB_{i,t-1}$ = Calculated value of rights issue

B = Price of rights issue

N = Dividend disadvantage

BV = Subscription ratio

$B = 0$ if capital is increased from the company's own resources.

The last dividend paid or the announced dividend proposal is applied as the dividend disadvantage. 3.5.3 Capital reductions



In the case of capital reductions, the new Number of Shares is determined as follows:

$$x_{i,t} = x_{i,t-1} * \frac{1}{H_{i,t}}$$

with:

$H_{i,t}$ = Reduction ratio of the company on day t

$x_{i,t}$ = Number of Shares of the affected Index Component on the day of the distribution

$x_{i,t-1}$ = Number of Shares of the affected Index Component on the day prior to the distribution

3.5.4 Share splits and par value conversions

In the case of share splits and par value conversions it is assumed that the prices change in ratio to the number of shares or to the par values. The new Number of Shares is calculated as follows:

$$x_{i,t} = x_{i,t-1} * \frac{N_{i,t-1}}{N_{i,t}}$$

with:

$N_{i,t-1}$ = Former par value of security class i (or new number of shares)

$N_{i,t}$ = New par value of security class i (or former number of shares)

$x_{i,t}$ = Number of Shares of the affected Index Component on the day of the distribution

$x_{i,t-1}$ = Number of Shares of the affected Index Component on the day prior to the distribution

3.6 MISCELLANEOUS

3.6.1 Recalculation

Refinitiv makes the greatest possible efforts to accurately calculate and maintain its indices. However, the occurrence of errors in the index determination process cannot be ruled out. In such cases Refinitiv adheres to its publicly available Correction Policy.

3.6.2 Market Disruption

The Index is not calculated in the event of a Market Disruption Event or Force Majeure Event. If the Market Disruption Event or Force Majeure Event continues over a period of eight Trading Days, then the Committee will determine the necessary action (including but not limited to taking into account the market conditions prevailing at this point in time, the last quoted Trading Price for each of the Index Components as well as any other conditions that it deems relevant for calculating the Index value) such that the affected securities resulting from the Market Disruption Event are no longer causing such disruption to occur.



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Definitions

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4 DEFINITIONS

The “**Index Universe**” in respect of a Selection Day are companies that fulfill the following criteria:

- (a) Publicly traded companies engaged in the exploration, production, development, processing, and/or recycling of the materials and metals used in **advanced battery chemistries** such as **Lithium, Cobalt, Nickel, Manganese, Vanadium and/or Graphite**.
- (b) The Index seeks to provide exposure to companies in the battery materials supply chain that demonstrate a **verifiable beneficial interest** in advanced battery metals and/or mining as verified by one of the following factors:
 - 1) **ownership/partnership interest** in mineral deposits, resources, and/or reserves used in advanced battery chemistries,
 - 2) **revenue or profit** derived from the mining activity or metal processing, operations, contracts, and/or projects utilized in advanced battery chemistries, and/or
 - 3) **investment and/or economic share** in companies engaged in mining activity or metal processing, operations, contracts, and/or projects utilized in advanced battery chemistries.
- (c) Listing on a regulated stock exchange in the form of shares tradable for foreign investors without restrictions.
- (d) Market capitalization of at least 100 million USD.
- (e) Average daily traded value of at least 1,000,000 USD over the last six months at time of purchase, or adequate constituent liquidity and accessibility for an exchange listed product as determined by the Index Provider.
- (f) Non-US companies will be U.S. exchange traded ADR versions if available, provided their liquidity is comparable to locally traded shares.

The “**Index Component**” is each share currently included in the Index.

The “**Number of Shares**” are in respect of an Index Component and any given Business Day the number or fraction of shares included in the Index. It is calculated for any Index Component as the ratio of (A) the Percentage Weight of an Index Component multiplied by the Index value and (B) its Trading Price (converted into the Index Currency according to the principles laid out in Section 1.4 of this document).

The “**Percentage Weight**” of an Index Component is the ratio of its Trading Price multiplied by its Number of Shares divided by the Index value.

The “**Dividend Correction Factor**” is calculated as 1 minus the applicable withholding tax rate and/or other applicable tax rate currently prevalent in the respective country.

In particular, an “**Extraordinary Event**” is

- > a Merger
- > a Takeover Bid
- > a Delisting



- > the Nationalization of a company
- > Insolvency.

An Index Component is “**delisted**” if the Exchange announces pursuant to the Exchange regulations that the listing of, the trading in, or the issuing of public quotes on the Index Component at the Exchange has ceased immediately or will cease at a later date, for whatever reason (provided the Delisting is not because of a Merger or a Takeover Bid), and the Index Component is not immediately listed, traded or quoted again on an exchange, trading or listing system, acceptable to the Index Calculator.

“**Insolvency**” occurs with regard to an Index Component if (A) all shares of the respective issuer must be transferred to a trustee, liquidator, insolvency administrator or a similar public officer as result of voluntary or compulsory liquidation, insolvency or winding-up proceedings or comparable proceedings affecting the issuer of the Index Components or (B) the holders of the shares of this issuer are legally enjoined from transferring the shares.

A “**Takeover Bid**” is a bid to acquire, an exchange offer, or any other offer or act of a legal person that results in the related legal person acquiring as part of an exchange or otherwise more than 10% and less than 100% of the voting shares in circulation from the issuer of the Index Component or the right to acquire these shares, as determined by the Index Calculator based on notices submitted to public or self-regulatory authorities or other information considered by the Index Calculator to be relevant.

With regard to an Index Component, a “**Merger**” is

- (i) a change in the security class or a conversion of this share class that results in a transfer or an ultimate definite obligation to transfer all the shares in circulation to another legal person,
- (ii) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer to exchange shares with another legal person (except in a merger or share exchange under which the issuer of this Index Component is the acquiring or remaining company and which does not involve a change in security class or a conversion of all the shares in circulation),
- (iii) a takeover offer, exchange offer, other offer or another act of a legal person for the purposes of acquiring or otherwise obtaining from the issuer 100% of the shares issued that entails a transfer or the irrevocable obligation to transfer all shares (with the exception of shares that are held and controlled by the legal person), or
- (iv) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer of the share or its subsidiaries to exchange shares with another legal person, whereby the issuer of the share is the acquiring or remaining company and it does not involve a change in the class or a conversion of the all shares issued, but the shares in circulation directly prior to such an event (except for shares held and controlled by the legal person) represent in total less than 50% of the shares in circulation directly subsequent to such an event.

The “**Merger Date**” is the date on which a Merger is concluded or the date specified by the Index Calculator if such a date cannot be determined under the law applicable to the Merger.

“**Nationalization**” is a process whereby all shares or the majority of the assets of the issuer of the shares are nationalized or are expropriated or otherwise must be transferred to public bodies, authorities or institutions.



The “**Exchange**” is, in respect of the Index and every Index Component, the respective primary exchange where the Index Component has its primary listing. The Committee may decide to declare a different stock exchange the “Exchange” for trading reasons, even if the company is only listed there via a Stock Substitute.

A “**Stock Substitute**” includes in particular, American Depository Receipts (ADR) and Global Depository Receipts (GDR).

With regard to an Index Component (subject to the provisions given above under “Extraordinary Events”) the “**Trading Price**” in respect of a Trading Day is the closing price on this Trading Day determined in accordance with the Exchange regulations. If the Exchange has no closing price for an Index Component, the Index Calculator shall determine the Trading Price and the time of the quote for the share in question in a manner that appears reasonable to it.

A “**Trading Day**” is in relation to the Index or an Index Component a Trading Day on the Exchange (or a day that would have been such a day if a market disruption had not occurred), excluding days on which trading may be ceased prior to the normal Exchange closing time. The Index Calculator is ultimately responsible as to whether a certain day is a Trading Day with regard to the Index or an Index Component or in any other connection relating to this document.

The “**Index Calculator**” is Refinitiv or any other appropriately appointed successor in this function.

The “**Index Currency**” is USD.

The “**Market Capitalization**” is with regard to each of the securities in the Index on a Selection Day the share class-specific Market Capitalization for any security in the Index Universe. It is calculated as the multiplication of the shares outstanding (as sourced from data vendors) with the Trading Price of the share class as of the respective Selection Day.

A “**Business Day**” is any day on which the New York Stock Exchange is open for trading.

The “**Adjustment Day**” is the third Wednesday in March, June, September, and December. If this happens to be no Business Day, the Adjustment Day is the immediately preceding Business Day

The “**Selection Day**” is the Friday prior to the Adjustment Day.

A “**Market Disruption Event**” occurs if

1. one of the following events occurs or exists on a Trading Day prior to the opening quotation time for an Index Component:
 - A) trading is suspended or restricted (due to price movements that exceed the limits allowed by the Exchange or an Affiliated Exchange, or for other reasons):
 - 1.1. across the whole Exchange; or
 - 1.2. in options or futures contracts on or with regard to an Index Component or an Index Component that is quoted on an Affiliated Exchange; or
 - 1.3. on an Exchange or in a trading or quotation system (as determined by the Index Calculator) in which an Index Component is listed or quoted; or
 - B) an event that (in the assessment of the Index Calculator) generally disrupts and affects the opportunities of market participants to execute on the Exchange transactions in respect of a share included in the Index or to determine market values for a share included in the Index or to execute on an Affiliated Exchange transaction with regard to options and futures



contracts on these shares or to determine market values for such options or futures contracts.

2. trading on the Exchange or an Affiliated Exchange is ceased prior to the “Normal Exchange Closing Time”, which is the time at which the Exchange or an Affiliated Exchange is normally closed on working days without taking into account after-hours trading or other trading activities carried out outside the normal trading hours. An exception to this classification as a Market Disruption Event is where the early cessation of trading is announced by the Exchange or Affiliated Exchange on this Trading Day at least one hour before
 - 2.1. the actual closing time for normal trading on the Exchange or Affiliated Exchange on the Trading Day in question or, if earlier.
 - 2.2. the closing time (if given) of the Exchange or Affiliated Exchange for the execution of orders at the time the quote is given.
3. a general moratorium is imposed on banking transactions in the country in which the Exchange is resident if the above-mentioned events are material in the assessment of the Index Calculator, whereby the Index Calculator makes its decision based on those circumstances that it considers reasonable and appropriate.



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Appendix



5 APPENDIX

5.1 CONTACT INFORMATION

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5.2 CHANGES IN CALCULATION METHOD

The application by the Index Calculator of the method described in this document is final and binding. The Index Calculator shall apply the method described above for the composition and calculation of the Index. However, it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require changes to be made to this method. The Index Calculator may also make changes to the terms and conditions of the Index and the method applied to calculate the Index that it deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The Index Calculator is not obliged to provide information on any such modifications or changes. Despite the modifications and changes, the Index Calculator will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.