METHODOLOGY DOCUMENT
MSCI SUSTAINABILITY AND CLIMATE

January 2026

# Net Zero Investment Framework 2.0 (NZIF 2.0) – An Indicative Mapping

Listed Equity, Corporate Fixed Income, and Climate Solutions

# Contents

# 1. Introduction

## 1.1. Overview

The Paris Agreement's[1] maximal goal to limit global warming to 1.5°C may help mitigate the catastrophic impact of climate change.[2] According to the Intergovernmental Panel on Climate Change (IPCC), this is conditioned on the world economy reaching net-zero emissions by the year 2050[3] — hence the shorthand term "net-zero" to designate a 1.5°C-aligned transition alignment of the global economy. While in aggregate the global economy may not be on this trajectory, individual companies and portfolios can align to this goal[4].

The Net Zero Investment Framework 2.0 (NZIF 2.0)[5] is a widely used industry guidance to set targets and produce related net-zero strategies and transition plans, developed by the investor-led forum Paris Aligned Investment Initiative (PAII). It is an impact and transition risk metric.

The NZIF 2.0 includes an alignment maturity scale, a metric that groups portfolio companies into alignment categories, from Not Aligning to Achieving Net Zero.[6] These alignment categories are defined by NZIF 2.0 guidance criteria such as, for instance, disclosing company emissions. This is an absolute, binary-outcome approach based on company-specific attributes (a company is put in a certain NZIF 2.0 alignment category based on criteria set by the NZIF 2.0 guidance that do not depend on sectoral or regional distributions).

The criteria-based definitions of Aligned and Aligning companies are broadly consistent with those proposed by the Glasgow Financial Alliance for Net Zero (GFANZ).[7]

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[1] The Paris Agreement is an international treaty on climate change adopted by 196 Parties at the United Nations (UN) Climate Change Conference (COP21) in Paris, France. Its overarching goal is to keep global warming to well below 2°C, and aim for 1.5°C, compared to preindustrial levels.

[2] "Urgent climate action can secure a livable future for all." IPCC, March 20th, 2023.

[3] "Special Report: Global Warming of 1.5 ºC." IPCC, 2018.

[4] Séné, T. "Measuring portfolio alignment at the speed of the energy transition", MSCI Institute, December 30th, 2025.

[5] "Net Zero Investment Framework 2.0.," IIGCC, June 2024. The NZIF 2.0 guidance was developed by the Paris Aligned Investment Initiative (PAII), an investor-led forum established in May 2019 by the Institutional Investors Group on Climate Change (IIGCC), the Asia Investor Group on Climate Change, the Investor Group on Climate Change and the Ceres.

[6] "Net Zero Investment Framework 2.0," PAII, 2024, p.24. Note that we shorten the terms used by the guidance for ease of comparison with our previous MSCI S&C NZIF 1.0 mapping: "Aligned" for "Aligned to a net zero pathway" (guidance); "Aligning" for "Aligning to a net zero pathway" (guidance); "Committed" for "Committed to aligning" (guidance). The other short terms we use "Not Aligning" and "Achieving Net Zero" are similar to those used by the guidance. We also maintain the numbering of criteria 1 to 6, for the same reason.

[7] "Scaling Transition Finance and Real-economy Decarbonization. Supplement to the 2022 Net-zero Transition Plans report." GFANZ, December 2023, p.31.

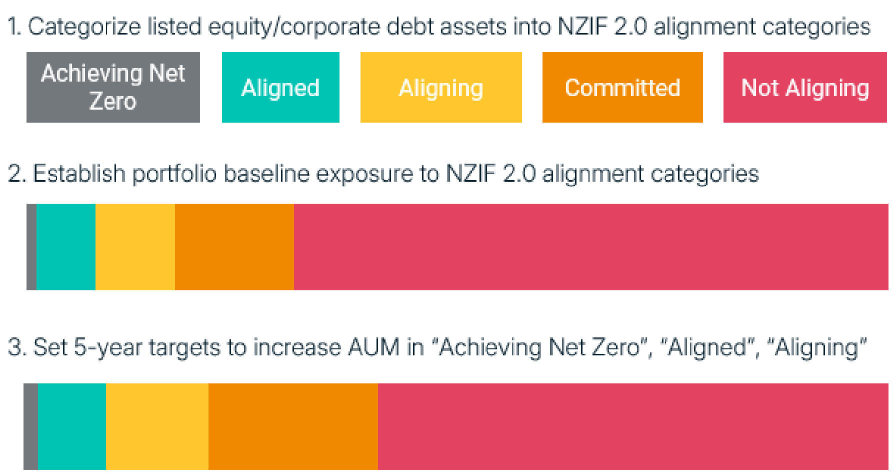
MSCI Sustainability & Climate (MSCI S&C)[8] has developed an indicative data mapping solution by mapping MSCI S&C data points to criteria and categories of the NZIF 2.0 guidance, a non-regulatory framework. It is a data product designed as a mapping tool for reporting climate impact according to industry guidance. This indicative mapping is provided to help illustrate how MSCI S&C data points may support indicators associated with the NZIF 2.0 guidance,[9] bearing in mind NZIF 2.0 guidance allows individual investors to form their own interpretation of the guidance.[10]

## 1.2. Interpretation and usage

The NZIF 2.0 maturity scale is a tool to assess the alignment of different asset classes. This document focuses on the maturity scale for listed equity and corporate fixed income assets.

The NZIF 2.0 guidance explicitly supports five-year horizon target-setting on portfolios for increasing the percentage of Assets under Management (AUM) in the NZIF 2.0 alignment categories "Achieving Net Zero," "Aligned" and "Aligning" in material sectors.[11] An illustration is provided below.

**Exhibit 1 – Stylized representation of a portfolio through a NZIF target-setting view**




Source: MSCI S&C, Paris Aligned Investment Initiative (PAII) Net Zero Investment Framework 2.0 (2024).

Exhibit 1 illustrates the NZIF guidance approach. The first step consists of mapping portfolio companies to the relevant NZIF 2.0 alignment categories. This enables the baseline alignment state of the portfolio to be established and an understanding of how company weights in a portfolio are reflected in each

[8] MSCI Sustainability & Climate products and services are provided by MSCI Solutions LLC in the United States, MSCI Solutions (UK) Limited in the United Kingdom and certain other related entities.

[9] This information does not constitute legal advice or binding interpretation.

[10] "Investors should use it within the context of their own strategies" ("Net Zero Investment Framework 2.0," PAII, 2024, p.7).

[11] The NZIF suggests an engagement goal which ensures that at least 70% of financed emissions in material sectors are either assessed as net-zero, aligned with a net-zero pathway, or the subject of direct or collective engagement and stewardship actions.

alignment category. Then, the five-year horizon targets aim to increase the proportion of company portfolio weights in the more aligned buckets of the maturity scale.

In addition, the NZIF 2.0 guidance provides some performance expectations, which are not to be confused with requirements:[12]

- An expectation that "by 2040, 100% of assets are, as a minimum, aligned to a net zero pathway."[13]
- An expectation that "[w]ithin the engagement threshold target… investors set an engagement threshold target which immediately ensures that at least 70% of scope 1 and 2 financed emissions in material sectors are originating in assets that are either categorized as achieving net zero, aligned to a net zero pathway, or are subject to engagement and stewardship actions. This threshold should increase at least to 90% by 2030 at the latest."[14]

The NZIF 2.0 guidance emphasizes that it is "only a guide, not a prescriptive protocol, nor a standard." It adds that "[i]nvestors should use it within the context of their own strategies, agendas, starting points, fiduciary duties, client mandates and regulatory considerations, from which and with which they make their own unilateral decisions regarding the ways and means with which they will set and reach their own net zero goals."[15]

**Alternative Approaches Utilizing MSCI S&C Data**

An investor may choose an alternative approach to mapping the NZIF 2.0 guidance and still be considered to have followed NZIF 2.0 guidance.

For instance, an investor can choose a high impact sector definition that does not include pharmaceutical companies, despite the IIGCC including these in its indicative sector mapping. Similarly, an investor could interpret criterion 1 not as a net-zero target (as is the case in this indicative methodology), but as board level recognition of climate risks and opportunities.

A customized NZIF 2.0 mapping approach may be supported by using alternative MSCI S&C data points (e.g., sector, transition plan data).

[12] "Net Zero Investment Framework 2.0," PAII, 2024, p.22.

[13] "Net Zero Investment Framework 2.0.," IIGCC, June 2024, p.21.

[14] "Net Zero Investment Framework 2.0.," IIGCC, June 2024, p.21.

[15] "Net Zero Investment Framework 2.0," PAII, 2024, p.7.

# 2. Methodology

## 2.1. How the NZIF 2.0 guidance defines alignment categories based on certain criteria

Based on NZIF 2.0 guidance, MSCI S&C mapping seeks to classify companies into NZIF 2.0 alignment categories as shown in Exhibit 2.

**Exhibit 2: PAII NZIF 2.0 Alignment Categories**

| | |
|---|---|
| **Achieving Net Zero** | Companies that have previously met all alignment criteria and have an emissions performance at net zero which can be expected to continue. They are considered to have achieved their low-carbon transition. |
| **Aligned** | Companies that have a net-zero goal; science-based targets; a decarbonization plan (except for lower impact companies); and current absolute emissions at least equal to a relevant net zero pathway. They are considered to manage transition risk. |
| **Aligning** | Companies that have an emissions performance not equal to a contextually relevant net zero pathway. However, they have a net-zero goal; science-based targets; and a decarbonization plan (except for lower impact companies). They are considered ready to transition. |
| **Committed** | Companies that have a net-zero goal. They are considered to have an alignment ambition but lack some key transition steps (e.g., science-based targets). |
| **Not Aligning** | Companies that do not fall into any other alignment category. |

Source: MSCI S&C, Paris Aligned Investment Initiative (PAII) Net Zero Investment Framework (NZIF 2.0) (2024), p.22.

The NZIF 2.0 maturity scale guidance places companies into NZIF 2.0 alignment categories based on how these companies meet, or fail to meet, each of the following criteria:

**Net Zero criteria**: Current emissions intensity performance at, or close to, net-zero emissions with an investment plan or business model expected to continue to achieve that goal overtime

**1. Ambition:** A long-term goal consistent with the global goal of achieving net zero by 2050.

**2. Targets:** Short- and medium-term science-based targets to reduce GHG emissions.

**3. Emissions performance:** Current absolute or emissions intensity is at least equal to a relevant net zero pathway.

**4. Disclosure:** Disclosure of operational scope 1, 2 and material scope 3 emissions.

**5. Decarbonization Strategy:** A quantified set of measures exists to achieve short- and medium-term science-based targets by reducing GHGs and increasing green revenues, when relevant.

**6. Capital Allocation Alignment:** A clear demonstration that capital expenditures are consistent with a relevant net zero pathway.

Each NZIF 2.0 alignment category is defined by specific criteria, as illustrated in Exhibit 3. The NZIF 2.0 maturity scale is thus designed to represent alignment progress, from the least aligned category Not Aligning to the most aligned category Achieving Net Zero. For instance, a company having only a long-term 2050 goal consistent with achieving global net-zero should be categorized as Committed.

**Exhibit 3 – NZIF 2.0 maturity scale alignment categories and criteria**

Criteria for lower impact companies

| Criteria | Descriptions | Achieving net zero | Aligned | Aligning | Committed | Not Aligning |
|---|---|---|---|---|---|---|
| Net-zero criteria | Asset with emissions intensity required by the sector and regional pathway for 2050 and whose operational model will maintain this performance | x | | | | |
| 1. Ambition | A long-term 2050 goal consistent with achieving global net-zero | | x | x | x | |
| 2. Targets | Short- and medium-term science-based targets to reduce GHG emissions | | x | x | | |
| 3. Emissions performance | Current absolute or emissions intensity is at least equal to a relevant net zero pathway | | x | | | |
| 4. Disclosure | Disclosure of operational Scope 1, 2 and material Scope 3 emissions | | x | x | | |
| 5. Decarbonization strategy | A quantified set of measures exists to achieve short- and medium-term science-based targets by reducing GHGs and increasing green revenues, when relevant. | | x | x | | |
| 6. Capital allocation alignment | A clear demonstration that capital expenditures are consistent with a relevant net zero pathway | | x | | | |

Source: MSCI S&C, Paris Aligned Investment Initiative (PAII) Net Zero Investment Framework (NZIF 2.0) (2024).

The criteria-based definition of the Aligned and Aligning categories is broadly consistent with that proposed by GFANZ.[16] This makes using a NZIF 2.0 maturity scale similar to using a GFANZ maturity scale.

Note, the Aligned and Aligning categories require more criteria to be met by companies in *high impact* sectors, which are both key to decarbonizing the economy and more exposed to transition risk. These sectors are defined by the NZIF 2.0 as those represented on the focus lists of Climate Action 100+ and Transition Pathway Initiative sectors (TPI); banks; real estate; agriculture, forestry, and fishing companies.[17]

These higher impact companies represent around 75% of companies in the MSCI ACWI Investable Market Index (ACWI IMI), as of January 2025. All companies outside of this higher impact scope are

[16] "Scaling Transition Finance and Real-economy Decarbonization. Supplement to the 2022 Net-zero Transition Plans report." GFANZ, December 2023, p.31.

[17] "Net Zero Investment Framework 2.0," PAII, 2024, p.23.

considered *lower impact* companies by the NZIF 2.0 and can fulfill fewer criteria to be considered Aligned or Aligning.

A detailed mapping of those sectors to the classification of the Global Industry Classification Standard (GICS®),[18] in available in Appendix II.

## 2.2. How MSCI S&C data points are mapped to these criteria

MSCI S&C's indicative mapping data on NZIF 2.0 alignment categories, criteria and higher impact/lower impact status are available on MSCI S&C distribution platforms.

**Exhibit 4 – Stylized extract of MSCI S&C issuer-level NZIF 2.0 indicative mapping data**

| ISSUER _NAME | PAII_NZIF _IMPACT | PAII_NZIF _ALIGNMENT | PAII_NZIF_NZ _ CRITERIA | PAII_NZIF_ CRITERIA_ 1 | PAII_NZIF_ CRITERIA_ 2 | PAII_NZIF_ CRITERIA_ 3 | PAII_NZIF _ CRITERIA_ 4 | PAII_NZIF_ CRITERIA_ 5 | PAII_NZIF_ CRITERIA_ 6 |
|---|---|---|---|---|---|---|---|---|---|
| **Company A** | Higher impact | Committed | | True | | | | False | Not available |
| **Company B** | Higher impact | Aligning | | True | True | | True | True | Not available |
| **Company C** | Lower impact | Aligned | | True | True | True | True | True | Not available |
| **Company D** | Higher impact | Not Aligning | | | | | | True | Not available |
| **Company E** | Higher impact | Aligned | | True | True | True | True | True | Not available |

Source: MSCI S&C. This is an illustration, not based on actual company data.

For companies to be mapped to NZIF 2.0 alignment categories, the criteria and definitions expressed in the NZIF 2.0 must be tied to precise issuer-level data points – especially where NZIF 2.0 guidance is not explicit. For instance, what is referred to as "material Scope 3" by the NZIF 2.0 (criteria 4) needs to be quantified with a certain metric.

This section details our proposed indicative mapping of "higher impact" companies and criteria based on MSCI S&C data points.

**Distinction between higher impact companies and lower impact companies**

The NZIF 2.0 requires higher impact companies to meet more alignment criteria than lower impact companies. See Exhibit 3 above.

MSCI S&C applies the GICS mapping strictly to high-impact sectors set out by the IIGCC. The mapping can be seen in Appendix II.

All companies outside of this higher impact scope are considered lower impact companies by the NZIF 2.0 guidance. MSCI S&C's high-impact sector mapping reflects this guidance.

[18] GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence. See: https://www.msci.com/indexes/index-resources/gics. Consulted October 12, 2025.

**Achieving Net Zero criteria**

The NZIF 2.0 guidance describes this criterion as "Asset with emissions intensity required by the sector and regional pathway for 2050 and whose operational model will maintain this performance."

MSCI S&C considers this criterion to be met based on two data points. First, the company's total emissions intensity must be equal to zero (based on reported emissions if available for Scope 1 and Scope 2, estimated otherwise; and estimated Scope 3).[19] Second, the company must be projected to maintain net-zero emissions consistent with the emissions coverage defined by the Science-Based Targets initiative (SBTi) for science-based long-term corporate targets i.e., covering at least 95% of emissions in company-wide Scope 1 and Scope 2 emissions and 90% of Scope 3 emissions by 2050.[20]

*Rationale*

- The indicative mapping requires total current emission intensity to be at strictly zero and does not consider companies "close to" net-zero. This is because net-zero intensity pathways for diversified companies tend to be economic ones (expressed in emissions per USD sales or EVIC for instance), and not physical ones (e.g., emissions per unit of cement). In economic intensity benchmarking (tCO2e/USD), "close to net-zero" may be achieved through growing the economic denominator faster than emissions (e.g., through inflation or improved profit margins). These extrinsic monetary factors risk misleading the interpretation of company alignment performance.[21] In practice, this mapping's zero intensity requirement makes it unlikely for any company to be considered as Achieving Net Zero as of now. Proven carbon neutrality is hardly achievable in today's energy system.
- The second data point (projected emissions consistent with the SBTi net-zero definition of science-based long-term corporate targets by 2050) ensures forward-looking performance remains aligned with net-zero, in line with the "investment plan or business model expected to continue to achieve that goal over time."

**Criterion 1 (Ambition)**

The NZIF 2.0 guidance describes this criterion as "A long term goal consistent with the global goal of achieving net zero by 2050."

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[19] Under MSCI S&C's Scope 1+2 carbon emissions estimation approach, estimates of carbon intensity are produced at the company level and at the industry-segment level. MSCI S&C uses one out of the following three models (listed in order of preference) to estimate any company's carbon emissions. MSCI S&C uses the production model to specifically estimate direct emissions due to power generation for electric utilities, i.e., Scope 1 emissions of utilities. This model uses power generation fuel-mix data to estimate Scope 1 emissions. For companies that have reported Scope 1 or Scope 2 carbon emissions data in the past but not for all years, MSCI S&C applies the company-specific intensity model, which is based on data previously reported by the company. If the company does not report and has never reported, MSCI S&C uses the industry segment specific intensity model, which is based on the estimated carbon intensities of 1,000+ industry segments. Regarding the estimated Scope 3 emissions methodology, please refer to "Greenhouse Gas Emissions Methodologies." MSCI, February 2024. Regarding the projected emissions methodology, please refer to "Climate Targets & Commitments Methodology." MSCI, February 2024.

[20] "SBTi Corporate Net Zero Standard." Science-Based Targets initiative (SBTi), 2023.

[21] "Understand the methods for science-based climate action." Carillo Pineda, Alberto, Huusko, Heidi, Cummis, Cynthia, and Farsan, Alexander 2023.

MSCI S&C considers this criterion to be met if the company has at least one active company-wide net-zero target, or a validated long-term SBTi target.

*Rationale*

- It is important to note that in MSCI S&C's indicative mapping, any type of company can be considered in this application of SBTi coverage criteria for long-term targets, including companies in fossil fuel sectors for which there is currently no formal SBTi target-approval process.[22]
- An official validation of long-term net zero targets by the SBTi can of course be another way of meeting this criterion.

**Criterion 2 (Targets)**

The NZIF 2.0 guidance describes this criterion as "Short and medium term science-based targets to reduce GHG emissions."

MSCI S&C considers this criterion to be met if the company has at least one one active near-term target that is "SBTi-Approved – 1.5°C" and a target year comprised in a rolling 10-year's horizon from today (e.g., equal to or earlier 2035 if a client looks at the data in 2025). The SBTi Corporate standard requires in practice to cover Scope 1, Scope 2 and material Scope 3 emissions (defined by the SBTi as 40% or more of total company emissions). The company can also validate the criterion if its emissions projected by the MSCI S&C Emissions Projection model result in 95% or greater reductions in aggregate Scope 1 and Scope 2 emissions and 67% or greater reductions in Scope 3 estimated absolute emissions by 2030. This definition is consistent with SBTi's criteria for near-term targets coverage.

*Rationale*

- MSCI S&C requires, for the first option to validate the criterion, an eligible target to aim for a reduction within a rolling 10-year horizon from the current year, which is broadly consistent with the current Climate 100+'s framework definition of medium-term horizon year (2035).[23] It is also consistent with the SBTi Corporate Standard's horizon for near-term targets (5-10 years from the year of submission).[24] The second option is more stringent, requiring near net-zero by 2030.
- The NZIF 2.0 guidance recommends focusing on targets aligned with a science-based, global net-zero aligned pathway.[25] SBTi is widely perceived as the gold standard for verifying the alignment of science-based targets with 1.5°C scenarios, as opposed to mere alignment claims by companies.
- As the SBTi has not yet set a process for validating targets by fossil fuel companies, the first mapping validation to have SBTi–approved short-/medium-term targets means in practice that the only way for fossil fuel companies to become Aligned/Aligning in MSCI S&C's NZIF indicative

[22] "Sector Guidance," SBTi, Accessed on 21 February 2024: https://sciencebasedtargets.org/sectors

[23] "Methodologies: Net Zero Company Benchmark." Climate Action 100+. Accessed at https://www.climateaction100.org/net-zero-company-benchmark/methodology/ on January 30, 2024.

[24] "SBTi Corporate Net Zero Standard." Science-Based Targets initiative (SBTi), 2023.

[25] "Net Zero Investment Framework – Implementation Guide." Paris Aligned Investment Initiative (PAII), 2021, p.17.

mapping is to have a set of targets resulting in near net-zero by 2030 in line with SBTi-targets emissions coverage — a more stringent method but one that does not require official SBTi validation.

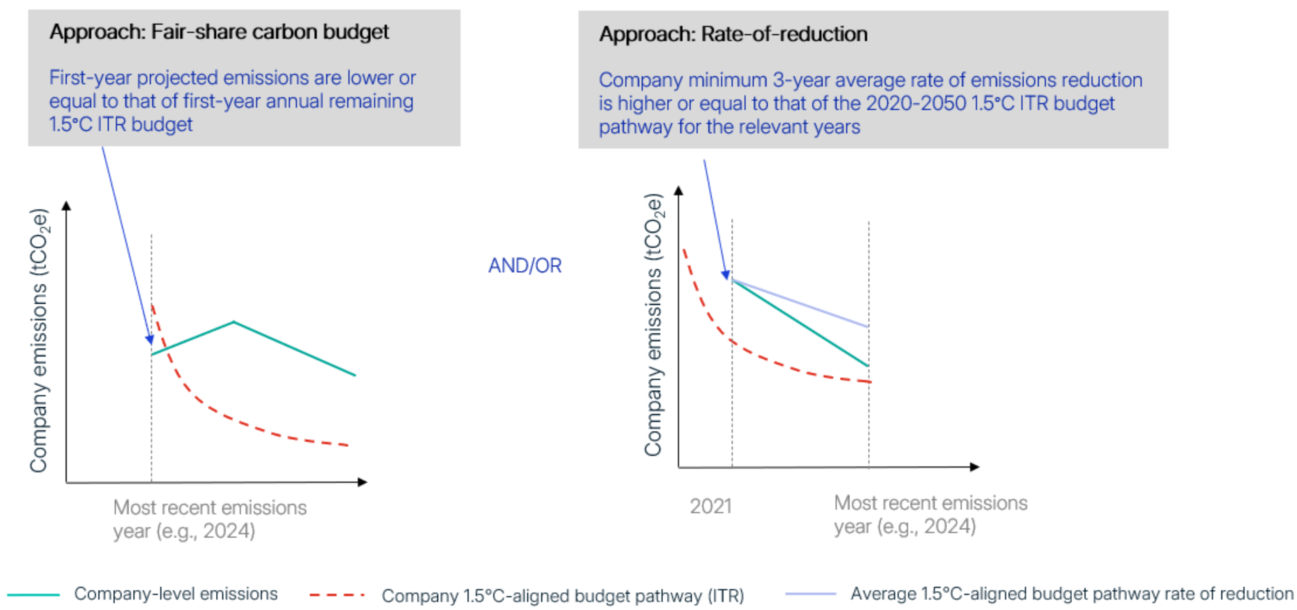
**Criterion 3 (Emissions Performance)**

The NZIF 2.0 guidance describes this criterion as "Current absolute or emissions intensity is at least equal to a relevant net zero pathway."

MSCI S&C considers this criterion to be met if the company's recent absolute emissions appears to be below its remaining net zero annual carbon budget. More precisely, this assessment requires that under MSCI Implied Temperature Rise model output,[26] the first year of projected company emissions' value is below the first year of remaining Network for Greening the Financial System (NGFS) Net Zero 2050 budget's value, following the approach on the left illustrated in Exhibit 5.

Alternatively, a company may validate this criterion in MSCI S&C's indicative mapping if its realized absolute emissions demonstrate a decarbonization rate higher than or equal to that of the company's 1.5°C scenario pathway for a minimum three years over the past five years. The company's 1.5°C scenario pathway is defined as the company's Initial NGFS Net Zero 2050 curve allocated for the period 2020-2050, following the approach illustrated in Exhibit 5 on the right.

**Exhibit 5 – Stylized examples of criterion 3 assessments**




Source: MSCI S&C. This is an illustration, not based on actual company data.

*Rationale*

- Both criterion 3 validation approaches are based on absolute emissions alignment. Relying on absolute emissions as a performance unit metric is consistent with the science-based concept of a

[26] "Implied Temperature Rise Methodology 2.1." MSCI, October 2025.

finite 1.5°C-aligned emissions budget, by contrast with emissions intensity measurement, which, in theory, makes 1.5°C alignment compatible with indefinite growth in absolute emissions unless zero intensity is the benchmark.

- The first validation option is a fair-share carbon budget interpretation of the NZIF 2.0 guidance criteria, using the MSCI Implied Temperature Rise model, which compares a company's absolute emissions performance against a budget reflecting the average intensity of its peer group (sectoral and regional). This is a rate-of-reduction approach would penalize companies that are already relatively low-carbon as well as companies providing climate solutions, which may increase their company emissions in the short run to provide products and services that displace more carbon-intensive ones (e.g., electricity vehicles (EV) manufacturers whose emissions are expected to grow as they produce and sell more EVs).
- The second validation option is a rate-of-reduction interpretation of the NZIF 2.0 guidance criteria, in line with a 1.5°C-aligned pathway.

**Criterion 4 (Disclosure)**

The NZIF 2.0 guidance describes this criterion as "Disclosure of operational scope 1, 2 and material scope 3 emissions."

We consider this criterion to be met if the company discloses its scope 3 emissions when the estimated Scope 3 emissions of the company are 40% or more of the total emissions.

*Rationale*

- The material Scope 3 threshold applied is in line with the 40% SBTi corporate net-zero standard,[27] based on estimated Scope 3 emissions only.

MSCI S&C does not currently assess whether the volume of Scope 3 reported emissions is consistent with that of MSCI S&C's Scope 3 estimation model. In some cases, companies may report significantly lower Scope 3 emissions than in MSCI S&C's estimation model. This can be for various legitimate reasons including different emissions estimation approaches and/or choosing to report only the most material Scope 3 categories.

**Criterion 5 (Decarbonization Strategy)**

The NZIF 2.0 guidance describes this criterion as "A quantified set of measures exists to achieve short- and medium-term science-based targets by reducing [greenhouse gas emissions] and increasing green revenues, when relevant."

MSCI S&C considers this criterion to be met if the company has programs to reduce emissions in core operations, including improving energy efficiency. Null values represent companies for which MSCI S&C has not yet collected this data point as these companies have only recently entered the MSCI Climate Change Metrics universe (for information on the coverage universe, see section 4.1). These companies are assumed to meet the criterion.

[27] "SBTi Corporate Net Zero Standard." Science-Based Targets initiative (SBTi), 2023.

*Rationale*

- For the minority of companies where this data point is not yet collected, MSCI S&C assumes that these companies fulfill the criterion rather than assuming they do not because the latter approach would unfairly penalize companies with a transition plan, awaiting data collection.
- This data point covers the transition planning aspects of the NZIF 2.0 criteria. Future green revenue reporting is not available in MSCI S&C's current database. MSCI S&C may refine the granularity of the mapping and analysis associated with criterion 5 once it has collected more granular company disclosures.
- The science-based targets component of criterion 5 is covered already under the updated mapping of criterion 2 (Targets), which is required to be met for all alignment categories where criterion 5 may be required too (Aligned, Aligning).

**Criterion 6 (Capital Allocation Alignment)**

The NZIF 2.0 guidance describes this criterion as "A clear demonstration that capital expenditures are consistent with a relevant net zero pathway."

MSCI S&C currently does not have a relevant data point for mapping this criterion, so no company can be assessed against it. MSCI S&C considers that if all other "Aligned" criteria are met, higher impact companies can be mapped as "Aligned" by assuming this criterion is met too.

*Rationale*

- The mapping of this criterion against existing data points is demanding. The criterion implies looking at the alignment of current capital expenditures (Capex) with a net-zero aligned pathway to 2050, which would require significant modelling (e.g., different sectors have different net-zero science-based pathways in climate scenarios). The challenge is compounded by the fact that Capex reporting data is often inconsistently reported across listed companies, and particularly so in terms of climate-aligned categories (e.g., green taxonomy, fossil fuels vs non fossil fuel investments categorizations).
- In 2024, the MSCI Sustainability Institute supported an academic study on the topic of modelling Capex (the study is available on request). Looking at 109 utilities companies' disclosures, the study finds that company Capex data is often not usable for alignment assessment, even among companies with a stated net-zero target (in particular, lack of basic breakdown between low-carbon and fossil fuel expenditures).
- Rather than using poor data point approximations, MSCI S&C prefers to omit this criterion from the list of criteria defining Aligned category for higher impact companies. This approach may change in the future as comprehensive, modelled and relevant Capex data may become available at scale.
- While a NZIF 2.0 mapping could assess Capex data in the GICS sectors Energy and Utilities (where climate-relevant Capex data is more available), data scarcity for other sectors on Capex 1.5°C-alignment could create a sector-bias in NZIF 2.0 assessment (e.g., only Utilites and Energy companies could be penalized on criterion 6).

## 3. Mapping approach towards climate solutions

The NZIF 2.0 includes a dedicated approach to climate solutions, recommending a medium-term objective for "allocating capital to climate solutions" separate from a portfolio decarbonization objective.[28]

Climate solutions are technologies required to decarbonize the real economy (e.g., wind turbines, electric vehicles). The NZIF 2.0 guidance recognizes that the emissions caused by the production of such technologies "could rise in line with their required global scale up," (e.g., mass EV manufacturing) while in the long term and compared with carbon-intensive alternative, they are "compatible with net zero pathways."[29] This creates a measurement challenge, especially for climate solutions companies whose corporate emissions will rise in tandem with their production of climate solutions, which makes the decarbonization-first approach of the maturity scale described earlier unfit for these companies.

The NZIF 2.0 guidance suggests several broad options to measure climate solutions, set a relevant objective and report progress.

**Exhibit 6 – Recommendations based on NZIF 2.0 guidance on climate solution companies[30]**

| Metrics | Green classification | Activity types |
|---|---|---|
| **Green revenue Ratio ($M and/or %)** | Technical screening criteria-aligned | Transition of own performance |
| | Taxonomy-aligned | |
| **Financed green revenues ($M/$M invested)** | Taxonomy-equivalent | Enabling |
| **Green capex ratio ($M and/or %)** | Taxonomy-plus | |
| **Financed green capex ($M/$ invested)** | | |

Source: Paris Aligned Investment Initiative (PAII) Net Zero Investment Framework (NZIF 2.0) (2024).

While the NZIF 2.0 guidance does not specify a threshold, the new SBTi Financial Institutions Net-Zero Standard (FINZ) does, through two definitions of climate solutions companies:

- For the oil and gas sector: "An entity is classified as a climate solution provider, when it is generating at least 90% of its revenue dedicated to retrofitting for non-fossil fuel use, permanent decommissioning, or abatement through carbon capture and storage, and the remaining revenue is not generated from fossil fuel activities."

[28] "Net Zero Investment Framework 2.0," PAII, 2024, p.14.

[29] "Net Zero Investment Framework 2.0," PAII, 2024, p.16.

[30] "Net Zero Investment Framework 2.0," PAII, 2024, p.30.

- For other sectors: “Entity classified as a climate solution, when it generates 90% or more of its revenue from specific climate solutions recognized through eligible taxonomies, and the remaining revenue is not generated from fossil fuel activities.”

To make use of NZIF 2.0 guidance and or the SBTi FINZ standard on climate solution measurement, clients may use MSCI S&C datasets include EU taxonomy reported and estimated shares of “eligible” and “aligned” revenue across the MSCI Climate Change Metrics coverage universe.

Note that MSCI S&C does not currently have the granularity required for the SBTI FINZ definition of climate solutions companies in the oil and gas sector.

# 4. Coverage, data and methodology updates

## 4.1. Coverage

The NZIF 2.0 indicative mapping coverage universe is determined by issuers' inclusion in the MSCI S&C Climate Change Metrics coverage universe. The MSCI Climate Change Metrics universe of entities consists of the constituents of the MSCI ACWI Investable Market Index (IMI) plus selected MSCI equity indexes (MSCI China A International, MSCI Pakistan IMI, MSCI Argentina Standard, MSCI Domestic Kuwait, MSCI EFM AFRICA, MSCI Australia IMI+, MSCI New Zealand IMI+, MSCI Europe IMI+ and MSCI UK IMI+) and certain fixed income entities (corporate entities which are assessed to enable the coverage of entities that are constituents of the Bloomberg Global Aggregate Index with some minimum level of disclosure) representing directly covered entities and entities including subsidiaries.

## 4.2. Data quality assurance

Data quality checks are conducted on all input data to address accuracy, completeness and validity. Automated data quality checks are conducted first and data that is flagged through these checks is subject to further review.

Key stages include:

- Disclosure detection: Identifying and classifying relevant issuer-level disclosures and source documents.
- Input data extraction (reported emissions and targets): combining large language model (LLM)-based automation with human validation for precision and completeness.
- Model output update: any significant variation in an issuer-level updated output is flagged, in some cases further checks on reported issuer data may be conducted.

## 4.3. Methodology governance and update process

MSCI S&C has established an internal methodology committee that presides over the development and review of all MSCI Sustainability and Climate methodologies, including the Net Zero Investment Framework 2.0 (NZIF 2.0) methodology. All methodology update proposals are subject to market consultation prior to approval for implementation by this committee.

As a quantitative model, NZIF 2.0 outputs are determined in a consistent manner for all assessed companies.

## 4.4. Data sources, use of artificial intelligence and update frequency

The NZIF 2.0 indicative mapping is typically recalculated on a biweekly basis to reflect the most recent company data, i.e., from the point company data are updated in MSCI S&C databases, relevant changes typically would be reflected in the NZIF 2.0 indicative mapping within two weeks. Prior to publication, additional quality assurance may be conducted, making the update take up to 30 days.

Company data relevant to NZIF 2.0 mapping computations includes newly issued or updated corporate targets, new emissions figures, estimates, or sales/business segment information. The NZIF 2.0 indicative mapping methodology takes data inputs from a mix of public sources (company-reported Scope 1 and Scope 2 emissions, targets, revenue) and non-public sources (company revenue breakdown by sector and region, MSCI S&C-estimated emissions for Scope 3, as well as Scope 1 and Scope 2 emissions estimates where the company did not report such data for a given year).

Where reported Scope 1, Scope 2 emissions are lacking for a given company, the NZIF 2.0 indicative mapping methodology relies on MSCI S&C-estimated emissions.[31] Where other required company data input are not available, NZIF 2.0 mapping outputs are not computed. MSCI S&C produces Scope 3 emissions estimates for the validation of Achieving Net Zero criteria, criterion 3 (Emissions performance) and criterion 4 (Disclosure) to ensure that peer companies are evaluated on a complete and consistent Scope 3 methodology basis.

The data collection workflow combines LLM-based automation with human validation to mitigate risks of errors and incompleteness.

Data on programs to reduce carbon emissions (including energy efficiency improvements) in core operations is collected from companies' publicly available documents, such as annual reports, CDP reports, the Science Based Targets initiative, Form 10-K, Form 20-F, sustainability reports, investor presentations, and other company disclosures. Such data is typically updated within a year (five months for MSCI ACWI companies) of the most recent annual filling (publication of annual and climate reports). ESG analytical personnel verify that any change in a data point between a given fiscal year's value and the next is plausible. Null values represent companies for which MSCI S&C has not yet collected a data point for companies that have only recently entered index coverage.

For further information on company data update cycles, refer to MSCI S&C's "Climate Targets & Commitments Methodology" for target data, "Greenhouse Gas Emissions Methodologies" for emissions data and "Implied Temperature Rise Methodology" for Implied Temperature Rise (ITR) data. Generally, data updates can take up to 6 months for ACWI IMI constituents and 12 months for other companies. The data cycle update for SBTi target data is generally shorter, up to one month. These cycle timelines take place prior to the up-to-one-month ITR update.

[31] Under MSCI S&C's Scope 1+2 carbon emissions estimation approach, estimates of carbon intensity are produced at the company level and at the industry-segment level. MSCI S&C uses one out of the following three models (listed in order of preference) to estimate any company's carbon emissions. MSCI S&C uses the production model to specifically estimate direct emissions due to power generation for electric utilities, i.e., Scope 1 emissions of utilities. This model uses power generation fuel-mix data to estimate Scope 1 emissions. For companies that have reported Scope 1 or Scope 2 carbon emissions data in the past but not for all years, MSCI S&C applies the company-specific intensity model, which is based on data previously reported by the company. If the company does not report and has never reported, MSCI S&C uses the industry segment-specific intensity model, which is based on the estimated carbon intensities of 1,000+ industry segments. For further details, see "Greenhouse Gas Emissions Methodologies."

# Appendix I - Modelled history

To facilitate reporting and historical performance evaluation, MSCI S&C provides a modelled history of NZIF 2.0 outputs from 2020 until the year before the current one (e.g., 2025). This means that the latest version of the NZIF 2.0 indicative mapping methodology is applied to NZIF 2.0 criteria input data as of certain past calendar dates.

This entails several assumptions.

Any company-level NZIF 2.0 mapping assessment refers to a certain reference year (e.g., 2022, 2023, 2024, 2025). It reflects the assessment of criteria-relevant data as of this given year (e.g., whether the company reported material Scope 3 or not as part of the criterion 4 assessment for the year, as opposed to whether it did in 2023).

There is no NZIF 2.0 mapping assessment for the present year, as the *annual* emissions component of the assessment always assesses the latest previous completed year (e.g., 2025).

Targets announced in a year prior to the reference year of assessment (e.g., a SBTi target validated in 2022) are considered ongoing for the following years of assessment (e.g., the SBTi target is active in 2023, 2024, 2025, etc.), as long as the target remains active.

Modelled history requires strict year alignment of every input. But data may not become available simultaneously: target events (e.g., target announcements) are typically available sooner than reported annual emissions and emissions intensities. Consequently, MSCI S&C applies controlled backfilling of all missing data points for the most recent year for which target data is available based on target announcement dates (e.g., 2025), using the previous year values to ensure targets data is considered fairly across years. All such cases are transparently flagged with a backfill factor. As this data becomes available, it replaces the backfilled values.

The latest year of NZIF 2.0 mapping assessment is flagged by a recent year factor that is specific to each issuer.

**Exhibit 7: Example issuer NZIF 2.0 mapping modelled history**

| Year reference of NZIF 2.0 mapping | Assessment criteria 1 and 2 | Other assessment criteria |
|---|---|---|
| **2025** | Based on new 2025 target data and active target data announced in previous years | Backfilled using 2024 NZIF 2.0 criteria validation, except for those for which data is available |
| **2024** | Based on active target data announced in 2024 and previous years | Based on data input as of 2024 (e.g., 2024 emissions) |
| **2023** | Based on active target data announced in 2023 and previous years | Based on data input as of 2023 (e.g., 2023 emissions) |
| **2022** | Based on active target data announced in 2022 and previous years | Based on data input as of 2022 (e.g., 2022 emissions) |
| **2021** | [No NZIF assessment as no data points as of 2021] | [No NZIF assessment as no data points as of 2021] |

Source: MSCI S&C, 2024.

# Appendix II – High Impact Sectors (GICS mapping)

These include companies on the Climate 100+ list and the following sectors. MSCI S&C applies GICS sub-industry mapping in line with the IIGCC's proposed GICS mapping of high impact sectors. NZIF 2.0 mapping does not always apply to an entire GICS industry group, that is why it is helpful to identify the GICS *sub-industry* groups that are relevant.

| NZIF 2.0 Sector Name | GICS Industry Group | GICS Sub Industry | GICS Sub Industry Code |
|---|---|---|---|
| **Agriculture, forestry, and fishing** | Materials | Forest Products | 15105010 |
| Agriculture, forestry, and fishing | Materials | Paper Products | 15105020 |
| Agriculture, forestry, and fishing | Capital Goods | Agricultural & Farm Machinery | 20106015 |
| Agriculture, forestry, and fishing | Food, Beverage & Tobacco | Agricultural Products & Services | 30202010 |
| **Airlines** | Transportation | Passenger Airlines | 20302010 |
| **Airlines** | Capital Goods | Aerospace & Defense | 20101010 |
| **Banking** | Banks | Diversified Banks | 40101010 |
| Banking | Banks | Regional Banks | 40101015 |
| Banking | Financial Services | Diversified Financial Services | 40201020 |
| Banking | Financial Services | Multi-Sector Holdings | 40201030 |
| Banking | Financial Services | Specialized Finance | 40201040 |
| Banking | Financial Services | Commercial & Residential Mortgage Finance | 40201050 |
| Banking | Financial Services | Transaction & Payment Processing Services | 40201060 |
| Banking | Financial Services | Consumer Finance | 40202010 |
| Banking | Financial Services | Asset Management & Custody Banks | 40203010 |
| Banking | Financial Services | Investment Banking & Brokerage | 40203020 |
| Banking | Financial Services | Diversified Capital Markets | 40203030 |
| Banking | Financial Services | Financial Exchanges & Data | 40203040 |
| Banking | Financial Services | Mortgage REITs | 40204010 |
| Banking | Insurance | Multi-line Insurance | 40301030 |
| Banking | Insurance | Property & Casualty Insurance | 40301040 |
| Banking | Insurance | Reinsurance | 40301050 |
| Cement | Materials | Construction Materials | 15102010 |
| Chemicals | Materials | Commodity Chemicals | 15101010 |
| Chemicals | Materials | Diversified Chemicals | 15101020 |
| Chemicals | Materials | Fertilizers & Agricultural Chemicals | 15101030 |
| Chemicals | Materials | Industrial Gases | 15101040 |
| Chemicals | Materials | Specialty Chemicals | 15101050 |
| **Consumer goods** | Telecommunication Services | Alternative Carriers | 50101010 |

| | | | |
|---|---|---|---|
| Consumer goods | Telecommunication Services | Integrated Telecommunication Services | 50101020 |
| Consumer goods | Pharmaceuticals, Biotechnology & Life Sciences | Biotechnology | 35201010 |
| Consumer goods | Pharmaceuticals, Biotechnology & Life Sciences | Pharmaceuticals | 35202010 |
| **Coal & Diversified Mining** | Energy | Oil & Gas Exploration & Production | 10102020 |
| **Coal & Diversified Mining** | Capital Goods | Industrial Conglomerates | 20105010 |
| **Coal & Diversified Mining** | Materials | Aluminum | 15104010 |
| **Coal & Diversified Mining** | Materials | Diversified Metals & Mining | 15104020 |
| **Coal & Diversified Mining** | Materials | Copper | 15104025 |
| **Coal & Diversified Mining** | Materials | Gold | 15104030 |
| **Coal & Diversified Mining** | Materials | Precious Metals & Minerals | 15104040 |
| **Coal & Diversified Mining** | Materials | Silver | 15104045 |
| **Coal & Diversified Mining** | Materials | Steel | 15104050 |
| **Electric Utilities** | Utilities | Electric Utilities | 55101010 |
| Electric Utilities | Utilities | Gas Utilities | 55102010 |
| Electric Utilities | Utilities | Multi-Utilities | 55103010 |
| Electric Utilities | Utilities | Water Utilities | 55104010 |
| Electric Utilities | Utilities | Independent Power and Renewable Electricity Producers | 55105010 |
| Electric Utilities | Utilities | Renewable Electricity | 55105020 |
| **Food Producers** | Food, Beverage & Tobacco | Brewers | 30201010 |
| Food Producers | Food, Beverage & Tobacco | Distillers & Vintners | 30201020 |
| Food Producers | Food, Beverage & Tobacco | Soft Drinks & Non-alcoholic Beverages | 30201030 |
| Food Producers | Food, Beverage & Tobacco | Agricultural Products & Services | 30202010 |
| Food Producers | Food, Beverage & Tobacco | Packaged Foods & Meats | 30202030 |

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|---|---|---|---|
| **Industrials** | Software & Services | IT Consulting & Other Services | 45102010 |
| Industrials | Software & Services | Internet Services & Infrastructure | 45102030 |
| Industrials | Software & Services | Application Software | 45103010 |
| Industrials | Software & Services | Systems Software | 45103020 |
| Industrials | Technology Hardware & Equipment | Communications Equipment | 45201020 |
| Industrials | Technology Hardware & Equipment | Technology Hardware, Storage & Peripherals | 45202030 |
| Industrials | Technology Hardware & Equipment | Electronic Equipment & Instruments | 45203010 |
| Industrials | Technology Hardware & Equipment | Electronic Components | 45203015 |
| Industrials | Technology Hardware & Equipment | Electronic Manufacturing Services | 45203020 |
| Industrials | Technology Hardware & Equipment | Technology Distributors | 45203030 |
| Industrials | Semiconductors & Semiconductor Equipment | Semiconductor Materials & Equipment | 45301010 |
| Industrials | Semiconductors & Semiconductor Equipment | Semiconductors | 45301020 |
| Industrials | Capital Goods | Construction & Engineering | 20103010 |
| Industrials | Capital Goods | Electrical Components & Equipment | 20104010 |
| Industrials | Capital Goods | Heavy Electrical Equipment | 20104020 |
| Industrials | Capital Goods | Construction Machinery & Heavy Transportation Equipment | 20106010 |
| Industrials | Capital Goods | Agricultural & Farm Machinery | 20106015 |
| Industrials | Capital Goods | Industrial Machinery & Supplies & Components | 20106020 |
| Industrials | Materials | Metal, Glass & Plastic Containers | 15103010 |
| **Oil and gas (plus distribution)** | Energy | Oil & Gas Drilling | 10101010 |

| | | | |
|---|---|---|---|
| Oil and gas (plus distribution) | Energy | Oil & Gas Equipment & Services | 10101020 |
| Oil and gas (plus distribution) | Energy | Integrated Oil & Gas | 10102010 |
| Oil and gas (plus distribution) | Energy | Oil & Gas Exploration & Production | 10102020 |
| Oil and gas (plus distribution) | Energy | Oil & Gas Refining & Marketing | 10102030 |
| Oil and gas (plus distribution) | Energy | Oil & Gas Storage & Transportation | 10102040 |
| Oil and gas (plus distribution) | Energy | Coal & Consumable Fuels | 10102050 |
| **Paper** | Materials | Paper & Plastic Packaging Products & Materials | 15103020 |
| **Real Estate** | Equity Real Estate Investment Trusts (REITs) | Diversified REITs | 60101010 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Industrial REITs | 60102510 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Hotel & Resort REITs | 60103010 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Office REITs | 60104010 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Health Care REITs | 60105010 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Multi-Family Residential REITs | 60106010 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Single-Family Residential REITs | 60106020 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Retail REITs | 60107010 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Other Specialized REITs | 60108010 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Self-Storage REITs | 60108020 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Telecom Tower REITs | 60108030 |

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|---|---|---|---|
| | | Timber REITs | 60108040 |
| Real Estate | Equity Real Estate Investment Trusts (REITs) | Data Center REITs | 60108050 |
| Real Estate | Real Estate Management & Development | Diversified Real Estate Activities | 60201010 |
| Real Estate | Real Estate Management & Development | Real Estate Operating Companies | 60201020 |
| Real Estate | Real Estate Management & Development | Real Estate Development | 60201030 |
| Real Estate | Real Estate Management & Development | Real Estate Services | 60201040 |
| **Shipping** | Transportation | Air Freight & Logistics | 20301010 |
| Shipping | Transportation | Marine Transportation | 20303010 |
| Shipping | Transportation | Rail Transportation | 20304010 |
| Shipping | Transportation | Cargo Ground Transportation | 20304030 |
| **Steel** | Materials | Steel | 15104050 |
| Transportation | Transportation | Passenger Ground Transportation | 20304040 |
| Transportation | Transportation | Airport Services | 20305010 |
| Transportation | Transportation | Highways & Railtracks | 20305020 |
| Transportation | Transportation | Marine Ports & Services | 20305030 |

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