MSCI Fossil Fuels and Power Generation Metrics Methodology (components of MSCI Climate Change Metrics)

MSCI ESG Research LLC

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Contents

MSCI Fossil Fuels and Power Generation Metrics overview

Objective

The objective of MSCI's fossil fuels and power generation metrics methodology is to identify companies involved in fossil fuel-related assets and activities including fossil fuel reserves, resource extraction, power generation and generation capacity, revenue from such assets and activities and capital investments in such assets and activities. The metrics are based on disclosed activities, disclosed revenue and estimates of revenue that are extrapolated from company disclosures and eligible third-party sources (such as NGOs).

Coverage universe

MSCI fossil fuels and power generation metrics cover companies in certain corporate equity and fixed income indexes such as MSCI ACWI Investable Market Index (IMI).[1]

Metric types

MSCI fossil fuels and power generation metrics are structured in three categories: *Power Generation, Fossil Fuel Exposure and Capital Expenditure Data and Renewable Energy CapEx Ratio*. These metrics are components of the Climate Change Metrics product.

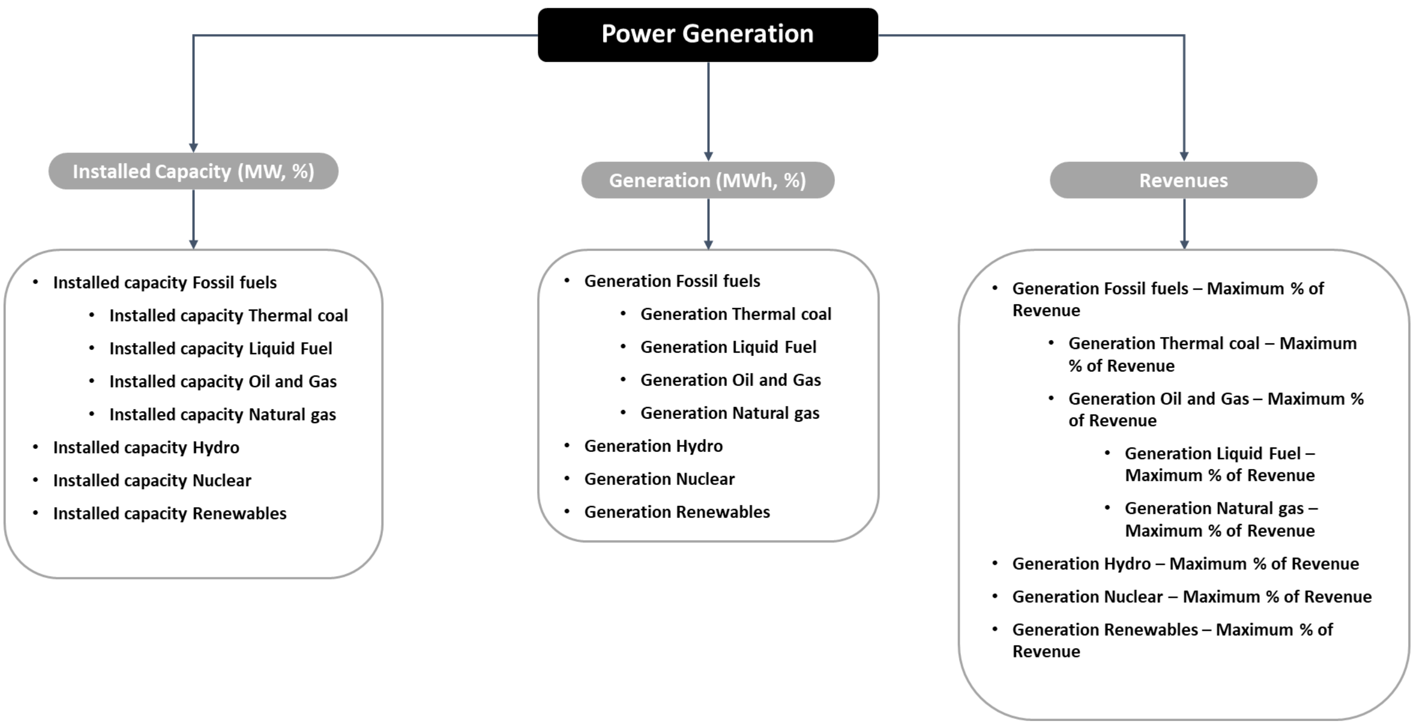
[1] See MSCI ESG Product Coverage document available on MSCI Support Site for more information.

Power Generation Metrics methodology

MSCI ESG Research provides a power-generation module containing:

- Installed capacity data by fuel type.
- Power-generation volumes by fuel type.
- Power-generation revenue by fuel type.
- Additional factors

Exhibit 1: Power generation factors



Source: MSCI ESG Research as of February 2025

Installed capacity data by fuel type

Company-reported installed capacity (MW) by fuel type is provided, where available.

Where companies report total installed capacity and percentages by fuel type rather than installed capacity by fuel type in megawatts (MW), total installed capacity is multiplied by the percentage for each fuel type to calculate MW installed capacity figures.

Power-generation volumes by fuel type

Company-reported power-generation volume in megawatt hours (MWh) by fuel type is provided, where available.

Where companies report total power-generation volume and percentages by fuel type rather than power-generation volume by fuel type (MWh), total power-generation volume is multiplied by the percentage for each fuel type to calculate MWh figures.

If a company reports total power-generation volume and percentage installed capacity by fuel type instead of power-generation volume by fuel type, the following approach is applied:

- Multiply the percentage installed capacity by fuel type to respective average plant load factors[2] to estimate the proportion of power generation by fuel type.
- Convert those proportion values to percentages and multiply those percentages by the total power-generation volume to estimate the power-generation volume by fuel type.

Fuel mix

A company's fuel mix is estimated by taking the ratio of power-generation volume by fuel type (reported or estimated) and the total power-generation volume.

Where total power-generation volume is not available but the installed capacity by fuel type is available: The percentage installed capacity is multiplied by the respective fuel average plant load factors to estimate the proportion of power generation by fuel type. These proportional values are then rescaled to estimate the fuel-mix percentages.

- If a utility company operates Hybrid or co-fired power plants, the installed capacity is equally split among the fuel types.
- If a utility company discloses non-renewable and/or renewable energy generation but does not provide installed capacity for each, the installed capacity is equally split between the fuel types.

Power generation revenue by fuel type

Company reported revenue from power generation by fuel type is provided, where available. If a company reports revenue from power generation and uses only one type of fuel, this figure is applied.

If a company's total power generation revenue is known (either reported or estimated), but revenue breakdown by fuel is not known, then MSCI ESG Research multiply the total power-generation revenue by that company's fuel mix to estimate the power-generation revenue by fuel type.

Where companies do not disclose the revenue derived from power generation by fuel type; the following process is applied to estimate these figures:

- If a company reports power-generation volume by fuel type or if it reports power-generation volume and uses only one type of fuel for power generation, and it reports the price of electricity realized, power-generation revenue by fuel type is estimated as power generation volume multiplied by electricity price.
- Where the revenue from power-generation business of a vertically integrated electric utility company, involved in both electricity generation and transmission and distribution business, is not disclosed but the combined revenue of both businesses is disclosed, power-generation

[2] A measure of a power plant's capacity utilization

revenue is estimated as the proportion of its own electricity generated (MWh) to total electricity transmitted (MWh).

- Where the revenue from power generation is not disclosed or is not possible to estimate using the above methods, the revenue proportion of different business segments is estimated by multiplying the asset turnover ratios[3] of different business segments by total assets employed in respective businesses. These proportion values are then converted to percentages and multiplied by revenue to estimate the revenue at the business segment level (including for power-generation business).

Additional calculations/estimations

Estimation of network revenue

Power Generation revenue of a power generation company may also include revenue from transmission and distribution. Where this is the case, MSCI ESG Research has the following approach: If a company's total Network (Transport and Distribution, "T&D") revenue is known (either reported or estimated), but the split between electricity & gas revenue is not known, the ratio of the number of customers and/or network coverage (km) is applied as a proxy for the split between gas transmission and electricity distribution network revenue.

Treatment of discontinued operations - power

The decommission of power plants (Coal, Liquid Fuel, Natural gas, Nuclear, Hydropower or renewables, etc.), suspension of power plants, or divestment/ selling ownership of power plants have an impact on energy generation by fuel type.

If such an event happens at any point during a financial year, and revenue by fuel type is not directly reported, the percentage share of energy generation is applied to calculate the power generation revenue by fuel type.

The impact of revenue from discontinued operations are removed from power generation revenues once a company stops reporting any operations from a particular fuel type.

An installed capacity flag is removed when MSCI ESG Research identifies publicly available disclosures about the decommissioning, suspension, or sale of the asset in question.

Treatment of related entities involved in power generation

In cases where a related entity's power generation revenue and volume (in MWh/MW) are not accounted for by the parent company in its disclosure:

- 100% of power-generation revenue and volume is mapped to the parent company if a subsidiary's financial data is consolidated by the parent company

OR

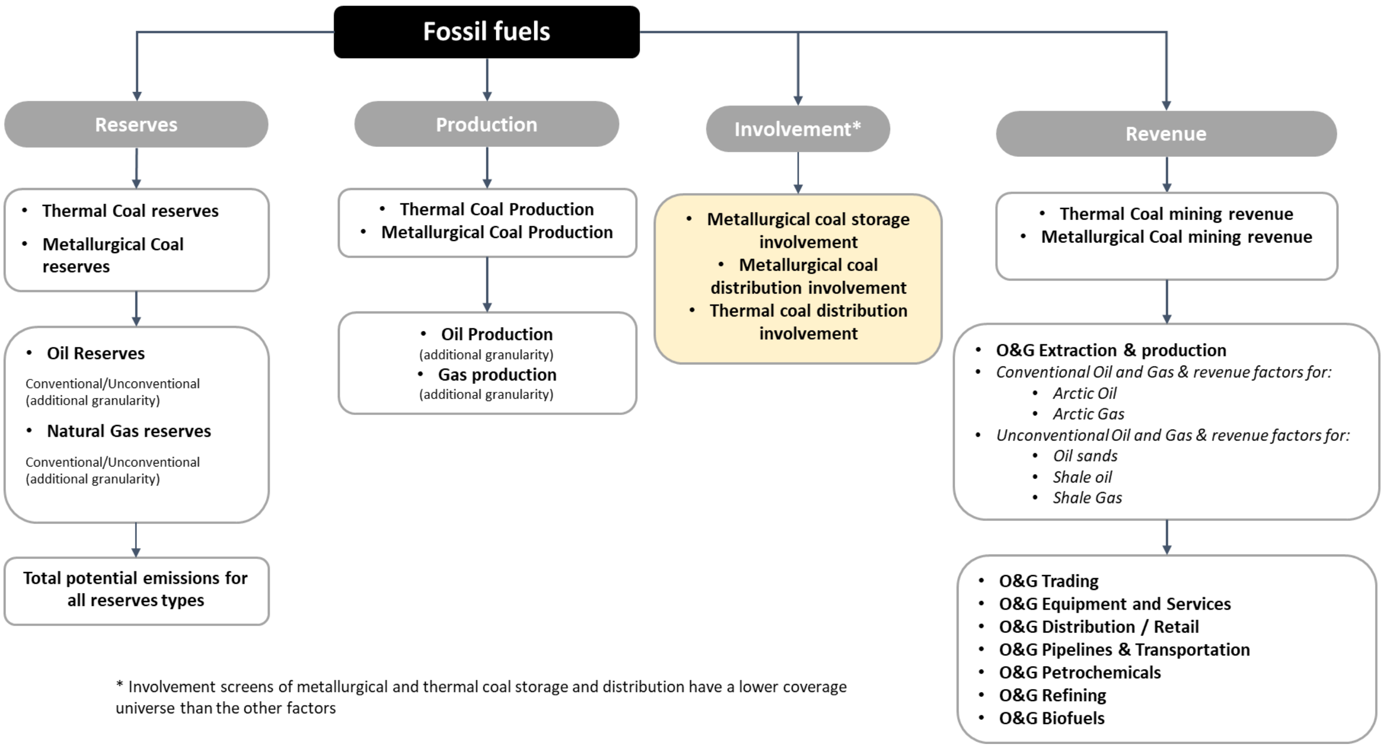
- Where ownership is less than 50%, power-generation revenue and volumes are allocated to the parent on a basis proportionate to its equity ownership in the related entity

[3] For a company, asset turnover ratio of a given business activity is the ratio of revenue to assets employed in that particular business activity.

Fossil fuel Exposure Metrics methodology

MSCI ESG Research identifies companies with fossil fuel reserves and revenue across oil, gas, thermal and metallurgical coal. Additionally, MSCI ESG Research provides revenue breakdown for activities associated with the oil and gas (O&G) value chain.

Exhibit 2: Fossil Fuels Factors



Source: MSCI ESG Research as of February 2025

Fossil fuel reserves data

MSCI ESG Research provides reported fossil fuel reserves data in tons under the following reserve categories for companies in the coverage universe:

1. Metallurgical coal
2. Thermal coal
3. Conventional oil
4. Shale oil
5. Oil shale & tar sands
6. Natural gas
7. Shale gas

To achieve consistency with industry reporting standards, MSCI ESG Research collects reported proved and probable reserves (2P) for coal and proved reserves (1P) for oil and natural gas. In some cases, 2P reserve values for oil and natural gas are also considered, if a company does not disclose its 1P reserves.

Conventional vs. unconventional oil and gas reserves, production and revenue

MSCI ESG Research provides a breakdown of reserves, production and revenue associated with conventional or unconventional oil and gas production.

Definitions:

Conventional oil and gas production:

Conventional oil and gas resources apply to oil and gas which can be extracted, after the drilling operations, just by the natural pressure of the wells and pumping or compression operations (vertical drilling). This includes the Arctic[4] oil and gas production, deep-water offshore oil and gas production, offshore shallow water oil and gas production found in conventional reservoirs and extracted using traditional drilling techniques.

Unconventional oil and gas production:

Unconventional oil and gas production includes shale oil and gas, oil sands production and coal bed methane resources. This includes production related to hydrocarbon liquids and gas that need to be extracted using additional technology, energy or investment to release the resource from the source rock. Unconventional production can also be seen in conventional reservoirs but extracted using unconventional drilling techniques (i.e. horizontal drilling, hydraulic fracking etc.). This includes any other kind of production activity classified by a company as unconventional Oil and gas production.

MSCI ESG Research makes a determination on whether production of oil and gas is classified as conventional or unconventional based on the production method but cannot split volumes of conventional versus unconventional oil and gas downstream from production, i.e. in transportation and refining, nor upstream from production, i.e. at the equipment and services level.

Non-disclosure of reserves

If a company has previously reported reserves data but where data for the most recent financial year is not available:

- If production data is available, current reserves are estimated by subtracting production volumes from the previous reserve volumes. This is indicated in the notes and reflected as “Estimated” in the key.
- If production data is not available, the previous year’s data is carried over. This is indicated in the notes and reflected as “Estimated” in the key.

Non-production companies with evidence of fossil fuels reserves

In cases where no reserves are disclosed, but there is evidence that a company has investment(s) in upstream (exploration and production) oil and gas or coal mining projects, the following logic is applied:

[4] MSCI’s definition Arctic is defined as oil and gas production within the Arctic Circle above the 66.5 deg latitude.

- Appropriate evidence flags for reserves are activated if the company is an operating company (e.g., in the industrial conglomerates, trading companies, utilities GICS[5] industries)
- Appropriate evidence flags for reserves are activated if the company is a holding company (i.e., in the multi-sector holdings or in the financials sector) whose holdings in fossil fuels related entities are direct
- If a company is a holding company with indirect holdings in fossil fuels related entities, evidence flags are activated if these holdings either constitutes 10% or more of the holding company's portfolio of assets, or the holding company owns 20% or more of the identified fossil fuels related entities.

Companies financing fossil fuel reserves

The following investment types are not flagged for involvement in fossil fuel reserves or revenues:

a) Debt investments (i.e., provides loans/financing to a company that has upstream fossil fuels related projects). For such cases it is assumed, that the financing company does not have an equity interest in the reserves.
b) Managed funds that invest in upstream oil and gas or coal companies. In these cases, the fund manager manages the fund for third parties. Unless there is clear evidence that the fund manager also invests in the fund, involvement flag is not activated for the fund manager.
c) Fund managers are flagged for reserves ownership where the company discloses an equity interest of greater than 0% in a company that owns fossil fuels.

Fossil fuel revenue data

MSCI ESG Research's fossil Fuels and power generation metrics include an oil and gas revenue exposure module for Integrated oil and gas (IOG) and exploration and production (E&P) companies.

Oil and gas revenue related to extraction and production

MSCI ESG Research provides percentage of revenue (reported or estimated) generated from oil and gas production activities. Company-reported extraction and production revenue by category are provided, if available. In other cases, when there is no disclosure, MSCI ESG Research provides estimates.

The following categories are provided, as a percentage of total reported revenue:

- Oil and gas extraction and production revenue (%)
- Conventional oil and gas extraction and production revenue (%)
- Unconventional oil and gas extraction and production revenue (%)
- Oil sands extraction and production revenue (%)
- Shale oil extraction and production revenue (%)

[5] GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence. For more information, please see http://www.msci.com/products/indices/sector/gics/)

- Shale gas extraction and production revenue (%)
- Arctic oil extraction and production revenue (%)
- Arctic gas extraction and production revenue (%)

These revenue factors do **not** include:

- Revenue from non-extraction activities (for example, exploration, surveying, processing, refining);
- Ownership of fossil fuel reserves with no associated extraction and production revenues (as for companies with reserves not yet explored or exploited); Revenue from intra-company sales;
- Revenues from drilling oil and gas wells service providers

Estimation process: oil and gas extraction and production revenue by category

Where reported data is not available, the estimation process is as follows:

- If the revenue from oil and gas production is reported and the company reports only one type of proven fossil fuels reserve (100% oil sands, 100% oil shale etc.), then this reserve type is used to determine the revenue category.
- If total production volume is reported and the company reports only one type of proven fossil fuel reserve (100% oil sands, 100% oil shale etc.), and if the realized price by geographic location is reported by the company, revenue is estimated as the production volume multiplied by the respective reported realized prices.
- If production volume by oil and gas type or field is reported and if the realized price by proven reserve type and by geographic location is reported by the company, then the revenue by category is estimated as production volume multiplied by the respective reported realized prices.
- If the split between conventional and unconventional type of production is not reported, but the company provides an acreage split, then this split is used as a proxy proportion to estimate conventional and unconventional revenues.
- If the split between conventional and unconventional production cannot be estimated using the method above, all revenues are allocated to the category with highest number of fields. The flag for evidence of production for the other categories is activated, without assigning a revenue percentage.
- If the production volume is not reported, company production is estimated by sourcing the field level production from other sources (example: other stakeholder’s report) and scale it to the company’s ownership
    - Example: Company A and Company B jointly operate a field. Company A does not report production from the field in its public disclosures, however, Company B reports the production in its disclosures. In such scenarios, Company B disclosures are used to estimate the production of Company A using the respective ownership percentage
    - If production volume cannot be estimated from other sources, the relevant production volume is estimated using the number of productive wells reported by the company for that specific type of production, field or geographic location. To estimate the production volume by type of production, first the split between oil and gas productive wells based

on the company's reserves is estimated, and second multiply the number of productive wells by the Energy Information Administration (EIA) average wells production number.[6]

- If there is evidence that the company is involved in production, but the total production volume cannot be estimated or if the company does not disclose realized prices, then the company is flagged for evidence of corresponding oil and gas production type. However, no revenue estimates are provided for such cases.
- If revenues are estimated based on the methods above, then these would be further scaled as per company's external upstream revenues disclosed by the Company.
- The revenue estimations only include consolidated revenues by the company

Treatment of discontinued operations - oil and gas

Suspension of oil and gas operations or selling an oil/gas division are likely to have an impact on the contribution that such activities make to a company's revenues. If such an event occurs during a financial year, MSCI ESG Research uses the revenues contributed by the operations in question to calculate the maximum revenue percentage (for that year).

Revenue from such discontinued operations will be removed from percentage of revenue calculations provided at company level once the company stops reporting any revenue from these operations in its disclosures.

In case the suspension, decommissioning or sale of an oil and gas asset has an impact on a company's reserves, reserves flags and production volumes are removed when MSCI ESG Research identifies evidence of the suspension, decommissioning, or sale of the asset in question.

Treatment of joint ventures and associates - oil and gas

Revenues from joint ventures and associates are included in revenue estimations only when a company consolidates these revenues in its public disclosures (such as in segment reporting section of an annual report). If a company does not consolidate revenues from joint ventures and associates, these are not used in its oil and gas revenue estimation.

Oil and gas revenue related to other business activities in the value chain

MSCI ESG Research collects data on revenue derived from following oil and gas- related business activities (beyond Extraction and Production):

- Oil and gas equipment and services;
- Oil and gas refining;
- Oil and gas pipelines and transportation;
- Oil and gas distribution and retailing;
- Petrochemical products;
- Trading of oil and gas and related products; and

[6] The EIA reports that in 2017 the average oil well production was 19 barrels/ day and the average gas production 132000 scf/day. https://www.eia.gov/petroleum/wells/pdf/full_report.pdf

- Biofuel

Coal mining revenue data and estimation

MSCI ESG research fossil fuels and power generation metrics include revenue associated with thermal and metallurgical coal mining and involvement flags for the distribution and storage of coal.

Revenue estimation process

MSCI ESG Research relies on company-reported information in public documents, investor presentations, websites, etc. to estimate revenues derived only from mining thermal or metallurgical coal.

Revenue derived from related entities (joint ventures, associates and affiliates) are included in the estimation, if the information is provided in publicly available information of a company; companies are attributed a production volume or revenue equivalent to their ownership share.

If a company discloses both *Saleable Coal Production* and *Run of Mine*[7] (ROM), *Saleable Coal Production* is used in estimations. In absence of *Saleable Coal Production*, *ROM* is used

If revenue from thermal and metallurgical coal is disclosed separately, these are directly used to derive respective thermal and metallurgical coal revenues.

- If revenue from thermal and metallurgical coal is not disclosed separately, however total revenue from coal mining operations is reported, the number of mines is used as a proxy to split total mining revenues between thermal and metallurgical and arrive at a revenue percentage associated with each coal type.
    - Example: if a company has operations in 12 mines out of which one is thermal and 11 are metallurgical, 1/12th of the company's coal revenues is allocated to thermal coal mining and 11/12th revenue is allocated to metallurgical coal mining
- If revenue from thermal and metallurgical coal is not disclosed separately and it is not possible to source the number of mines the company has an ownership stake in, its entire coal revenues are allocated to the coal type with majority operations. The flag for evidence of production for the other coal type is activated without assigning a revenue percentage.
- Mining Services Revenue: If the company does not disclose a split between thermal and metallurgical mining services revenues, its entire mining services revenues are included in thermal coal mining revenues.

Thermal & metallurgical coal mining revenue data

MSCI ESG Research provides the percentage of revenue (either reported or estimated) that companies derive from the mining of thermal and metallurgical coal (including lignite, bituminous, anthracite, steam coal and coking coal respectively) and its sale to external parties, and contract mining services.

Thermal and metallurgical coal revenue are further detailed as follows:

[7] Run of Mine is the raw material mined prior to processing.

- **By production type:** If revenue from thermal or metallurgical coal is reported directly, this figure is used. Where necessary, adjustment is made to exclude revenue from intra-company sales of thermal or metallurgical coal or other coal-related revenues that are not included in the thermal or metallurgical coal revenue factor.
- **By project:** If revenue is reported by project, MSCI ESG Research identifies which projects (including joint ventures) are thermal versus metallurgical coal projects and aggregate the associated revenues.
- **By region:** If revenue is reported by region, company projects (including joint ventures) are mapped to each region. Where possible, production volumes and average sales price data are projected for the fiscal year in question to estimate revenues for each relevant project.

MSCI ESG Research's thermal coal revenue does not include:

- Revenue from metallurgical coal (in other words, coal used in the production of steel);
- Coal mined for internal power generation (for example, in the case of vertically integrated power producers);
- Intra-company sales of mined thermal coal;
- Revenue from coal trading;
- Royalty income for companies not involved in thermal coal extraction operations.

MSCI ESG Research's metallurgical coal revenue does not include:

- Revenue from thermal coal (in other words, coal used for power generation);
- Coal mined for internal use in steel production;
- Intra-company sales of mined metallurgical coal;
- Revenue from coal trading;
- Royalty income for companies not involved in metallurgical coal extraction operations.

Treatment of discontinued operations- thermal and metallurgical coal

Sale of coal mines, suspension of operations at a mine, or selling a coal division have an impact to the maximum revenue percentage provided at company level. If such an event happens during a financial year, MSCI ESG Research uses the revenues contributed by the respective operations to calculate the maximum revenue percentage (for that year).

Revenue from such discontinued operations will be removed from maximum revenue percentage once the company stops reporting any revenue from these operations in its disclosures.

In case the suspension, decommissioning or sale of a mine has an impact on its reserves, reserves flags and volumes are removed when MSCI ESG Research identifies publicly available company disclosures about the suspension, decommissioning, or sale of the asset in question.

Treatment of joint ventures and associates for coal mining

In case a company is involved in coal mining through JV and associates, coal mining revenue from the JV or associate is taken into account while estimating coal mining revenue percentage of the company. The calculation also accounts for the percentage ownership of the company in the respective JV or associate.

In case the company is involved in coal mining activities through its consolidated operations only, and does not have involvement in coal mining activities through JV, associate etc, in such cases only the consolidated coal mining revenues are taken into account, while revenues from non-involved JV, associates etc are not considered while estimating coal mining revenues of the Company.

Urgewald data

MSCI ESG Research provides Urgewald's Global Coal Exit List (GCEL) data on its distribution platforms. The screen identifies companies expanding their coal mining activities, developing new coal power plants, or building other coal-related infrastructure, such as coal export terminals or coal railway lines. The data are provided as raw data, without any intervention from MSCI ESG Research.

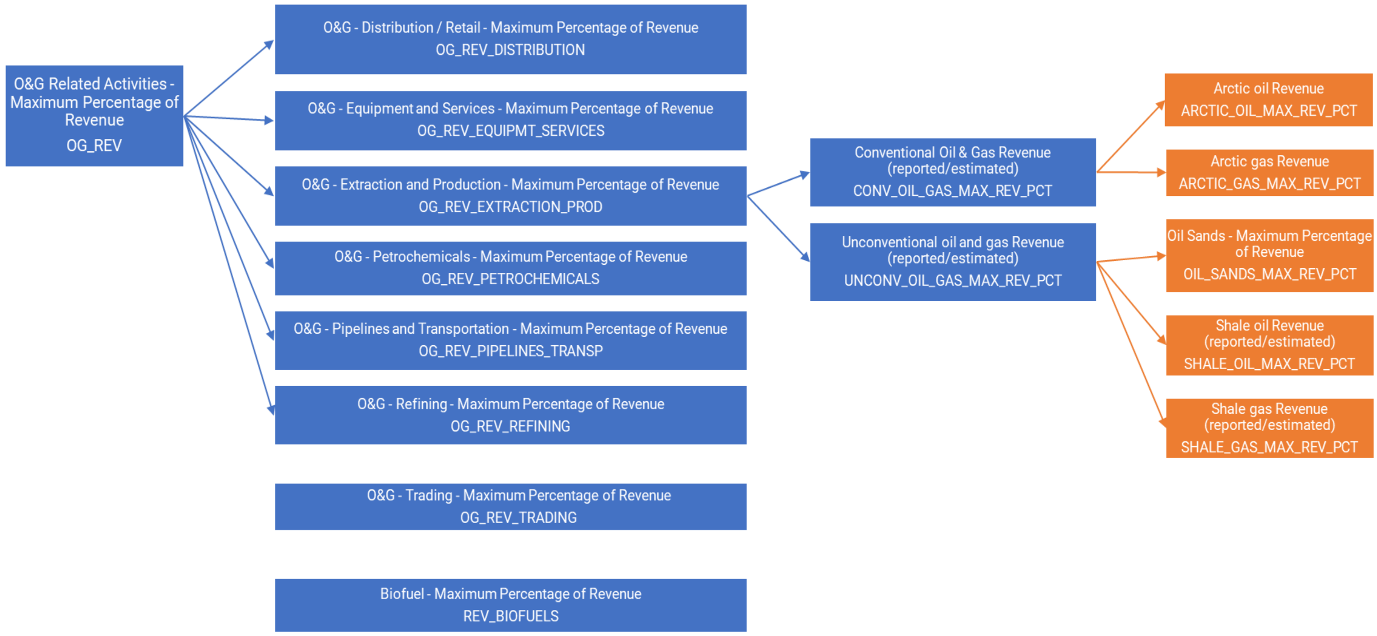
MSCI ESG research publishes data annually from Urgewald's Global Coal Exit List indicating expansion based on the following criteria: Power: Companies planning to develop new coal-fired power capacity of at least 100 MW. Mining: Companies involved in coal exploration activities; planning to develop new coal mines or extending existing coal mines. Services: Companies involved in the development or expansion of coal transportation assets or other coal-related infrastructure such as coal-to-gas facilities

MSCI ESG research provides GCEL's coal power expansion plans data in total MW and prorated for companies with projects that have been announced, pre-permitted, permitted or under-construction. The coverage is based on Urgewald's listed equities mapped to the coverage universe. Companies in the GCEL list but outside of coverage universe may be omitted from the original list.

Aggregate metrics and use cases-fossil fuels and power generation

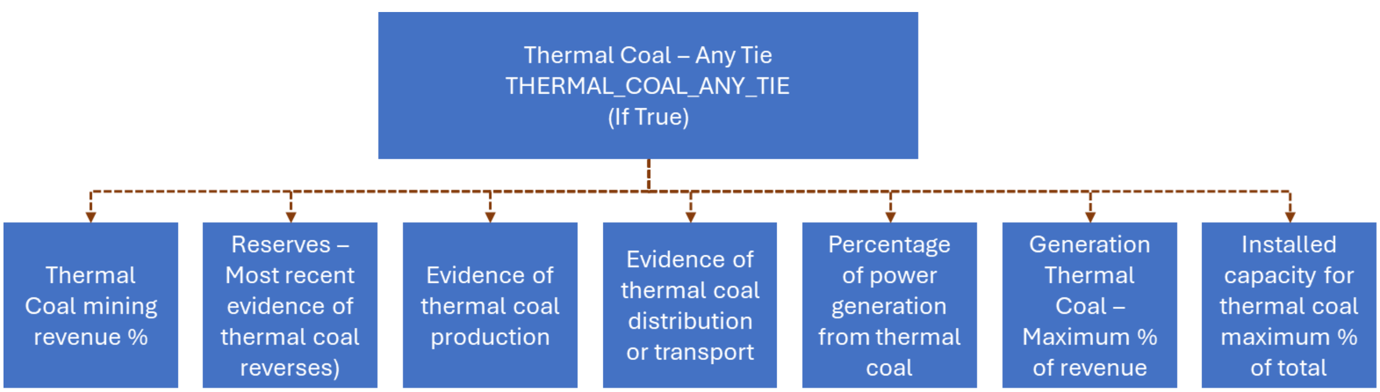
The underlying factors in the sections above are used to create aggregate factors across industries and fossil fuel and power generation activities related to oil, gas or coal. Factors like "any tie" aggregate existing underlying metrics. The following exhibits provide an overview of the aggregate metrics and their components:

Exhibit 3: Oil and gas value chain factors



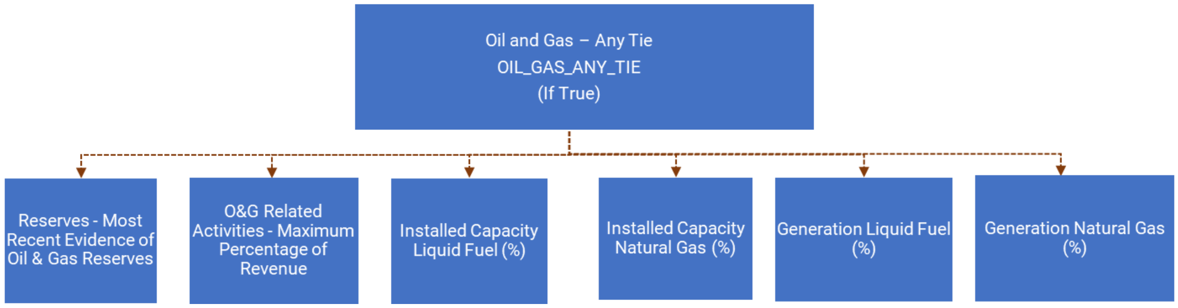
Source: MSCI ESG Research as of February 2025

Exhibit 4: Coal Any tie factor



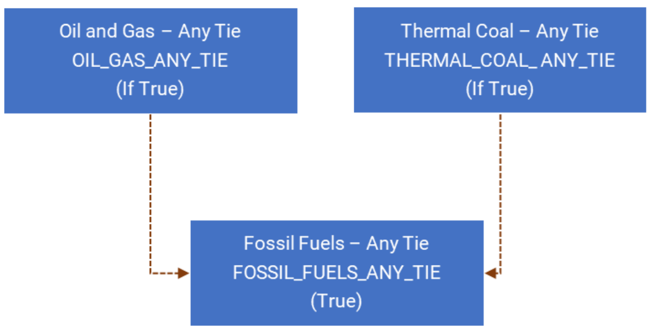
Source: MSCI ESG Research as of February 2025

Exhibit 5: Oil and gas any tie factor



Source: MSCI ESG Research as of February 2025

Exhibit 6: Fossil fuel any tie factors



Source: MSCI ESG Research as of February 2025

Capital expenditure data and renewable energy capital expenditure ratio metrics

MSCI ESG Research provides the latest reported historical capital expenditure (CapEx) values for companies where forward-looking CapEx values are not available. Company-disclosed CapEx plans are captured within the below categories.

Exhibit 7: Business Activity Categorization of CapEx Data

Business activity	Description of Business Activity	Reference
Electric networks	Electricity distribution and transmission	1
Gas networks	Utility gas distribution and transmission (excludes unregulated oil and gas transportation)	2
Heat networks	District heating and/or cooling networks	3
Total networks	**Sub-total**	**4 = 1+2+3**

Coal	Coal-fired power generation	5
Oil	Oil-fired power generation	6
Gas	Gas-fired power generation	7
Nuclear	Nuclear power generation	8
Total thermal generation	**Sub-total**	**9 = 5+6+7+8**
Hydro	Hydro-power generation	10
Wind	Wind power generation	11
Solar	Solar power generation	12
Biomass	Biomass power generation	13
Other renewables	Unspecified renewables technology or not specified as wind, solar and/or biomass	14
Total Renewables generation	**Sub-total**	**15 = 10+11+12+13+14**
Other 'green'	Electric vehicles charging infrastructure, smart grids and networks, low carbon customer solutions (energy efficiency, customer renewables installation, etc.)	16
Other	All other expenditure	17
Total capital expenditure	**Sub-total**	**18 = 4+9+10+16+17**

CapEx data collection and estimation

Company-disclosed CapEx by business activity and by fuel type for power generation are used, where available.

Where companies disclose total capital expenditure and proportions by business activity and/or fuel type expressed in percentage terms, the total value is multiplied by the proportion for each category to calculate CapEx per business activity and fuel type.

Where a company's disclosure is not available in this detail, the data at an aggregated category level are provided if possible (e.g. if capital expenditure in thermal power plants is available, but the exact fuel is unspecified, the amount would be captured within the 'Total thermal generation' sub-total. MSCI ESG Research does not estimate the split by fuel.

This means that a null value may not always signify an actual zero CapEx in a category but could reflect a lack of corporate disclosure at this level of detail.

Where a company has not disclosed capital expenditure in a given business activity and there is evidence that the company's business mix does not include such activity (e.g. a company has no gas transportation network business and there is no mention of capital expenditure in gas networks in its disclosures), this is indicated as zero.

Where there is no forward-looking CapEx plans available, a breakdown of the latest reported historical capital expenditure is used. Allocation of latest reported CapEx follows the same principles as described above.

Sectors and technologies covered

The following GICS industries are covered by the CapEx dataset include companies classified as integrated oil and gas, oil and gas exploration and production, and utilities.

Within the CapEx dataset technologies considered as 'renewable' include hydro-power generation (regardless of scale), wind, solar, biomass, geothermal, wave. This set of technologies may not fully correspond to some regulatory classifications, including European Union regulations such as the EU Taxonomy on Sustainable Finance.

The selection of technologies has been driven by data availability. Companies often disclose CapEx in renewable technologies without specifying the technology breakdown. Hydro-power and biomass are typically included as renewable in company disclosures and as a result are included as such in our data.

Renewable energy capex ratio

The renewable energy CapEx ratio is calculated following the guidance in the EU Commission Delegated Regulation 2020/1816. This is defined as capital expenditure in renewable energy as a share of total company capital expenditure (e.g. category 15 divided by category 18 as per Exhibit 6 above). The calculation uses MSCI ESG Research's definition of renewable energy as defined above.

Exhibit 8: Renewable CapEx Ratio Calculations for Two hypothetical companies

Sector	Company	Renewable energy CapEx (EUR billion)	Total CapEx (EUR billion)	Renewable energy CapEx ratio	Source
Utilities	HyCo1	12.5	29	**43%** = 12.5/29	CapEx plan for 2020-2022
Energy	HyCo 2	2.6	29	**9% =** 2.6/29	CapEx plan for 2020-2023

Assumptions:

1. **Ratio is dependent on MSCI ESG Research's definition of 'renewable energy'** - The ratio captures a limited set of lower carbon intensity activities, i.e. lower carbon power generation technologies only. Diversification into all other low carbon solutions or business activities such as electric vehicles infrastructure, energy efficiency, low carbon customer solutions, biofuels and others are currently excluded from the ratio.

2. **Ratio should be interpreted with caution for diversified businesses** - Comparison of investments in renewable energy generation against total company CapEx could lead to varying interpretations, especially for diversified utilities.

For example, HyCo's 1 renewable energy CapEx ratio is calculated at 43%. This differs substantially from its share of planned renewable power generation capacity additions relative to total company capacity additions (11,900 MW of solar, wind and hydro capacity additions represent 100% of HyCo's 1 planned capacity additions for the period 2020-2022). The reason for the difference is the denominator – the renewable energy CapEx ratio measures renewable energy CapEx against total company CapEx (including CapEx earmarked for business other than power generation). The ratio using capacity additions data measures renewables investments as a share within the power generation segment only.

EU Paris Alignment – Minimum Exclusion Components supporting template 1 for the EBA Pillar 3 ESG disclosure[8]

The screens below have been developed as a tool to support banks in aligning with the EU Paris-aligned Benchmarks referenced in climate disclosure regulations from the European Banking Authority (EBA), specifically EBA Pillar 3: disclosure of ESG risk. These screens identify companies within coverage of the Fossil Fuel and Power Generation metrics that may not align with the criteria of Article 12.1 (d) to (g) and Article 12.2 of the EU Commission Delegated Regulation (EU CDR), i.e. companies that may breach certain thresholds for revenues (reported or estimated) from fossil fuel-related activities or power generation emissions intensity, or that are involved in significant environmental controversies.[9]

The EBA published binding standards on Pillar 3 disclosures on ESG risks in January 2022.[10] Details on these standards, requirements and MSCI ESG Research's guidance on approaching them are provided in MSCI's EBA Pillar 3 ESG Risks Data Guide. As part of template 1, banks must identify their exposure to companies excluded from EU Paris-aligned Benchmarks, referencing Article 12.1 (d) to (g) and Article 12.2 of the EU CDR.

Using MSCI's Fossil Fuel and Power Generation data set, MSCI ESG Research provides the following screens to support alignment with EBA Pillar 3 Template 1:

- **Thermal Coal revenue**: Flags all companies deriving 1% or more of total revenue from the exploration, mining, extraction, and distribution of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties. It excludes revenue from metallurgical coal, coal mined for internal power generation (e.g., in the case of vertically

[8] For all references to laws, rules or regulations, please note that the information is provided "as is" and does not constitute legal advice or any binding interpretation. Any approach to comply with regulatory or policy initiatives should be discussed with your own legal counsel and/or the relevant competent authority, as needed.

[9] Commission Delegated Regulation (EU) 2020/1818 of 17 July 2020 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards minimum standards for EU Climate Transition Benchmarks and EU Paris-aligned Benchmarks

[10] Final draft implementing technical standards on prudential disclosures on ESG risks in accordance with Article 449a CRR, January 24, 2022. EBA/IST/2022/01

integrated power producers), intracompany sales of mined thermal coal, and revenue from coal trading (either reported or estimated).

MSCI ESG Research also identifies companies that have a connection to the distribution or transport of coal. We do not collect revenues related to thermal coal distribution or transport due to a lack of consistent data – different issuers disclose involvement in thermal coal distribution or transport differently and most issuers only disclose an involvement in distribution or transport without mentioning related revenues. Hence, for now, we capture only involvement in distribution or transport of thermal coal. For thermal coal revenue, companies are flagged if they either derive 1% or more of total revenue from mining of thermal coal or are connected to the distribution or transport of coal.

- **Oil revenue**: Flags all companies deriving 10% or more of total revenue from oil related activities, including exploration, wells drilling, extraction, production, refining, distribution, pipelines and transportation but excluding biofuel production, petrochemicals production, revenue from retail and services companies, and trading activities.
- **Gas revenue**: Flags all companies deriving 50% or more of total revenue from natural gas related activities, including exploration, wells drilling, extraction, production, processing, manufacturing, or distribution, pipelines and transportation but excluding biofuel production, petrochemicals production, revenue from retail and services companies, and trading activities.
- **Power Generation revenue**: Flags all companies deriving 50% or more of total revenue from fossil fuel-based (including coal, liquid fuel, or natural gas) power generation. The average intensity for fossil fuel-based power generation is well above 100 g CO_2e/kWh and hence fossil fuel-based power generation is used as a proxy for power generation with emissions over 100 g CO2e/kWh.[11]
- **Environmental controversies**: Flags all companies involved in one or more environmental controversies classified as having a severe or very severe nature based on MSCI ESG Research's assessment. These controversies may indicate a violation of one or more of the environmental objectives referred to in Article 9 of Regulation EU (2020/852).
- **Exclusion from EU Paris Aligned Benchmarks**: Flags all companies that are flagged under any of the screens listed above, which may indicate exclusion from EU Paris Aligned benchmarks in accordance with Article 12.1 (d) to (g) and Article 12.2 of the EU CDR.

Ongoing Monitoring and Update Cycle

Data for Fossil Fuel Exposure is updated throughout the year following the publication of companies' annual filings on a rolling schedule, within two months for constituents of the MSCI ACWI Index and a three-month time frame for all other companies in coverage.

For companies scheduled for an annual update in a given month, data is generally available in ESG Manager five business days before the end of that month.

[11] IPCC Special Report on Renewable Energy Sources and Climate Change mitigation (SRREN), 2011. The largest lifecycle emissions are associated with the combustion of coal. Lifecycle assessments reviewed in the SRREN showed a range of 675-1689 gCO2e/kwh electricity. Corresponding ranges for oil and gas were 510-1170 gCO2e/kwh and 290-930 gCO2e/kwh respectively.

Fossil Fuels and Power Generation Metrics Process

Data sources

MSCI ESG Research uses preferred sources, when possible, to evaluate company's fossil fuels and power generation metrics. Preferred sources are detailed below. Data from preferred sources are typically used for up to three years from publication or involvement date.

MSCI ESG Research may also use supplemental sources in certain cases, including where preferred sources do not yield sufficient information for an evaluation to be made. These are detailed below.

Preferred sources – public disclosures

The following public disclosures are considered as primary sources to collect company data:

- **Company direct disclosure**: sustainability reports, annual reports and regulatory filings, and company websites.
- **Company indirect disclosure**: government agencies' published data, industry and trade associations' data, and financial data providers' data.

Preferred sources – third-party vendors

For selected fossil fuels and power generation metrics, MSCI ESG Research uses third-party data vendors such as NGO's, third party databases and selected data vendors. All vendors are subject to MSCI ESG Research's vendor due diligence process.

Preferred sources – direct company communication

In certain cases, such as to confirm publicly disclosed power generation and fossil fuel reserves data or to inquire about information from outdated sources, MSCI ESG Research may communicate directly with companies to obtain clarifying information. This information may be used in addition to publicly disclosed information.

Supplemental sources

MSCI ESG Research may also use the following sources for fossil fuels and power generation data:

- Company material that is not provided on their official website(s);
- Sources beyond three years old that contain information of contracted involvement that specify timelines;
- Media and periodicals;
- Business directories; and
- Nongovernmental organizations (NGOs) reports and websites.

Ongoing monitoring and update cycle

Fossil fuel (Oil & Gas, Coal etc) and Power generation data are updated throughout the year following the publication of companies' annual filings on a rolling schedule.

Minimum data availability requirements

In certain cases, MSCI ESG Research uses estimates when a company-disclosed figure is not available. Estimates are typically derived from industry averages and extrapolation from company disclosures to derive more granular values, like in the cases of power generation /O&G revenue with minimum disclosures from companies). In cases where MSCI ESG Research deems data to be insufficient to provide an estimate, MSCI ESG Research may choose to provide no metrics.

Data collection

Firstly, MSCI ESG Research uses data extraction and other automated techniques to identify companies that:

- Have an industry classification within defined parameters; or
- Have a business description that includes certain keywords.

Where involvement is potentially identified, ESG data experts review the preferred sources and, if required, the supplemental sources to assess fossil fuels and power generation involvement.

Data quality assurance

Data quality checks are conducted on all companies prior to the publication of their fossil fuels and power generation ESG evaluations. ESG evaluations are reviewed for data completeness and accuracy.

Methodology governance

MSCI ESG Research uses a committee structure to provide oversight and governance for the application of ESG Research methodologies:

Methodology determination:

- **ESG Methodology Committee**: This committee presides over the development, review and interpretation of all MSCI ESG Research methodologies, including fossil fuels and power generation metrics.

Methodology update proposals are subject to market consultation prior to approval for implementation by the ESG Methodology Committee.

- **ESG Data Definitions Committee**: This committee oversees MSCI ESG Research's new and existing data points and their definitions across all ESG data sets.

Methodology application:

MSCI ESG Carbon Methodology Committee ("Carbon MC"): The Carbon MC presides the interpretation of all ESG evaluations related to carbon footprints, including carbon emissions, fossil fuels and power generation. This includes, without being limited to:

- Requests to deviate from the standard methodology (decisions involving a company's pending addition to, or removal from, a fossil fuels and power generation ESG evaluations for reasons that do not clearly fall within the current scope of the methodology).

- Periodic review of ESG evaluations prior to publication to ensure consistent methodology application.
- Methodological application clarifications or interpretations.

ESG Assessment Committee: This committee presides over escalated or otherwise critical applications of MSCI ESG Research methodologies. Its responsibilities include the adjudication of methodology application cases escalated from the ESG Carbon MC.

Prior to the commencement of fossil fuels and power generation assessments, certain decisions that influence the assessment are reviewed by the following committees:

Entity Classification Methodology Committee: This committee presides over the application and interpretation of all assessments related to the classification of entities for the purposes of conducting ESG Research evaluations. Approval by this committee is required for proposals to remove a fixed income issuer from a coverage universe, due to methodological or data availability reasons.

Entity selection & data mapping

ESG Evaluations, including fossil fuels and power generation metrics, may be attributed from a company to related companies. Companies are selected for ESG Evaluations through MSCI ESG Research's entity selection process – these are known as data entities. Evaluations are attributed to related companies through MSCI ESG Research's data mapping process.

Data entities

A data entity is defined as an entity subject to an ESG Evaluation. MSCI ESG Research conducts a review of the companies financing structure to determine which entity or entities with a group of companies should be evaluated for a given assessment.

Evaluation boundary

Where there are multiple fossil fuels and power generation evaluations within a group of companies, the fossil fuels and power generation evaluation boundary may overlap, or a set of fossil fuels and power generation evaluations may be nested inside another, particularly where one of the companies is an equity issuer.

For fossil fuels and power generation metrics, the evaluation boundary for an equity issuer is the whole group of companies.

The evaluation boundary for a bond issuer that sits within a group but is financing only a discrete part of the group (e.g., a single business line or division, specific operating company, the captive finance activities, etc.) extends only to that part of the group. Any fossil fuels and power generation involvement identified for this discrete part of the group will also be reflected in the group's evaluation.

Data mapping

Data mapping is the process whereby ESG assessments for a company (a data entity) are attributed to related companies. ESG assessments are mapped based on observed parent-subsidiary relationships, subject to certain company and data point requirements.

Certain companies (such as those classified as financing companies) included in the coverage universe may be covered by data mapping from the relevant data entity.

Bond issuers outside the fossil fuels and power generation coverage universe may also have their evaluations mapped from parent entities that are included in the fossil fuels and power generation coverage universe.

Note that fossil fuels and power generation assessments are not mapped to:

- Equity issuers; or
- Companies that have already been assessed by MSCI ESG Research.

Coverage, corporate actions and related changes

MSCI ESG research fossil Fuel Exposure Metrics coverage and MSCI ESG research Power Generation Metrics coverage include, but is broader than, those issuers included in the MSCI ACWI Investable Market Index (IMI).

MSCI ESG research Capital Expenditure Data and Renewable Energy CapEx Ratio Metrics coverage is determined by issuers' inclusion in the utilities sector and oil and gas exploration and production and integrated oil and gas sub-industries of the MSCI ACWI IMI.

The coverage universe can change due to coverage expansions initiated by MSCI ESG Research and due to changes in index constituents, which are periodically rebalanced by the index administrator.

New additions to indexes in the fossil fuels and power generation coverage universe

MSCI ESG research aims to assess additions to the MSCI ACWI Index and MSCI US Investible Market Index (IMI)within one quarter of their inclusion in the relevant index.

MSCI ESG research aims to assess additions to any other indexes in the BISR coverage universe within two quarters of index inclusion.

Deletions to indexes in the fossil fuels and power generation coverage universe

When a company is removed from the fossil fuels and power generation coverage universe, data and assessments related to the company are no longer updated. Its data and report may still be available on the MSCI ESG distribution platforms data feeds.

Spin-offs

If a new entity is a constituent of the MSCI ACWI Index and MSCI US Investible Market Index (IMI) MSCI ESG research aims to assess it as a stand-alone entity within one quarter.

If a company is in the fossil fuels and power generation coverage universe but is not a constituent of the MSCI ACWI Index and MSCI US Investible Market Index (IMI), MSCI ESG research aims to assess it as a stand-alone entity within two quarters.

Mergers and acquisitions

If an acquiring company has an existing fossil fuels and power generation assessment, the acquiring company's assessment will consider the new acquired entity at the time of the next annual update for the acquiring company.

If an acquiring company does not have an existing fossil fuels and power generation assessment, even if the acquired entity has an BISR assessment, the company is considered a "new" entity and will be researched according to the index addition approach stated above.

If a merger creates a new entity, it will be researched according to the index addition approach stated above.

Global Industry Classification Standard (GICS®)[12] sub-industry classification changes

If a company's GICS sub-industry classification changes it may trigger a change in the outcome of the first-stage review.

Name changes

The name of the company as listed in MSCI ESG distribution platforms will reflect the new name. However, the body of the company's report will continue to refer to its original name until the next annual update.

Communication with corporate issuers

MSCI ESG Research is committed to transparent communication with corporate issuers in its coverage universe. For more details, please refer to the Procedures of Engagement with Rated Entities document.

[12] GICS, the global industry classification standard jointly developed by MSCI and Standard & Poor's.

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