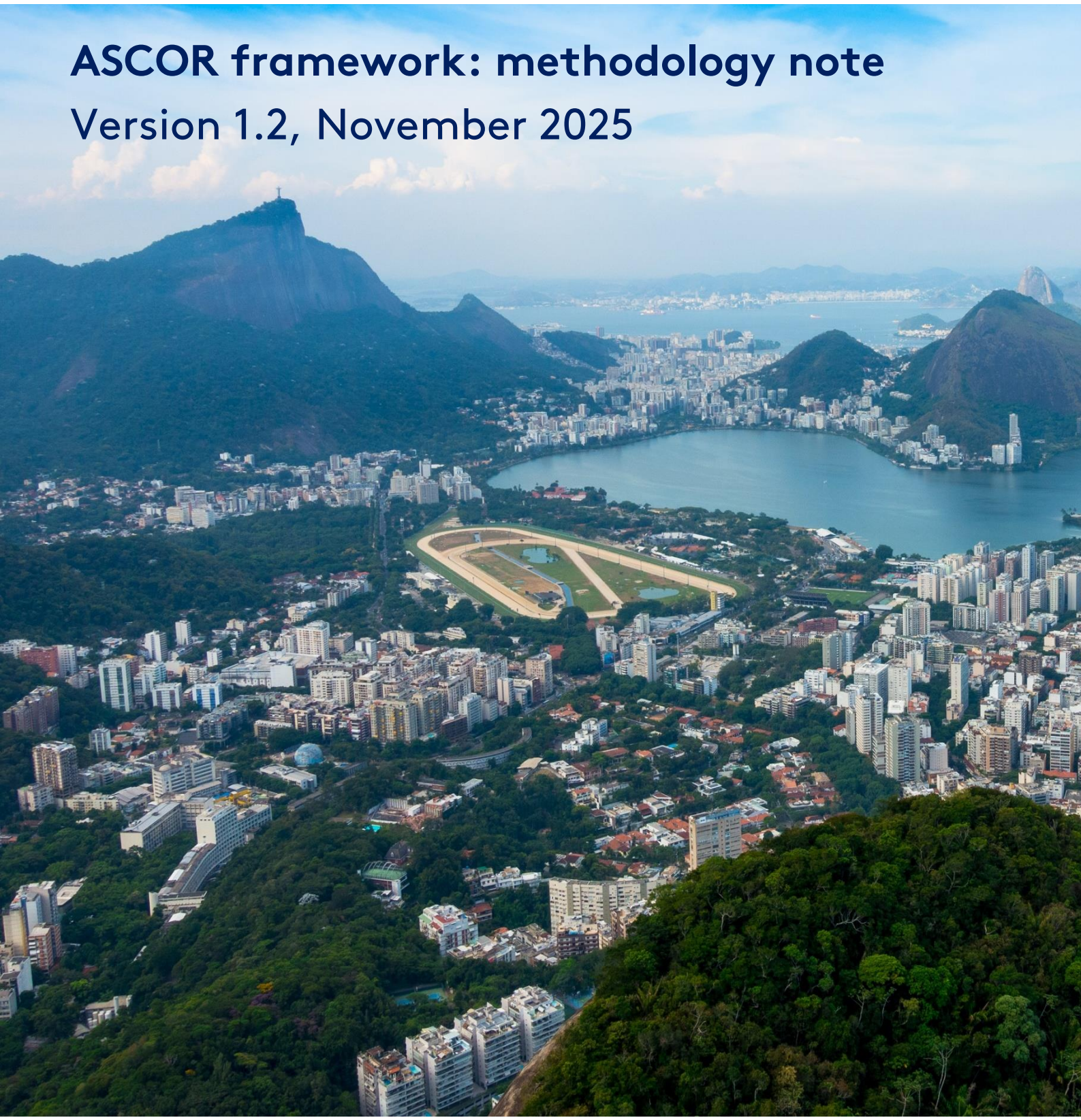
TPI Global Climate Transition Centre
Research and Data at LSE

LSE Global School of Sustainability

# ASCOR framework: methodology note

## Version 1.2, November 2025



ASCOR

## The TPI Global Climate Transition Centre at LSE

The TPI Global Climate Transition Centre (TPI Centre) is an independent, authoritative source of research and data on the progress of corporate and sovereign entities in transitioning to a low-carbon economy. It is part of the Global School of Sustainability at the London School of Economics and Political Science (LSE). The TPI Centre is the academic partner of the Transition Pathway Initiative (TPI), a global initiative led by asset owners and supported by asset managers, aimed at helping investors and other stakeholders assess company, bank and sovereign preparedness for the transition to a low-carbon economy and supporting efforts to address climate change. More than 155 investors globally, representing approximately US$87 trillion[1] combined Assets Under Management and Advice, have pledged support for TPI. The TPI Centre is also the academic research expert of Assessing Sovereign Climate-related Opportunities and Risks (ASCOR).

www.transitionpathwayinitiative.org/ascor

## ASCOR project partners

ASCOR is an investor-led initiative. It is co-chaired by Claudia Gollmeier at Colchester Global Investors, Esther Law at Amundi Asset Management and Adam Matthews at the Church of England Pensions Board. The ASCOR Investor Director is Claire Meier. The ASCOR Advisory Committee is composed of asset owners, asset managers and investor networks. Its members include Allspring Global Investments, Amundi Asset Management, the Asia Investor Group on Climate Change (AIGCC), Ceres, the Church of England Pensions Board, Colchester Global Investors, the Institutional Investors Group on Climate Change (IIGCC), the Investor Group on Climate Change (IGCC), Insight Investment, MFS Investment Management, Ninety One and Principles for Responsible Investment (PRI).

www.ascor.org

## Authors

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[1] This figure is subject to market-price and foreign-exchange fluctuations and, as the sum of self-reported data by TPI supporters, may double-count some assets.

# Contents

# Introduction to the ASCOR project

Assessing Sovereign Climate-related Opportunities and Risks (ASCOR) is an investor-led project to develop a free, publicly available, independent tool that assesses countries on climate change. The ASCOR framework is composed of indicators for the transparent assessment of the progress made by countries in managing the low-carbon transition and the impacts of climate change. ASCOR aims to inform, support and facilitate investors' decision-making on sovereign bonds and enable a more explicit consideration of climate change. The project hopes to facilitate engagement and dialogue between issuers and investors and drive financing for climate change mitigation and adaptation. ASCOR will also enable countries to showcase their improvements on the transition to a low-carbon and resilient future by providing independent and open-source assessments of their targets and policies.

## Consultation process

In 2022, ASCOR's academic partner, the TPI Centre, developed an initial framework of indicators drawing on working group sessions with asset owners, asset managers and investor networks, and interviews with climate policy experts.

In February 2023, the TPI Centre published a Consultation Report (Scheer et al., 2023) to launch a public consultation on the initial framework. The TPI Centre collected feedback through an online survey from a broad range of stakeholders, including governments, investors, investor networks, banks, academia, civil society, non-governmental organisations (NGOs) and the wider public. In addition, the ASCOR project partners convened virtual global webinars and regional roundtables with investor and country representatives in North America, Latin America, Europe, Africa, Asia, Australia and New Zealand. ASCOR also held consultation meetings with key organisations including the Inter-American Development Bank (IDB), International Finance Corporation (IFC), International Monetary Fund (IMF), Network for Greening the Financial System (NGFS) and World Bank, as well as with selected national Debt Management Offices and Ministries of Environment to understand country-specific perspectives. Appendix 3 describes the results of this intensive consultation process in more detail.

## This methodology note and how it differs from the previous version

This is the third iteration of the ASCOR framework methodology note, the first version (Version 1.0) being published in 2023. The TPI Centre updates the methodology annually to maintain its robustness, drawing on findings from the assessment and feedback processes. The framework presented in this methodology note is thus Version 1.2, which updates Version 1.1 published last year.

This version differs from the previous version in the following ways:

### Pillar 1. Emissions Pathways (EP)

- In area EP 1 on emissions trends, rather than using compound annual growth rates, we now calculate trends using a generalised least squares (GLS) regression with a logarithmic-like transformation to yield a percentage change value. This approach is more robust to volatility in the underlying emissions data than the alternative approach used previously and provides more meaningful trends for small negative emissions levels from land use, land use change and forestry (LULUCF).
- Two metrics have been added to area EP 1 to measure how far the 2030 benchmarks are from a 2030 value estimated based on extrapolated emissions trends (EP 1.b.i and EP 2.c.i).
- The areas within Pillar 1 on EP have been renumbered to accommodate the assessments of new 2035 targets stated in countries' Nationally Determined Contributions 3.0 submissions. EP 3 now refers to 2035 targets and EP 4 now refers to net zero targets.
- For country-specific cost-effective benchmarks (EP 1.b and EP 2.c), we now use the $50^{th}$ percentile, rather than the $25^{th}$, from the 1.5° C National Pathway Explorer. This change reflects updates to the underlying data and recognises that $50^{th}$ percentile aligns with the goals of the C1 models from the Intergovernmental Panel on Climate Change's (IPCC) *Sixth Assessment Report (AR6)* (from the AR6 Scenarios Database hosted by IIASA). This means that 1.5 °C benchmarks are now slightly higher for all countries than they were in the 2023 and 2024 ASCOR assessment cycles.

- For calculation of country-specific fair share benchmarks (EP 1.c and EP 2.d), we aligned our subset of C1 scenarios with those used in the 1.5°C National Pathway Explorer by excluding C1 scenarios with a heavy reliance on carbon dioxide removal.
- Reflecting the ambition demonstrated by many middle-income countries, this group is no longer exempt from indicator EP 4.b, which assesses whether the country's net zero target is set for 2050 or earlier.

### Pillar 2. Climate Policies (CP)

- In area CP 2 on carbon pricing, we have developed a novel way of assessing the Paris alignment of emissions trading systems (ETSs) for indicator CP 2.c. We assess this alignment by comparing the reduction rate of the system's emissions cap with the reduction rate required by the country's 1.5°C benchmark. Previously, we used average annual emissions permit prices and assessed these prices against a Paris-aligned carbon price corridor. However, the alignment of ETSs is better assessed using emissions quantities than prices, in part because prices can be volatile. We continue to use a carbon price corridor to assess carbon tax rates.
- In addition, this indicator now assesses whether *at least one* carbon pricing system in a country is aligned according to the approach described above. In previous assessment cycles, this indicator focused only on the carbon pricing system with the *largest emissions coverage*.
- In parallel to the change above, metric CP 2.c.i now presents the most recent price level of the carbon pricing system *with the highest price*. Previously, it presented the price level of the carbon pricing mechanism *with the largest emissions coverage*.
- In area CP 5 on adaptation, indicator CP 5.b, which assesses the publication of a national climate risk assessment, is no longer contingent on indicator CP 5.a, which assesses the publication of a National Adaptation Plan.

### Pillar 3. Climate Finance (CF)

- In area CF 1 on international climate finance, private finance is now included in our assessment because disclosure of mobilised private finance has now improved to a degree that it can adequately be included in our calculations. In line with the decision adopted at the Conference of the Parties in 2024, we have also integrated the New Collective Quantified Goal of US$300 billion per year for national climate finance targets beyond 2025.
- In area CF 4 on renewable energy opportunities, we have modified the normalisation of new renewable capacity pipelines. Instead of normalising by GDP, we now normalise capacity pipelines by the country's current capacity of fossil-fuel-based electricity generation. This creates a ratio that is more meaningful to interpret where, for example, a number larger than 1 indicates that a country's new renewable energy pipeline outweighs its existing fossil-fuel-based electricity capacity.

## Structure of the note

This note first describes the design principles used in developing and iterating the ASCOR framework. It then presents the full framework of indicators and metrics, alongside an associated assessment methodology. Further details on country exemptions and how to interpret assessment results are included in the appendices.

## Design principles behind the framework's development

The ASCOR framework has been developed and iterated according to the following seven design principles:

1. **Indicators are assessable using publicly available data**, such as government documents and reliable, publicly available databases. While data availability remains a limitation for some indicators, we aim to evolve the framework as disclosure and data availability improve, and through engagement with sovereign issuers. Country assessments are undertaken using existing databases or through dedicated policy analysis based on information in public government documents.
2. **Indicators are assessable objectively using a transparent methodology**. For clarity, comparability and ease of interpretation, the framework prioritises 'Yes' or 'No' indicators. Where relevant, these are complemented with quantitative metrics.
3. **Indicators are clear, useful and accessible to investors,** including to those with limited resources to assess climate change. To create an easy-to-use framework, efforts have been taken to minimise the number of topics and focus on the most important aspects of climate risks and opportunities.
4. **Indicators are chosen to avoid unnecessarily adding to the reporting burden** of sovereigns. This principle is balanced against the need to drive improvements in disclosure.
5. **Indicators are pitched at the national level**, so that metrics of climate opportunities and risks are relevant for sovereign bond investment decisions and country analysis. The framework therefore would not consider characteristics of individual sovereign green bonds' use of proceeds, for example.
6. **The framework was developed in line with the principle of common but differentiated responsibilities and respective capabilities**, which is enshrined in the UN Framework Convention on Climate Change (UNFCCC). This internationally-agreed principle posits that countries' contributions to climate change mitigation should consider their differing responsibilities for climate change and abilities to act. For example, middle- and/or low-income countries are exempt from selected indicators (see Appendix 1 for details of exemptions). In addition, this principle was incorporated into the framework through the topics of fair share allocations and international climate finance.
7. **The framework focuses on sovereign management of climate risks and opportunities** through the policies and objectives that countries can put in place. This means that indicators that are entirely outside government decision-making – for example, the probability of climate hazards – are not included. As such, sovereigns can improve their performance on the framework's indicators and metrics. Note that this is a new design principle added to the framework based on the consultation held in early 2023.

## General assessment approach

Unless otherwise specified in the indicator methodology, assessments for ASCOR are undertaken using in-depth policy research drawing on government websites, policy databases such as Climate Change Laws of the World (CCLW) and UNFCCC document repositories such as the Nationally Determined Contributions (NDC) Registry. The source used to determine results is therefore government disclosure in the form of policy documents. In the case of most quantitative metrics and some indicators, we also use and cite third-party data sources. Tables 1 and 2 below provide an overview and breakdown of the ASCOR framework and pillars. The following points apply to the research process underpinning the ASCOR country assessments:

- **Feedback process:** Draft assessments (including full citations and an explanation of results) are shared with country governments' Ministries of Environment, Ministries of Finance and/or Debt Management Offices ahead of publication, to collect feedback on any inaccuracies or misinterpretations.
- **Document types:** Any document to be used as a source of information to assess nearly all ASCOR indicators must be officially published by the assessed country government. Depending on the indicator, documents can be executive, legislative or official submissions to the UNFCCC. Government webpages may be used as supporting evidence. Third-party data sources are used for selected metrics.
- **Translation:** Assessment research is not limited to documents published in English. When there is no English version of a document, machine translation is used; support from expert translators and native speakers may additionally be used. The sovereign feedback process is also intended to ensure that misinterpretations deriving from translations are avoided.
- **Publication dates:** On a case-by-case basis, executive or planning documents that were published more than a decade prior to the assessment may be judged to be outdated. However, laws passed more than a decade previously are considered if they are still in force.
- **Third-party data providers:** Several quantitative metrics rely on third-party data providers. Most datasets are published under a Creative Commons licence; others require dedicated licensing agreements (see References for further details).

Table 1. Overview of the ASCOR framework

| **Pillar 1:** Emissions Pathways (EP) | **Pillar 2:** Climate Policies (CP) | **Pillar 3:** Climate Finance (CF) |
|---|---|---|
| EP 1. Emissions trends | CP 1. Climate legislation | CF 1. International climate finance |
| EP 2. 2030 targets | CP 2. Carbon pricing | CF 2. Transparency of climate costing |
| EP 3. 2035 targets | CP 3. Fossil fuels | CF 3. Transparency of climate spending |
| EP 4. Net zero targets | CP 4. Sectoral transitions | CF 4. Renewable energy opportunities |
| | CP 5. Adaptation | |
| | CP 6. Just transition | |

Table 2. Elements of the ASCOR framework structure

| Pillar | Area | Indicator | Metric |
|---|---|---|---|
| Broad ASCOR theme (e.g. Emissions Pathways) | Specific area of climate performance (e.g. EP 1. Emissions trends) | Binary question about whether the country has taken a specific action (e.g. EP 1.a) | Quantitative metric to provide context for some indicators (e.g. EP 1.a.i) |

# Indicator-by-indicator methodology

## *Pillar 1: Emissions Pathways*

### EP 1. Emissions trends

| Indicator EP 1.a | Has the country improved its emissions profile over the past 5 years? |
|---|---|
| Methodology | A country's emissions trends are assessed in several ways to account for a variety of factors and uncertainties. Depending on the data available, a country is assessed as 'Yes' if two-thirds of its different emissions metric trends are negative. The emissions metrics considered include the following nine options:<br>• Production-based emissions, excluding land use, land-use change and forestry (LULUCF):<br>1. Absolute emissions<br>2. Per capita intensity<br>3. Per GDP intensity, adjusted for purchasing power parity (PPP)<br>• Production-based LULUCF emissions:<br>4. Absolute emissions<br>5. Per capita intensity<br>6. Per PPP-adjusted GDP intensity<br>• Consumption-based emissions, excluding LULUCF:<br>7. Absolute emissions<br>8. Per capita intensity<br>9. Per PPP-adjusted GDP intensity.<br>Production-based emissions are sourced from the PRIMAP-hist dataset, hosted by Climate Resource. We use the 'country reported data priority' (CR) scenario of the PRIMAP-hist dataset as it prioritises emissions data that individual countries report to the UNFCCC. Consumption-based emissions are sourced from the Global Carbon Atlas database. Data on population and PPP-adjusted GDP are sourced from the World Bank. |
| *Metric EP 1.a.i* | What is the country's most recent emissions level? |
| Methodology | The most recent value available is presented for each of the nine emissions metric options. Data sources are listed above under indicator EP 1.a. |
| *Metric EP 1.a.ii* | What is the country's most recent emissions trend? |
| Methodology | This metric is calculated over three time horizons: the year-on-year percentage change and the percentage change over 3 and 5 years. We calculate trends using a generalised least squares (GLS) regression with a logarithm-like transformation to yield a percentage change value. This approach is more robust to volatility in the underlying emissions data than alternative approaches such as calculating the compound annual growth rate and provides more meaningful trends for small negative emissions levels from LULUCF. Data sources are listed under indicator EP 1.a. |
| Indicator EP 1.b | Is the most recent 5-year trend aligned with meeting the country's 1.5°C benchmark? |
| Methodology | A country is assessed as 'Yes' if the linear extrapolation of the most recent 5-year trend in absolute production-based emissions is sufficient to meet its country-specific 1.5°C benchmark in 2030. The linear extrapolation is intended to assess historical trends only; it is not a forecast and therefore does not involve modelling of macroeconomic, technological or political variables and risks. Trends are evaluated on a basis that excludes LULUCF emissions, given the uncertainties in estimating them and to remain consistent with the available benchmarks, which exclude LULUCF emissions. See indicator EP 2.c for further details on benchmarks. |

| | |
|---|---|
| *Metric EP 1.b.i* | How far is the most recent emissions trend from meeting the country's 1.5°C benchmark? |
| Methodology | This is calculated as the percentage difference between the benchmark and the emissions level in 2030, extrapolated from the most recent 5-year trend. A negative percentage signifies that the extrapolated value is below (i.e. achieving) the benchmark. |
| Indicator EP 1.c | Is the most recent 5-year trend aligned with meeting the country's 1.5°C fair share? |
| Methodology | A country is assessed as 'Yes' if the linear extrapolation of the most recent 5-year trend in absolute production-based emissions is sufficient to meet its country-specific fair share allocation in 2030. Trends are evaluated on a basis that excludes LULUCF emissions, given the uncertainties in estimating them. See indicator EP 2.d for further details on fair share allocations. |
| *Metric EP 1.c.i* | How far is the most recent emissions trend from meeting the country's 1.5°C fair share? |
| Methodology | This is calculated as the percentage difference between the fair share emissions allocation and the emissions level in 2030, extrapolated from the most recent 5-year trend. A negative percentage signifies that the extrapolated value is below (i.e. achieving) the fair share allocation. |

## EP 2. 2030 targets

| | |
|---|---|
| Indicator EP 2.a | Has the country set a 2030 emissions reduction target? |
| Methodology | A country is assessed as 'Yes' if it has specified an emissions target for the year 2030. This can be in the form of a Nationally Determined Contribution (NDC) submitted to the UNFCCC's NDC Registry. Targets may be set against a historical base year value or against a future business-as-usual scenario. As a clearer gauge of domestic ambition, the assessment considers unconditional targets rather than conditional ones. |
| *Metric EP 2.a.i* | What is the targeted reduction relative to 2019 emissions? |
| Methodology | A country's targeted reduction is adjusted to use a common base year of 2019 to facilitate comparisons between countries. This is done by calculating the 2030 emissions level implied by the country's target and calculating the implied reduction relative to the country's emissions level in 2019. |
| Indicator EP 2.b | Does the country specify whether and by how much carbon credits may contribute to its 2030 target? |
| Methodology | A country is assessed as 'Yes' if, within its target disclosure, it either:<br>• Clearly quantifies the portion of the 2030 target that will be met through the use of carbon credits, offsets, internationally transferred mitigation outcomes (ITMOs) or other equivalent carbon market instruments; or<br>• Clearly specifies that the country will *not* rely on such instruments in order to meet its 2030 target.<br>Referring to general partnerships in the context of Article 6 of the Paris Agreement without specifying the details above is not sufficient to be assessed as 'Yes' for this indicator. The indicator is designed to capture whether and how countries intend to rely on the purchase of carbon credits to meet their target. It is not designed to capture whether and how countries intend to *sell* carbon credits. |

| *Metric EP 2.b.i* | What percentage of the 2030 target will be met using carbon credits? |
|---|---|
| Methodology | This metric is sourced from a country's target disclosure. If a country clearly specifies that it will not use any carbon credits, the metric is assessed as 0%. If a country does not specify whether it will rely on carbon credits to meet its target, it is assessed as 'No or unsuitable disclosure'. |
| **Indicator EP 2.c** | Is the country's 2030 target aligned with its 1.5°C benchmark? |
| Methodology | A country is assessed as 'Yes' if its targeted 2030 emissions level is at or below its country-specific 1.5°C benchmark. Benchmarks are sourced from the 1.5°C National Pathway Explorer hosted by Climate Analytics (Gidden, 2019). Climate Analytics undertakes a rigorous process to make scenario data consistent with the most recent historical emissions data, a process known as harmonisation. Regional cost-optimal 1.5°C pathways are then disaggregated to the country level in a process known as downscaling. The resulting country-specific 1.5°C-aligned pathway is then used as a benchmark to evaluate whether a country's 2030 target is sufficiently ambitious to limit warming to 1.5°C. Targets are evaluated on a basis that excludes LULUCF emissions, given the uncertainties in estimating them and to remain consistent with the available benchmarks, which exclude LULUCF emissions. |
| *Metric EP 2.c.i* | How far is the country's 2030 target from meeting its 1.5°C benchmark? |
| Methodology | This is calculated as the percentage difference between the targeted emissions level and the benchmark. A negative percentage signifies that the target is below (i.e. achieving) the benchmark. |
| **Indicator EP 2.d** | Is the country's 2030 target aligned with its 1.5°C fair share? |
| Methodology | A country is assessed as 'Yes' if its targeted 2030 emissions level is at or below its country-specific fair share emissions allocation. The fair share allocation for each country is calculated by dividing a global 1.5°C-compatible carbon budget in 2030 into country-specific budgets.<br><br>The 1.5°C carbon budget in 2030 is calculated by drawing on the C1 models from the IPCC's *AR6* (from the AR6 Scenarios Database hosted by IIASA). We align our subset of C1 scenarios with those used in the 1.5°C National Pathway Explorer by excluding C1 scenarios with a heavy reliance on carbon dioxide removal. This means that the only difference between the 1.5°C benchmark and fair share is the allocation methodology.<br><br>A country's share of the global budget is calculated based on three equally weighted variables: population, PPP-adjusted GDP per capita, and historical emissions per capita. These three variables respectively represent equality, capability and responsibility: the primary factors to consider when developing a fair share approach to climate mitigation (Mattoo and Subramanian, 2012).<br><br>The fair share allocation is calculated according to this formula:<br><br>$\phi_{i,t} = \frac{1}{3} * \phi_{i,t}^{Responsibility} + \frac{1}{3} * \phi_{i,t}^{Capability} + \frac{1}{3} * \phi_{i,t}^{Population}$<br>$= \frac{1}{3} * \frac{\frac{1}{e_{i,t2}}}{\sum_i^n \frac{1}{e_{i,t2}}} + \frac{1}{3} * \frac{\frac{1}{y_{i,t}}}{\sum_i^n \frac{1}{y_{i,t}}} + \frac{1}{3} * \frac{pop_{i,t}}{\sum_i^n pop_{i,t}}$<br><br>where e is historical emissions per capita (over the years 1990–2023), *y* is GDP per capita, and *pop* is population in year *t* of country *i*. The result $\phi$ gives the percentage share of the global 1.5°C-aligned emissions budget in 2030 to allocate to each country. As illustrated in the formula, the emissions allowance will be higher for countries with lower historical emissions, lower GDP per capita, and/or a higher population. |

| *Metric EP 2.d.i* | How far is the country's 2030 target from meeting its 1.5°C fair share? |
|---|---|
| Methodology | This is calculated as the percentage difference between the targeted emissions level and the fair share emissions allocation. A negative percentage signifies that the target is below (i.e. achieving) the fair share allocation. |

## EP 3. 2035 targets

| Indicator EP 3.a | Has the country set a 2035 emissions reduction target? |
|---|---|
| Methodology | See indicator EP 2.a for details on how this indicator is assessed. In area EP 3, we follow the same methodology as in area EP 2 but assess 2035 targets instead of 2030 targets. |
| *Metric EP 3.a.i* | What is the targeted reduction relative to 2019 emissions? |
| Methodology | See metric EP 2.a.i for details on how this metric is assessed. |
| Indicator EP 3.b | Does the country specify whether and by how much carbon credits may contribute to its 2035 target? |
| Methodology | See indicator EP 2.b for details on how this indicator is assessed. |
| *Metric EP 3.b.i* | What percentage of the 2035 target will be met using carbon credits? |
| Methodology | See metric EP 2.b.i for details on how this metric is assessed. |
| Indicator EP 3.c | Is the country's 2035 target aligned with its 1.5°C benchmark? |
| Methodology | See indicator EP 2.c for details on how this indicator is assessed. |
| *Metric EP 3.c.i* | How far is the country's 2035 target from meeting its 1.5°C benchmark? |
| Methodology | See metric EP 2.c.i for details on how this metric is assessed. |
| Indicator EP 3.d | Is the country's 2035 target aligned with its 1.5°C fair share? |
| Methodology | See indicator EP 2.d for details on how this indicator is assessed. The only difference is that we source PPP-adjusted GDP data from Koch, J., & Leimbach, M. (2023). |
| *Metric EP 3.d.i* | How far is the country's 2035 target from meeting its 1.5°C fair share? |
| Methodology | See metric EP 2.d.i for details on how this metric is assessed. |

## EP 4. Net zero targets

| Indicator EP 4.a | Has the country set a net zero $CO_2$ target? |
|---|---|
| Methodology | A country is assessed as 'Yes' if it has set a net zero $CO_2$ target in a legislative or executive document or an official submission to the UNFCCC. Note that while global $CO_2$ emissions must reach net zero by 2050 to hold global temperatures at or below 1.5°C, emissions from other greenhouse gases may remain positive, albeit at very low levels (IPCC, 2023). As such, this indicator focuses on the inclusion of $CO_2$ emissions in net zero targets. |
| *Metric EP 4.a.i* | In what year is the net zero $CO_2$ target set? |
| Methodology | Based on country disclosure, this metric specifies the net zero $CO_2$ target year. |
| Indicator EP 4.b | Is the country's net zero $CO_2$ target aligned with a global 1.5°C scenario? |
| Methodology | A country is assessed as 'Yes' if its net zero $CO_2$ target is set for 2050 or earlier. |
| Indicator EP 4.c | Is the country's net zero $CO_2$ target aligned with an accelerated deadline for high-income countries? |
| Methodology | A country is assessed as 'Yes' if its net zero $CO_2$ target is set for 2045 or earlier. |

*Pillar 2: Climate Policies*

## CP 1. Climate legislation

| Indicator CP 1.a | Does the country have a framework climate law or equivalent? |
|---|---|
| Methodology | A country is assessed as 'Yes' if it has a framework climate law that fulfils all of the following:<br>• It sets a strategic direction for decarbonisation (i.e. it must include a clear statement to meet the goals of the Paris Agreement or a national long-term decarbonisation target)<br>• It is enshrined in law (i.e. it must be legislative rather than executive, except in particular political systems)<br>• It sets out at least one of the following obligations: meeting a national target; developing, revising, implementing or complying with domestic plans, strategies or policies; developing policy instruments such as regulation, taxation or public spending in support of climate change goals.<br>In exceptional cases, the combination of a broad environmental law and a clearly linked executive climate strategy may be sufficient to meet these criteria. Announcements to develop a framework climate law or draft law are insufficient for this indicator. The definition and criteria for assessing framework climate laws is built on the methodology of LSE's Climate Change Laws of the World (CCLW) research. In situations of ambiguity, we consult the CCLW team to ensure consistent and accurate assessments. |
| **Indicator CP 1.b** | **Does the country's framework climate law specify key accountability elements?** |
| Methodology | A country is assessed as 'Yes' if its framework climate law contains all three of the following accountability elements:<br>• Specification of who is accountable to whom for at least one stated obligation (e.g. accountability of executive to parliament, or private parties to executive authorities)<br>• Specification of how compliance is assessed for at least one stated obligation (e.g. transparency mechanisms in the form of monitoring, reporting and verification, parliamentary oversight, expert assessments, court proceedings)<br>• Specification of what happens in the case of non-compliance for at least one stated obligation (e.g. parliamentary intervention, judicial orders, financial penalties).<br>Note that if a country has multiple laws assessed under the previous indicator, all are considered under this indicator on whether they together contain the three accountability elements above. The definition and criteria for assessing accountability in framework climate laws is built on the methodology of Higham et al. (2021). This indicator is contingent on indicator CP 1.a being assessed as 'Yes'. |

## CP 2. Carbon pricing

| Indicator CP 2.a | Does the country have a carbon pricing system? |
|---|---|
| Methodology | A country is assessed as 'Yes' if it has a carbon price through either a carbon tax or an emissions trading system at the supranational level (e.g. EU Emissions Trading System), national or sub-national level (e.g. state-level carbon pricing mechanisms). The World Bank's Carbon Pricing Dashboard is used as a guide for this indicator, but country-level policy research is undertaken to identify any potentially relevant systems not captured by the Carbon Pricing Dashboard. Pilot carbon pricing systems or those under consideration are insufficient to meet this indicator. |

| Indicator CP 2.b | Does the country's carbon pricing system cover at least 50% of national greenhouse gas emissions? |
|---|---|
| Methodology | A country is assessed as 'Yes' if the percentage of national emissions covered by an explicit carbon price is at least 50%. The coverage estimate is sourced as described below in metric CP 2.b.i. |
| *Metric CP 2.b.i* | What percentage of national greenhouse gas emissions is covered by an explicit carbon price? |
| Methodology | Depending on the country, various sources are used to determine this metric. The percentage of a country's emissions covered by an explicit carbon price is sourced from the World Bank Carbon Pricing Dashboard, which provides information on the coverage of carbon pricing systems in the relevant jurisdiction (subnational, national or supranational). Note that the World Bank estimates do not necessarily reflect the impact of exemptions or free allocations. Therefore, we combine these estimates with other available sources, including the OECD (share of emissions priced by an explicit carbon price) and official country sources.<br><br>For EU member states, the European Environment Agency provides further information on the country-specific coverage of the EU Emissions Trading System. When using and validating these sources, we ensure that overlaps between different carbon pricing systems applicable within the same jurisdiction are quantified appropriately where this information is publicly available. |
| Indicator CP 2.c | Does the country's carbon pricing system align with the Paris Agreement? |
| Methodology | A country is assessed as 'Yes' if at least one carbon pricing system implemented in the country meets either one of the following criteria:<br><br>• The country's carbon tax rate in the latest available year is at or above the floor of a global carbon price corridor aligned with the Paris Agreement.<br><br>• The country's ETS is designed in a way that would align with its country-specific 1.5°C benchmark. We assess this alignment by comparing the forward-looking reduction rate of the system's emissions cap with the reduction rate implied by the country's 1.5°C benchmark over the same period. Benchmarks are sourced from the 1.5°C National Pathway Explorer hosted by Climate Analytics (Gidden, 2019).<br><br>The alignment criteria in this indicator differ depending on the type of instrument. A carbon tax is assessed against a price threshold because it has a fixed price. In contrast, an ETS has volatile emissions permit prices and therefore can be more accurately assessed based on how its emissions cap is reduced over time.<br><br>The carbon price corridor is set using estimates from the *Carbon Pricing Leadership Report* (World Bank, 2022) for 2020 and the *State and Trends of Carbon Pricing 2024* report (World Bank, 2024) for 2030. Note that the latter relies on marginal abatement costs for mitigation pathways provided in the *Sixth Assessment Report* of the IPCC (2022). The price floor we calculate for the year 2025 is US$105/tonne $CO_2$-equivalent ($tCO_2e$). Threshold prices are adjusted to nominal prices of the appropriate year for comparison with countries' carbon price data. The threshold is updated every year to adjust for the shifting carbon price corridor and for inflation in order to be comparable with actual carbon prices in place in different countries.<br><br>In previous assessment cycles, this indicator focused on the carbon pricing system with the largest emissions coverage whereas it currently assesses whether at least one system meets the alignment criteria above. |

| *Metric CP 2.c.i* | What is the country's most recent explicit carbon price? |
|---|---|
| Methodology | The most recent price level of the carbon pricing system with the highest price is presented in US$/tCO₂e. These data are drawn from the World Bank's Carbon Pricing Dashboard for carbon taxes. For emissions trading systems, to account for price volatility, average annual auction prices are sourced from the International Carbon Action Partnership rather than the World Bank, as the latter provides prices on a specific date rather than the average price over a year. When the price level is not provided by either source, we may use official country sources if these are available. All national currencies are converted into US dollars by using yearly average exchange rates from the IMF. |

## CP 3. Fossil fuels

| Indicator CP 3.a | Has the country committed to a deadline by which to phase out fossil fuel subsidies? |
|---|---|
| Methodology | A country is assessed as 'Yes' if it either:<br>• Has committed to a specified deadline by which to phase out fossil fuel subsidies in a legislative or executive document; or<br>• Has no explicit fossil fuel subsidies according to the fossil fuel subsidy databases of the IMF, OECD, IEA and/or UNSDG (SDG Indicator 12.c.1).<br>Note that international commitments made by the G20 (2009) and the Asia-Pacific Economic Cooperation (APEC) (2009) to "rationalise and phase out inefficient fossil fuel subsidies" are not sufficient for this indicator as they do not set a phaseout deadline. The G7's (2023) commitment to "the elimination of inefficient fossil fuel subsidies by 2025 or sooner" is accepted if the country rediscloses the commitment in a domestic legislative or executive document. |
| *Metric CP 3.a.i* | By what year has the country committed to phase out fossil fuel subsidies? |
| Methodology | If a country is assessed as 'Yes' on indicator CP 3.a, the deadline set in the country's commitment is specified in this metric. Otherwise, it is assessed as 'No or unsuitable disclosure'. If the country does not subsidise fossil fuels, and this is verified by the databases mentioned above (see metric CP 3.b.i), the year that the country stopped subsidising fossil fuels is specified in this metric. |
| Indicator CP 3.b | Does the country publish an inventory of explicit fossil fuel subsidies? |
| Methodology | A country is assessed as 'Yes' if it has published an inventory of its explicit fossil fuel subsidies, defined as a list of fossil fuel subsidies or environmentally harmful subsidies that the country has in place. Note that inventories may be disclosed as part of a country's budgetary reporting processes or as part of its commitment to phase out fossil fuel subsidies. Also note that the definition, scope and calculation methodology of fossil fuel subsidies may differ across countries. Therefore, the inventories identified for this indicator are not necessarily comparable. If the country does not subsidise fossil fuels, and this is verified by available data (see metric CP 3.b.i), the country is assessed as 'Not applicable'. |
| *Metric CP 3.b.i* | How much is spent annually on explicit fossil fuel subsidies as a percentage of GDP? |
| Methodology | The most recent data on explicit fossil fuel subsidies as a percentage of GDP are sourced from the IMF's Fossil Fuel Subsidies Database. Note that other data providers or country sources may use different methodologies and disclose different estimates for this metric. For consistency, when assessing this metric, we rely on the same source, i.e. the IMF database, for all assessed countries. The assessment is focused on explicit subsidies given that implicit fossil fuel subsidies are largely captured in the assessment of countries' carbon pricing systems. The other main |

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| | component of implicit fossil fuel subsidies is the failure to price air pollution externalities; assessment of these is not within the scope of the ASCOR framework. |
| Methodology | The most recent data on explicit fossil fuel subsidies as a percentage of GDP are sourced from the IMF's Fossil Fuel Subsidies Database. Note that other data providers or country sources may use different methodologies and disclose different estimates for this metric. For consistency, when assessing this metric, we rely on the same source, i.e. the IMF database, for all assessed countries. The assessment is focused on explicit subsidies given that implicit fossil fuel subsidies are largely captured in the assessment of countries' carbon pricing systems. The other main component of implicit fossil fuel subsidies is the failure to price air pollution externalities; assessment of these is not within the scope of the ASCOR framework. |
| Indicator CP 3.c | Has the country committed not to approve new coal mines? |
| Methodology | A country is assessed as 'Yes' if it has committed not to approve new coal mines. This indicator only applies to countries that produce coal. If a country does not have an operating coal mine according to Global Energy Monitor's Global Coal Mine Tracker, it is assessed as 'Not applicable' on this indicator. |
| *Metric CP 3.c.i* | What is the level of coal rents in the country as a percentage of GDP? |
| Methodology | The most recent value is presented for the level of coal rents in the country. Coal rents are defined as the difference between the value of both hard and soft coal production at world prices and their total costs of production. This estimate and definition are sourced from the World Bank. |
| Indicator CP 3.d | Has the country committed not to approve new long-lead-time upstream oil and gas projects? |
| Methodology | A country is assessed as 'Yes' if it has committed not to approve new long-lead-time upstream oil and gas projects or committed to a moratorium or ban on oil and gas exploration or production. This indicator was designed in alignment with the International Energy Agency (IEA)'s Net Zero Emissions by 2050 scenario (IEA, 2023). This indicator only applies to countries that have oil or gas reserves. If a country has neither, it is assessed as 'Not applicable' on this indicator. |
| *Metric CP 3.d.i* | What is the level of oil rents in the country as a percentage of GDP? |
| Methodology | The most recent value is presented for the level of oil rents in the country. Oil rents are defined as the difference between the value of crude oil production at regional prices and total costs of production. This estimate and definition are sourced from the World Bank. |
| *Metric CP 3.d.ii* | What is the level of natural gas rents in the country as a percentage of GDP? |
| Methodology | The most recent value is presented for the level of natural gas rents in the country. Natural gas rents are defined as the difference between the value of natural gas production at regional prices and total costs of production. This estimate and definition are sourced from the World Bank. |

## CP 4. Sectoral transitions

| Indicator CP 4.a | Does the country have a multi-sector climate strategy? |
|---|---|
| Methodology | A country is assessed as 'Yes' if it has a climate strategy that sets both quantified sector-specific emissions targets or projections (either for 2030 or for net zero) and includes at least one related policy, initiative or regulation for each of the following sectors:<br>• Electricity<br>• Transport<br>• Industry<br>• LULUCF or agriculture or forestry<br>• A fifth sector with significant emissions in that country.<br>Note that if one of the sectors above accounts for less than 5% of national greenhouse gas emissions, that sector can be replaced with another sector that represents a higher share in the country's total emissions. Countries' NDCs and long-term strategies (LTSs), submitted to the UNFCCC's NDC Registry and LTS Portal respectively, are used to assess this indicator. The analysis also considers equivalent climate strategy documents, including National Energy and Climate Plans published by EU member states. |
| **Indicator CP 4.b** | **Does the country have a law and target on energy efficiency?** |
| Methodology | A country is assessed as 'Yes' if:<br>• It has either an energy efficiency law or an energy law that provides a legal framework and strategic direction for national energy efficiency policy; and<br>• It has set an energy efficiency target in its NDC, long-term strategy or an executive document. |
| *Metric CP 4.b.i* | What is the country's energy intensity of primary energy? |
| Methodology | The most recent value of the country's energy intensity of primary energy in megajoules per US$2017 of PPP-adjusted GDP is provided. This estimate is sourced from the World Bank. |
| **Indicator CP 4.c** | **Has the country established mandatory climate-related disclosure?** |
| Methodology | A country is assessed as 'Yes' if it has either:<br>• Established mandatory climate-related disclosure through an implemented or scheduled law (i.e. the law must be formally adopted and have an official start date); or<br>• Indicated that it will begin mandatory climate-related disclosure and specified a date for the requirements to become effective.<br>Mandatory climate-related disclosure can be specific either to financial materiality or to non-financial materiality. Note that an endorsement of mandatory disclosure is not sufficient for this indicator. Mandatory climate-related disclosure that applies to a subset of the economy (e.g. the financial sector or a selection of sectors) is acceptable for this indicator. |
| **Indicator CP 4.d** | **Has the country set a net zero electricity target aligned with 1.5°C?** |
| Methodology | A country is assessed as 'Yes' if it has made either an economy-wide net zero commitment or a net zero electricity commitment aligned with 1.5°C. Based on the IEA's Net Zero Emissions by 2050 scenario (IEA, 2023), electricity sector emissions are considered aligned with 1.5°C if they reach net zero by 2035 in advanced economies, by 2040 in China and by 2045 in the rest of the world. |

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| *Metric CP 4.d.i* | What percentage of the country's electricity generation is from low-carbon sources? |
| Methodology | This estimate is sourced from IEA by subtracting the sum of the proportion of the country's electricity generated from coal, oil and natural gas from 100%. Some countries disclose relevant data in official government documents, which may also be used to assess this metric. |
| Indicator CP 4.e | Has the country increased its protected areas as a percentage of total land area over the last 5 years? |
| Methodology | A country is assessed as 'Yes' if it has increased its protected areas as a percentage of total land area over the last 5 years according to the data presented by the World Bank, which is compiled by the UN Environment World Conservation Monitoring Centre (UNEP-WCMC). Countries that already protect at least 30% of their land area automatically receive 'Yes'. This threshold is adopted from the Kunming-Montreal Global Biodiversity Framework. |
| *Metric CP 4.e.i* | What is the amount of protected area in the country as a percentage of total land area? |
| Methodology | This estimate is sourced from the Integrated Biodiversity Assessment Tool (IBAT) and considers both terrestrial and inland waters. Although protected areas in oceans are important, they do not relate to LULUCF, which is the intended focus of this metric. Some countries disclose relevant data in official government documents, which may also be used to assess this metric. |

## CP 5. Adaptation

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| Indicator CP 5.a | Has the country published a National Adaptation Plan? |
| Methodology | A country is assessed as 'Yes' if it has published a detailed operational planning document that fulfils the following criteria:<br>• It is explicitly directed at adaptation to climate change<br>• It specifies planning and policies to address the identified risks, hazards and vulnerabilities.<br>For developing countries, National Adaptation Plans (NAPs) can be found on NAP Central. Additional research is undertaken to identify other government planning documents that meet these criteria, drawing on best practice in adaptation planning (e.g. Leiter, 2021). Planning documents that focus on disaster risk reduction (DRR) only may not qualify for this indicator, as both acute and chronic physical climate risks should be considered.<br>Plans published more than 10 years ago may not be accepted if there is evidence that they are outdated. |
| Indicator CP 5.b | Does the country regularly publish national climate risk assessments? |
| Methodology | A country is assessed as 'Yes' if it regularly and comprehensively assesses existing and future climate risks, scenarios, hazards, exposure, vulnerabilities and/or impacts. These assessments should be published at least every 5–10 years and should be relevant to the country's particular economic sectors, population and climate hazards. This assessment may be published in a document or an online platform. |
| Indicator CP 5.c | Has the country published a Monitoring and Evaluation report on implementing adaptation? |
| Methodology | A country is assessed as 'Yes' if it regularly evaluates progress in implementing policies aimed at adaptation and discloses the results. These evaluations should be published at least every 5–10 years and they may be published in a document or an online platform. |

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| | Several NAPs signal the intention to establish a Monitoring and Evaluation framework. While indicator CP 5.b assesses regular disclosure on evolving climate risks, this indicator assesses regular disclosure on progress implementing risk management policies and measures. Because this indicator is meant to determine the implementation of adaptation planning, it is contingent on indicator CP 5.a being assessed as 'Yes'. |
| Indicator CP 5.d | Does the country have a multi-hazard early warning system? |
| Methodology | A country is assessed as 'Yes' if it describes an early warning system that addresses more than one climate-related hazard in a national executive or legislative document. Early warning systems are generally expected to include a weather monitoring system as well as a national communication system to inform citizens of imminent hazards. |
| Indicator CP 5.e | Is the country part of a sovereign catastrophe risk pool? |
| Methodology | A country is assessed as 'Yes' if it is a member of any existing risk pools. The result is determined using the member lists of the Caribbean Catastrophe Risk Insurance Facility (CCRIF-SPC), the Pacific Catastrophe Risk Insurance Company (PCRIC), the African Risk Capacity (ARC), and the Southeast Asia Disaster Risk Insurance Facility (SEADRIF). High-income countries are exempt from this indicator, given the absence of risk pools for their associated regions, but some high-income countries may be assessed on a case-by-case basis, as relevant. If additional risk pools or equivalent systems are identified during future feedback processes with governments, they may be considered. |

## CP 6. Just transition

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| Indicator CP 6.a | Has the country ratified fundamental human, labour and Indigenous rights conventions? |
| Methodology | A country is assessed as 'Yes' if the following are true:<br>1. The country has ratified at least half of the UN's 18 international human rights instruments<br>2. The country has ratified at least half of the International Labour Organization's 14 Fundamental and Governance Conventions<br>3. The country has ratified the Indigenous and Tribal Peoples Convention No. 169<br>4. The country has endorsed the United Nations Declaration on the Rights of Indigenous Peoples.<br>These international treaties and declarations form a universal and comparable foundation for climate-specific just transition policies.<br>Countries without Indigenous peoples are exempt from criteria 3 and 4. Guidance on such exemptions is drawn from various sources including the International Work Group for Indigenous Affairs (IWGIA). |
| *Metric CP 6.a.i* | At what percentile is the country's Voice and Accountability estimate? |
| Methodology | This metric is drawn from the World Bank's Worldwide Governance Indicators, of which the Voice and Accountability Indicator captures freedom of expression, freedom of association, free media and citizens' participation in elections. A country's percentile rank shows the percentage of countries with a lower Voice and Accountability estimate. Similar to indicator CP 6.a, this metric contributes contextual information on a universal and comparable foundation of freedom and democratic rights for climate-specific just transition policies.<br>Note that standard errors reported by the World Bank should be considered alongside this metric to make statistically significant cross-country comparisons. |

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| | For further information, see the Worldwide Governance Indicators methodology (Kaufmann and Mastruzzi, 2010). |
| Indicator CP 6.b | Does the country have an inclusive and institutionalised approach on the just transition? |
| Methodology | A country is assessed as 'Yes' if it has a just transition strategy or approach that fulfils all of the following:<br>• It involves social dialogue with workers<br>• It involves engagement with at least three of the following stakeholder groups: Indigenous peoples, rural communities, minorities, a citizens' assembly for climate, civil society, low-income households, women, young people, or another specified group<br>• It establishes a just transition commission, defined by Heffron (2021) as a body that provides expert advice on just transition measures and policies and ensures the delivery of a just transition by monitoring the implications of existing legal and executive government frameworks. |
| Indicator CP 6.c | Does the country have a green jobs strategy? |
| Methodology | A country is assessed as 'Yes' if it has a green jobs strategy that identifies employment-related opportunities from the low-carbon transition and sets actions, measures or policies to harness these identified opportunities. Such measures may include creating decent green jobs, addressing job losses caused by the transition, and launching skill development programmes. |
| Indicator CP 6.d | Does the country integrate just transition into its carbon pricing? |
| Methodology | A country is assessed as 'Yes' if its implementation of carbon pricing involves a clear acknowledgement or mechanism to address the potentially regressive distributional impacts on lower-income citizens. If the country has no carbon pricing, this indicator is assessed as 'Not applicable'. |

### *Pillar 3: Climate Finance*

### CF 1. International climate finance

| Indicator CF 1.a | Does the country contribute at least a proportional share of the international climate finance commitment? |
|---|---|
| Methodology | A country is assessed as 'Yes' if its contributions to international climate finance represent at least 0.18% of its GDP.[2]<br><br>A country's contributions to climate finance as a share of GDP are calculated by taking the average annual share over the most recent 3-year period to account for potential economic volatility. The threshold of 0.18% is the ratio of the US$100 billion commitment to the sum of the most recent 3-year average annual GDP levels of all UNFCCC Annex II countries.<br><br>Only Annex II countries are assessed in this area. Annex II countries are a subset of developed countries which together made the original $100 billion international climate finance commitment at COP15 in 2009.<br><br>Before 2025, the ASCOR assessment of this indicator excluded mobilised private finance due to a lack of reliable data. As disclosure quality has improved, it is now included in our assessment because private finance is explicitly included in the $100 billion goal. To reflect climate finance flows from all public sources, we allocate EU institutional flows to member states based on their contributions (e.g. EU revenue contributions; European Investment Bank paid-in capital). |

[2] Due to GDP growth, this threshold is slightly lower than the 0.2% of GDP threshold used in previous assessments.

| *Metric CF 1.a.i* | What is the country's 3-year average climate finance contribution as a % of GDP? |
|---|---|
| Methodology | This metric is calculated in line with the approach explained for indicator CF 1.a. The assessment relies on contributions which may be disclosed in countries' biennial transparency reports submitted to the UNFCCC or in other official documents (such as the European Environment Agency's Reporting Obligations Database). |
| **Indicator CF 1.b** | Does the country's targeted climate finance contribution represent at least a proportional share of the international climate finance commitment? |
| Methodology | A country is assessed as 'Yes' if it fulfils both of the following:<br>• It has publicly announced a target for international climate finance contributions in an official government document or UNFCCC communication.<br>• The targeted contribution as a share of projected GDP in the target year (metric CF 1.b.i) meets the country's proportional share of relevant international commitments. For climate finance targets for the year 2025, the relevant threshold is 0.18% of GDP. This threshold varies over time depending on which international commitments are in effect. For targets beyond 2025, which is when the $100 billion goal expires, we take into account the New Collective Quantified Goal (NCQG) agreed at COP29, which aims to deliver $300 billion in international climate finance by 2035. For international climate finance targets between 2025 and 2035, we calculate relevant proportional shares by interpolating between these two international goals.<br>A country's targeted contribution to climate finance as a share of GDP is calculated by dividing it by projected GDP sourced from the IMF World Economic Outlook database, which includes GDP projections in both national currency and US dollars. GDP projections are chosen to align with the currencies in which targets are stated. To compare commitments against the proportional share, we assess each country's commitment in the earliest future year for which the target applies.<br>Countries' targets are generally not explicit about expectations on inflation and GDP growth. During the feedback process, countries may specify if their targets consider these factors and disclose related information such that targeted contributions as a share of future GDP are as accurate as possible. |
| *Metric CF 1.b.i* | What is the country's targeted level of international climate finance contributions as a % of GDP? |
| Methodology | This metric is calculated in line with the approach explained for indicator CF 1.b. The assessment relies on public country commitments, which may be disclosed in an official government document or UNFCCC communication (e.g. COP26 Compilation of 2021–2025 Climate Finance Commitments or biennial communications). |

## CF 2. Transparency in climate costing

| **Indicator CF 2.a** | Has the country disclosed a transparent breakdown of the costs of implementing its Nationally Determined Contribution? |
|---|---|
| Methodology | A country is assessed as 'Yes' if its NDC or other official climate report includes a breakdown of estimated costs of implementing mitigation measures identified in the NDC or other climate report. Estimates of a total economy-wide cost would be insufficient for this indicator. Instead, the breakdown should be made by sector, policy or measure. This indicator aims to encourage transparency on financing needs for a country's prospective investors, lenders or donors aiming to support climate change action. Only non-Annex I parties to the UNFCCC are assessed on this indicator, given expectations about the direction of international climate finance flows. |

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| | This indicator assesses if a country is transparent about how much it expects the climate-related measures in its NDC to cost. Countries that are assessed as 'Yes' may have widely differing ways of estimating, accounting for and categorising costed mitigation measures and may have additional climate-related costs that are not disclosed within their NDC or other official report. Therefore, the costs stated within the identified disclosures are not directly comparable between countries. |
| Indicator CF 2.b | Has the country disclosed a transparent breakdown of the costs of implementing its National Adaptation Plan? |
| Methodology | A country is assessed as 'Yes' if its National Adaptation Plan (NAP) or other official climate report includes a breakdown of estimated costs of implementing adaptation measures. All guidance for this indicator follows the same approach as indicator CF 2.a above. |

## CF 3. Transparency in climate spending

| Indicator CF 3.a | Has the country disclosed its climate-related expenditure? |
|---|---|
| Methodology | A country is assessed as 'Yes' if it discloses climate-related expenditure:<br>• Including the total amount and a breakdown of the amount allocated to different categories (e.g. mitigation, adaptation or specific projects and measures); and<br>• In one of the following sources: annual or multiannual budgets; other documents related to public expenditure including citizens' budgets, spending reviews and budget fact sheets; open budget portals; databases of a national statistics office; or green or sustainability bond reports.<br>Note that the disclosure of environmental protection expenditure is insufficient for this indicator, as this is a classification that covers a broad category of expenditure unrelated to climate change. In many cases, it is not possible to track climate-related expenditure under this classification. If a country provides an additional breakdown of climate-related expenditure within environmental protection expenditure and meets the other criteria above, it is assessed as 'Yes'.<br>This indicator assesses if a country is transparent about how much it intends to spend on its climate-related measures. Countries that are assessed as 'Yes' may have additional climate-related expenditure that they have not disclosed within their budgets (e.g. through non-budgetary tools like funds) and the scope of disclosed expenditures may vary across countries. Therefore, the spending amounts stated within the identified disclosures are not comparable across countries. |
| Indicator CF 3.b | Does the country apply climate budget tagging? |
| Methodology | A country is assessed as 'Yes' if it regularly applies climate budget tagging or an equivalent practice in a systematic and consistent way. This indicator uses the following sources as a guide to identify budget tagging practices: World Bank (2021); OECD (2021a); OECD (2021b); OECD (2024); UN Development Programme (2022); EU Commission (2023); and Institute for Climate Economics (Boutron, 2023). Countries are assessed based on their own disclosures and methodologies; assessment results may therefore differ from the identified cases in the sources above.<br>Climate budget tagging practices vary across countries in terms of the definition of climate-related expenditure, institutional and sectoral coverage, type of expenditure covered (e.g. investment budget, tax expenditure, budgetary transfers) and their estimation and tagging methodology. Therefore, amounts stated within identified climate budget tagging disclosures are not comparable across countries. |

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| | Applying climate budget tagging does not necessarily imply alignment of climate policies with fiscal or budgetary policies. Rather, it indicates if the country is transparent about its climate-related expenditure in a systematic and consistent way. |

## CF 4. Renewable energy opportunities

| *Metric CF 4.i* | What is the country's solar energy pipeline compared with its fossil energy capacity? |
|---|---|
| Methodology | This metric is sourced from the Global Energy Monitor (GEM). The solar energy pipeline (i.e. prospective solar energy capacity) includes expected future capacity categorised as being either under construction, in pre-construction or announced. Depending on the specific underlying projects, the metric provides information on the scale of potential renewable energy financing opportunities. Rather than focusing on the geophysical (and fully hypothetical) potential of solar energy in the country, the metric focuses on the actual progress of a country in scaling up renewable energy, thereby demonstrating a component of climate performance.<br><br>The prospective solar capacity in megawatts is normalised by the country's current fossil-fuel-based electricity capacity in megawatts. This creates a ratio where a number larger than 1 indicates that a country's new solar energy pipeline outweighs its existing fossil-fuel-based electricity capacity. A number lower than 1 indicates that the fossil-fuel-based electricity capacity remains higher than the country's proposed expansion of solar energy.<br><br>Note that the metrics in this area are not accompanied by any 'Yes' or 'No' indicators due to the lack of a relevant threshold for measuring performance. These metrics should be taken as contextual information on the progress countries are making in decarbonising their power sectors and as indicative of potential opportunities to finance the expansion of renewable energy. |
| *Metric CF 4.ii* | What is the country's wind energy pipeline compared with its fossil energy capacity? |
| Methodology | This metric is assessed with the same approach as metric CF 4.i. |
| *Metric CF 4.iii* | What is the country's geothermal energy pipeline compared with its fossil energy capacity? |
| Methodology | This metric is assessed with the same approach as metric CF 4.i. |
| *Metric CF 4.iv* | What is the country's hydroelectric energy pipeline compared with its fossil energy capacity? |
| Methodology | This metric is assessed with the same approach as metric CF 4.i. |

# Appendix 1. Exemptions by country group[3]

| Area | Indicator or metric | Countries assessed | Countries exempt |
|---|---|---|---|
| **Emissions Pathways** | | | |
| EP 1. Emissions trends | EP 1.a | All | None |
| | EP 1.a.i | All | None |
| | EP 1.a.ii | All | None |
| | EP 1.b | All | None |
| | Ep 1.b.i | All | None |
| | EP 1.c | All | None |
| | EP 1.c.i | All | None |
| EP 2. 2030 targets and EP 3. 2035 targets | EP 2/3.a | All | None |
| | EP 2/3.a.i | All | None |
| | EP 2/3.b | All | None |
| | EP 2/3.b.i | All | None |
| | EP 2/3.c | All | None |
| | EP 2/3.c.i | All | None |
| | EP 2/3.d | All | None |
| | EP 2/3.d.i | All | None |
| EP 4. Net zero targets | EP 4.a | All | None |
| | EP 4.a.i | All | None |
| | EP 4.b | HI, MI | LI |
| | EP 4.c | HI | MI, LI |
| **Climate Policies** | | | |
| CP 1. Climate legislation | CP 1.a | All | None |
| | CP 1.b | All | None |
| CP 2. Carbon pricing | CP 2.a | HI, MI | LI |
| | CP 2.b | HI, MI | LI |
| | CP 2.b.i | HI, MI | LI |
| | CP 2.c | HI | MI, LI |
| | CP 2.c.i | HI | MI, LI |
| CP 3. Fossil fuels | CP 3.a | HI, MI | LI |
| | CP 3.a.i | HI, MI | LI |
| | CP 3.b | HI | MI, LI |
| | CP 3.b.i | HI, MI | LI |
| | CP 3.c | HI, MI | LI |
| | CP 3.c.i | HI, MI | LI |
| | CP 3.d | HI | MI, LI |
| | CP 3.d.i | HI, MI | LI |
| | CP 3.d.ii | HI, MI | LI |
| CP 4. Sectoral transitions | CP 4.a | HI, MI | LI |
| | CP 4.b | HI, MI | LI |
| | CP 4.b.i | HI, MI | LI |
| | CP 4.c | HI | MI, LI |
| | CP 4.d | HI, MI | LI |
| | CP 4.d.i | HI, MI | LI |
| | CP 4.e | HI, MI | LI |
| | CP 4.e.i | HI, MI | LI |

[3] We group countries primarily based on the World Bank country classification by income level as follows: (i) high-income (HI) countries ('high income' according to the World Bank); (ii) middle-income (MI) countries ('upper-middle income'); (iii) low-income (LI) countries ('lower-middle income' and 'low income').

| | | | |
|---|---|---|---|
| CP 5. Adaptation | CP 5.a | All | None |
| | CP 5.b | All | None |
| | CP 5.c | All | None |
| | CP 5.d | All | None |
| | CP 5.e | MI, LI | HI |
| CP 6. Just transition | CP 6.a | All | None |
| | CP 6.a.i | All | None |
| | CP 6.b | All | None |
| | CP 6.c | All | None |
| | CP 6.d | HI, MI | LI |
| **Climate Finance** | | | |
| CF 1. International climate contributions | CF 1.a | Annex II | Non-Annex II |
| | CF 1.a.i | Annex II | Non-Annex II |
| | CF 1.b | Annex II | Non-Annex II |
| | CF 1.b.i | Annex II | Non-Annex II |
| CF 2. Transparency in climate costing | CF 2.a | Non-Annex I | Annex I |
| | CF 2.b | Non-Annex I | Annex I |
| CF 3. Transparency in climate spending | CF 3.a | All | None |
| | CF 3.b | All | None |
| CF 4. Renewable opportunities | CF 4.i | All | None |
| | CF 4.ii | All | None |
| | CF 4.iii | All | None |
| | CF 4.iv | All | None |

# **Appendix 2.** ASCOR tool assessment results – key

## Pillar

- There are no assessment results at the pillar level.

## Area

- **'Yes'** if all applicable indicators in this area are assessed as 'Yes'. (If any indicators within an area are assessed as 'no data', 'not applicable' or 'exempt', these indicators are excluded from this area-level evaluation.)
- **'No'** if all applicable indicators in this area are assessed as 'No'.
- **'Partial'** if some applicable indicators in this area are assessed as 'Yes' and others as 'No'.
- **'Exempt'** if the country is part of a group that is exempt from all indicators in this area.

## Indicator

- **'Yes'** if all required criteria for this indicator are met.
- **'No'** if any of the required criteria for this indicator are not met.
- **'No data'** if this indicator relies on an external data source that does not include data on this country.
- **'Not applicable'** if there is no coherent value for this indicator (e.g. if the country has no fossil fuel subsidies, it is not applicable for it to publish an inventory of fossil fuel subsidies).
- **'Exempt'** if the country is part of a group that is exempt from this indicator.

*Each indicator result is accompanied by a link to the main source used in the assessment. If an indicator is assessed as 'No', it may or may not be accompanied by a link to a source, depending on whether we have identified relevant evidence for the result.*

## Metric

- **Quantitative value** with metric-specific units.
- **'No or unsuitable disclosure'** if this metric relies on country disclosure and the country has not published the necessary information.
- **'No data'** if this metric relies on an external data source that does not include data on this country.
- **'Not applicable'** if there is no coherent value for this metric.
- **'Exempt'** if the country is part of a group that is exempt from this metric.

*Each metric result is accompanied by a link to the main source used in the assessment. Each metric result is also accompanied by its corresponding measurement year, which is the most recent available data point taken from the relevant source.*

# Appendix 3. Changes relative to the initial ASCOR framework

The initial ASCOR framework (Scheer et al., 2023) was revised and iterated based on feedback collected during the public consultation. Pillar 1 was streamlined while Pillar 2 was restructured to capture mitigation policies more comprehensively. Pillar 3 was more thoroughly redesigned to address certain concerns raised in the feedback.

## Pillar 1: Emissions Pathways

- Pillar 1 retains its threefold structure from the previous framework, analysing emissions trends, 2030 targets and net zero targets.
- The emissions trends area (EP 1) was restructured to respond to feedback requesting more detailed insights on how country's emissions have changed over time. Specifically, EP 1 was adjusted to include consumption-based emissions and separates LULUCF emissions from other emissions to evaluate non-LULUCF emissions trends with greater confidence (as LULUCF emissions data are more uncertain).
- To satisfy the request for different trend time horizons, the ASCOR tool includes a drop-down menu with which the user can select year-on-year, 3-year, or 5-year time horizons.
- To address interest in an evaluation of recent trends, an indicator is now included that compares the most recent 5-year trend with the reductions needed to meet the country's 2030 benchmark and fair share allowance.
- The 2030 target (EP 2) and the net zero target areas (EP 3) were simplified to reduce the framework's complexity and avoid redundancy. For example, the indicator on enshrining a target in law was removed as it partly duplicates area CP 1 on climate legislation and is also difficult to assess and interpret.
- To focus more clearly on the practice of trading emissions, the terminology of indicator EP 2.b was adjusted to refer to carbon credits. The consultation feedback was also interested in more information on exactly how different countries intend to participate in carbon markets. Given a lack of well-governed international carbon markets and clear guidance on how market actors can follow different strategies as carbon credit sellers or buyers, further indicators could not be added at this time. Nevertheless, to clarify the intention of countries regarding credits, countries are assessed on their transparency and should quantify their reliance on such credits.

## Pillar 2: Climate Policies

- Pillar 2 includes most of the indicators in the previous framework but now has an expanded structure on mitigation.
- Some indicators judged to provide lower added value were removed or consolidated to reduce the complexity of the framework. For example, the indicator on submitting emissions data to the UNFCCC was removed as this practice is already required of UNFCCC Parties.
- The area on fossil fuels (CP 3) was expanded to provide further details on commitments to phase out fossil fuel subsidies. In addition, metrics on coal, oil and natural gas rents in the country were added to address interest in transition risk from fossil fuel production.
- Feedback suggesting inclusion of a more in-depth analysis of various sectors (e.g. transport policies for public transport, aviation and shipping) has been noted, but could not be integrated as it would make the framework too cumbersome. Instead, for simplicity and completeness, all sectoral analyses were consolidated into one indicator on the publication of a transition strategy that includes targets or planning for key sectors (CP 4.a).
- The indicator and metric on forested land area in the previous framework were revised to instead consider protected area. This revision aligns the framework more closely with biodiversity goals by considering the protection of all natural ecosystems rather than focusing simply on any types of forested land, which could include low-biodiversity tree plantations.

- In the area on adaptation (CP 5), physical risk exposure metrics were removed to respond to a concern shared in the consultation that risk exposure metrics were a potential source of bias against middle- and low-income countries that face higher physical risks that are outside of their control. The updated framework now includes a seventh design principle whereby countries should be able to *improve* on each indicator or metric. In this way, the emphasis of the ASCOR framework is on climate risk management by countries rather than exogenous exposure to climate hazards. In addition, some disaster risk reduction indicators were removed due to challenges in identifying robust data sources for assessment.
- The area on just transition (CP 6) was expanded with additional indicators on fundamental human rights and green jobs strategies. The previous two indicators on just transition strategies and commissions were consolidated into one indicator. The topic of international climate finance was shifted to Pillar 3 as a separate area.

### Pillar 3: Climate Finance

- Feedback from the consultation constructively noted a lack of clarity and some concerns with Pillar 3, which has resulted in a thorough reframing. Pillar 3 now aims to comprehensively examine the topic of climate finance through key dimensions: high-income countries' international climate finance contributions, transparency in domestic costing and spending for climate action, and renewable energy metrics that are a closer proxy for investment opportunities.
- To respond to feedback that expressed interest in a more in-depth and updated analysis of high-income countries' responsibilities (CF 1), an indicator and a metric assessing more recent international climate finance pledges were added.
- The area on costing mitigation and adaptation plans (CF 2) was revised to focus on the transparency of costing, given that the costed amounts are not themselves comparable across countries, which tend to use varying methodologies.
- Feedback noted that a lack of consideration of public spending and subsidies represented an important gap in the framework. The area on transparent climate spending (CF 3) was developed in response. Existing guidance on climate budget tagging was used with the aim of enhancing accountability to align government expenditures with climate targets and policies.
- Together, areas CF 2 and CF 3 aim to be a proxy for a country's climate finance preparedness, beginning with the foundation of clear disclosure on financing needs and current expenditure towards the low-carbon transition. It should be noted that support and capacity-building may be required for some middle- and low-income countries to develop more transparent climate costing and spending reports.
- According to the feedback, the opportunity metrics in the previous framework were insufficiently informative as they did not account for whether countries intend to harness their potential transition-related potential. The area on renewable energy opportunities (CF 4) was therefore revised, replacing metrics on geophysical *potential* with metrics on the recent and upcoming scale-up of actual renewable energy projects in the country. These are intended to be a closer proxy for the scale of transition-related investment opportunities in a given country.

# References


African Risk Capacity [ARC] (n.d.) ARC Member States. Web page. https://www.arc.int/countries

Asia-Pacific Economic Cooperation [APEC] (2009) 2009 Leaders' Declaration. Web page. https://www.apec.org/meeting-papers/leaders-declarations/2009/2009_aelm

Boutron C (2023) *Greener, better, stronger: Factors for the successful implementation of green budgeting in EU Member States*. Institute for Climate Economics [I4CE], Paris. https://reform-support.ec.europa.eu/publications-0/greener-better-stronger-factors-successful-implementation-green-budgeting-eu-member-states_en

Byers E, Krey V, Kriegler E, Riahi K, Schaeffer S, Kikstra J et al. (2022) AR6 Scenarios Database, hosted by International Institute for Applied Systems Analysis (IIASA). Public licence. doi: 10.5281/zenodo.5886911. url: data.ece.iiasa.ac.at/ar6/

Caribbean Catastrophe Risk Insurance Facility [CCRIF SPC] (n.d.) Web page. https://www.ccrif.org/member-countries

Climate Analytics (2025) 1.5°C National Pathways Explorer. Web page. CC BY-NC 4.0. https://1p5ndc-pathways.climateanalytics.org/

Climate Change Laws of the World (n.d.) Website. https://climate-laws.org

Convention on Biological Diversity (2022) COP15: Nations Adopt Four Goals, 23 Targets For 2030 In Landmark UN Biodiversity Agreement. Press release, 19 December. https://www.cbd.int/article/cop15-cbd-press-release-final-19dec2022

European Commission (2021) EU Spending and revenue 2021-2027. Web page. https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/spending-and-revenue_en

European Environment Agency (2025) EU Emissions Trading System (ETS) data viewer. Web page. CC-BY. https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1

European Investment Bank (2020) Shareholders. Web page. https://www.eib.org/en/about/governance-and-structure/shareholders/index

European Union (2023) Support to developing countries. Web page. https://reportnet.europa.eu/public/dataflow/963

Friedlingstein, P., O'Sullivan, M., Jones, M. W., Andrew, R. M., Bakker, D. C. E., Hauck, J. et al. (2023): Global Carbon Budget 2023, Earth Syst. Sci. Data, 15, 5301–5369, https://doi.org/10.5194/essd-15-5301-2023. Data set available: Global Carbon Atlas (2025), https://globalcarbonatlas.org/emissions/carbon-emissions/

G7 (2023) G7 Hiroshima Leaders' Communiqué, May 20. https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/g7-hiroshima-leaders-communique/

G20 (2009) Leaders' Statement. The Pittsburgh Summit September 24-25, 2009. https://www.oecd.org/g20/summits/pittsburgh/G20-Pittsburgh-Leaders-Declaration.pdf

Gidden MJ, Riahi K, Smith SJ, Fujimori S, Luderer G, Kriegler E et al. (2019) Global emissions pathways under different socioeconomic scenarios for use in CMIP6: a dataset of harmonized emissions trajectories through the end of the century. *Geoscientific Model Development* 12: 1443–1475. https://doi.org/10.5194/gmd-12-1443-2019, 2019.

Global Coal Mine Tracker, Global Energy Monitor, October 2025 release. Web page. CC BY 4.0. https://globalenergymonitor.org/projects/global-coal-mine-tracker/

Global Geothermal Power Tracker, Global Energy Monitor, July 2025 release. Web page. CC BY 4.0. https://globalenergymonitor.org/projects/global-geothermal-power-tracker/

Global Hydropower Tracker, Global Energy Monitor, May 2025 release. CC BY 4.0. Web page. https://globalenergymonitor.org/projects/global-hydropower-tracker/

Global Solar Power Tracker, Global Energy Monitor, May 2025 release. Web page. CC BY 4.0. https://globalenergymonitor.org/projects/global-solar-power-tracker/

Global Wind Power Tracker, Global Energy Monitor, May 2025 release. Web page. CC BY 4.0. https://globalenergymonitor.org/projects/global-wind-power-tracker/

Gütschow J, Busch D, Pflüger M (2025) *The PRIMAP-hist national historical emissions time series v2.7 (1750-2024)*. [Data set]. Zenodo. CC BY-NC-SA. doi:10.5281/zenodo.*17090760* *https://zenodo.org/records/17090760*

Gütschow J, Busch D, Pflüger M (2025): The PRIMAP-hist national historical emissions time series v2.6.1 (1750-2023). [Data set]. Zenodo. CC BY 4.0. doi:10.5281/zenodo.15016289

Gütschow J, Jeffery L, Gieseke R, Gebel R, Stevens D, Krapp M, Rocha M (2016): The PRIMAP-hist national historical emissions time series, Earth Syst. Sci. Data, 8, 571-603, doi:10.5194/essd-8-571-2016

Heffron RJ (2021) The Advance of Just Transition Commissions. In: *Achieving a Just Transition to a Low-Carbon Economy*. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-89460-3_4

Higham C, Averchenkova A, Setzer J, Koehl A (2021) *Accountability Mechanisms in Climate Change Framework Laws*. London: Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science. https://www.lse.ac.uk/granthaminstitute/publication/accountability-mechanisms-in-climate-change-framework-laws/

Protected Area, Key Biodiversity Area, and Species data reproduced and incorporated under licence from the Integrated Biodiversity Assessment Tool (IBAT) (https://www.ibat-alliance.org/). IBAT is provided by BirdLife International, Conservation International, IUCN and UNEP-WCMC. Contact ibat@ibat-alliance.org for further data. Terms and conditions.

Intergovernmental Panel on Climate Change [IPCC] (2022) *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Shukla P, Skea J, Slade R, Al Khourdajie A, van Diemen R, McCollum D et al. (eds.)]. London and New York: Cambridge University Press. doi: 10.1017/9781009157926

Intergovernmental Panel on Climate Change [IPCC] (2023) Summary for Policymakers. In: *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

International Carbon Action Partnership [ICAP] (n.d.) ICAP ETS Map. Web page. Data provider: International Carbon Action Partnership (ICAP). Data license Germany – attribution – Version 2.0; license text available at www.govdata.de/dl-de/by-2-0. Data available at https://icapcarbonaction.com/ets

International Energy Agency [IEA] (2025) Energy Statistics Data Browser, IEA, Paris. Terms and conditions. https://www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser

International Energy Agency [IEA] (2023) *Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach*, Paris: IEA. https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach

International Labour Organization [ILO] (n.d. a) Ratifications by country. Web page. https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11001:0::NO:::

International Labour Organization [ILO] (n.d. b) Ratifications of C169 - Indigenous and Tribal Peoples Convention, 1989 (No. 169). Web page. https://www.ilo.org/dyn/normlex/en/f?p=1000:11300:0::NO:11300:P11300_INSTRUMENT_ID:312314

International Monetary Fund [IMF] (2023) IMF Fossil Fuel Subsidies Data: 2023 Update. Copyright and Usage. https://www.imf.org/en/Topics/climate-change/energy-subsidies

International Monetary Fund [IMF] (2025) IMF World Economic Outlook Database. Web page. Copyright and Usage. https://www.imf.org/en/Publications/WEO/weo-database/2025/April

International Union for Conservation of Nature [IUCN] and the United Nations Environment Programme World Conservation Monitoring Centre [UNEP-WCMC] (2025) The World Databases on Protected Areas (WDPA) [Online], [August 2025], Cambridge, UK: UNEP-WCMC. Available at: www.protectedplanet.net

Leiter T (2021) Do governments track the implementation of national climate change adaptation plans? An evidence-based global stocktake of monitoring and evaluation systems. *Environmental Science & Policy* 125(2021): 179-188

Kaufmann D, Kraay A, Mastruzzi M (2010) *The Worldwide Governance Indicators: Methodology and Analytical Issues* (September 2010). World Bank Policy Research Working Paper No. 5430, Available at SSRN: https://ssrn.com/abstract=1682130

Koch, J., & Leimbach, M. (2023). Updated SSP scenarios [Data set]. Zenodo. Creative Commons Attribution 4.0. International. https://doi.org/10.5281/zenodo.8116099

Mamo D, Berger DN, Bulanin N, García-Alix L, Wiben Jensen M, Leth S, et al. (2025) *The Indigenous World 2023*. International Work Group for Indigenous Affairs (IWGIA). https://www.iwgia.org/en/resources.html

Mattoo A, Subramanian A (2012) Equity in Climate Change: An Analytical Review. *World Development* 40(6): 1083-1097 https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-5383

National Archives (2021) *COP26 Presidency Compilation of 2021-2025 Climate Finance Commitments*. November 2021. https://webarchive.nationalarchives.gov.uk/ukgwa/20230401054904/https:/ukcop26.org/wp-content/uploads/2021/11/Table-of-climate-finance-commitments-November-2021.pdf

NDC Partnership (n.d.) NDC Content. Web page. https://ndcpartnership.org/knowledge-portal/ndc-content

Organisation for Economic Co-operation and Development [OECD] (2021a) *Green Budgeting in OECD Countries*, OECD Publishing, Paris. https://doi.org/10.1787/acf5d047-en

Organisation for Economic Co-operation and Development [OECD] (2021b), *Green Budget Tagging: Introductory Guidance & Principles*, OECD Publishing, Paris. https://doi.org/10.1787/fe7bfcc4-en

Organisation for Economic Co-operation and Development [OECD] (2021c) *Trade in Embodied $CO_2$ Database (TECO2)*. Terms and Conditions. https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2021 (Accessed on 31 October 2023)

Organisation for Economic Co-operation and Development [OECD] (2022) *Share of GHG Emissions Priced. Terms and Conditions*. https://data-explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_NECR%40DF_NECRSHARES&df[ag]=OECD.CTP.TPS&dq=._T._T.FUETAX%2BCARBTAX%2BMPERPRI%2BEXPCARB%2BECRATE%2BSUBSID%2BNETECR...MEANW..A&lom=LASTNPERIODS&lo=5&to[TIME_PERIOD]=false&vw=tb

Organisation for Economic Co-operation and Development [OECD] (2024*) Green budgeting in OECD Countries 2024*. OECD Publishing, Paris, https://doi.org/10.1787/9aea61f0-en.

Pacific Catastrophe Risk Insurance Company [PCRIC] (n.d.) PCRIF Council of Members. Web page. https://pcric.org/who-we-are/pcrif-council-of-members/

Pojar S (2023) *How Green Budgeting is Embedded in National Budget Processes* Discussion Paper 196. Brussels: European Commission. https://economy-finance.ec.europa.eu/publications/how-green-budgeting-embedded-national-budget-processes_en

Scheer A, Dietz S, Honneth J, Akhtyrska Y, Lockwood P and Sullivan R (2023) *A framework to assess sovereign bond issuers on climate change: Consultation Report*. London: Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. https://transitionpathwayinitiative.org/publications/uploads/2023-a-framework-to-assess-sovereign-bond-issuers-on-climate-change-consultation-report

Southeast Asia Disaster Risk Insurance Facility [SEADRIF] (n.d.) Web page. https://seadrif.org/who-we-are/

United Nations, Department of Economic and Social Affairs, Population Division (2024). World Population Prospects 2024. [Data set]. Online Edition. CC BY 3.0 IGO. https://population.un.org/wpp/

United Nations Department of Economic and Social Affairs Social Inclusion (n.d.) *United Nations Declaration on The Rights of Indigenous Peoples*. https://social.desa.un.org/issues/indigenous-peoples/united-nations-declaration-on-the-rights-of-indigenous-peoples

United Nations Development Programme [UNDP] (2022) *Global Climate Public Finance Review*. https://www.undp.org/publications/undp-global-climate-public-finance-review

United Nations Framework Convention on Climate Change [UNFCCC] (n.d. a) *Fifth Biennial Reports – Annex I*. Terms of Use. https://unfccc.int/BR5

United Nations Framework Convention on Climate Change [UNFCCC] (n.d. b) First Biennial Transparency Reports. Web page. Terms of Use https://unfccc.int/first-biennial-transparency-reports

United Nations Framework Convention on Climate Change [UNFCCC] (n.d. c) Long-term strategies portal. Web page. https://unfccc.int/process/the-paris-agreement/long-term-strategies

United Nations Framework Convention on Climate Change [UNFCCC] (n.d. d) National Adaptation Plans. Web page. https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx

United Nations Framework Convention on Climate Change [UNFCCC] (n.d. e) Nationally Determined Contributions Registry. Web page. https://unfccc.int/NDCREG

United Nations Human Rights Office of the High Commissioner (n.d.) Status of Ratification Interactive Dashboard. Web page. https://indicators.ohchr.org/

World Bank (2021) *Climate Change Budget Tagging: A Review of International Experience*. EFI Insight-Governance. Washington, DC: World Bank. https://openknowledge.worldbank.org/entities/publication/1a086761-7d47-599a-a837-55b5c1fed627

World Bank (2022) *Carbon Pricing Leadership Report 2021/22*. Washington, DC: World Bank, https://www.carbonpricingleadership.org/leadershipreports

World Bank (2023a) Coal rents (% of GDP). Web page. CC BY-4.0. https://data.worldbank.org/indicator/NY.GDP.COAL.RT.ZS

World Bank (2023b) Oil rents (% of GDP). Web page. CC BY-4.0. https://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS

World Bank (2023c) Natural gas rents (% of GDP). Web page. CC BY-4.0. https://data.worldbank.org/indicator/NY.GDP.NGAS.RT.ZS

World Bank (2023d) Energy intensity level of primary energy (MJ/$2017 PPP GDP). Web page. CC BY-4.0. https://data.worldbank.org/indicator/EG.EGY.PRIM.PP.KD

World Bank (2023e) Voice and Accountability: Percentile Rank. Web page. CC BY-4.0. https://data.worldbank.org/indicator/VA.PER.RNK

World Bank (2024) *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank. http://hdl.handle.net/10986/41544 License: CC BY 3.0 IGO.

World Bank (2025a) Population, total. Web page. CC BY-4.0. https://data.worldbank.org/indicator/SP.POP.TOTL

World Bank (2025b) GDP, PPP (current international $). Web page. CC BY-4.0. https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD?end=2022&start=1990

World Bank (2025c) Carbon Pricing Dashboard. Web page. CC BY-4.0. https://carbonpricingdashboard.worldbank.org/

World Bank (2025d) Terrestrial protected areas (% of total land area). Web page. Protected Planet Terms and Conditions. https://data.worldbank.org/indicator/ER.LND.PTLD.ZS

World Bank (n.d.) World Bank Country and Lending Groups. Web page. https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups