

Analysis and methodology for measuring company-level alignment for Climate Action 100+

To help investors drive engagement with companies that bolsters climate action, 2 Degrees Investing Initiative (2DII) using the PACTA methodology and data provided by Asset Resolution provides analysis on companies in the utility, automotive, aviation, cement and steel sectors that form part of the Climate Action 100+ (CA100+) focus list. CA100+ is an investor initiative to ensure the world’s largest corporate greenhouse gas emitters take necessary action on climate change. The companies include 100 “systemically important emitters” alongside more than 60 others with significant opportunity to drive the clean energy transition. Taken together, the CA100+ focus companies account for an estimated 80% of annual global industrial greenhouse gas emissions. As part of CA100+’s Technical Advisory Group, 2DII uses the PACTA portfolio alignment methodology to create alignment profiles of individual companies in the aforementioned sectors.

1. Scope

The scope of the alignment assessments carried out encompasses the electric utility, automotive, aviation, cement and steel sectors. Our coverage of each sector for CA100+ is as follows:

- **Electric utilities:** 33 companies that generate electricity. Combined, these companies have more than 1.1 Terawatts in power capacity, representing around 14% of global power capacity.
- **Automotive:** 14 of the largest international automotive manufacturers. Combined, the companies are estimated to have produced around 54 million passenger vehicles in 2020.
- **Aviation:** 5 commercial passenger airlines. In 2020 they operated routes and services reporting in total over 500.000 million revenue passenger kilometres¹.
- **Cement:** 11 companies. Combined they are estimated to produce over 700 million tonnes of cement, representing around 17% of global cement production.
- **Steel:** 8 companies. Combined they are estimated to produce 200 million tonnes of steel, representing around 11% of global steel production.

2. Alignment assessments

The PACTA methodology running on data provided by Asset Resolution analyses companies planned capital expenditures (CAPEX) and production output for the coming 5-10 years relative to a range of climate change scenarios in order to give investors additional insights on the relative alignment of company economic activities with the Paris Agreement goals. These analyses correspond with and provide additional quantitative information in support of the company disclosures assessed by indicator six (Capital Alignment) of the Disclosure Framework in the CA100+ Net Zero Company Benchmark.

2.1. Electric utility and automotive sectors

2DII provides two assessments each for the electric utility and the automotive sector.

2.1.1 Assessment of the company's 2021 technology mix vs. the 2021 sector average

This assessment evaluates the technology mix of a company in 2021 compared to the sector average in 2021. The analysis is conducted on the technology level, meaning 2DII compares the technology share of each company with the technology share of the sector average. The sector average is calculated for all the companies in the global data universe for the sector in question. So for example, if the market’s technology mix consists of 10% electric vehicles, while a company’s technology mix consists of 17% electric vehicles, then the company is ‘ahead’ of the sector average. Similarly, if the

¹ Based on data published by the International Air Transport Association (2021)

market's technology mix consists of 15% renewable power, and a company's technology mix consists of 10% renewable power, then it's 'behind' the sector average.

The technologies assessed are, in the electric utilities sector – coal, natural gas, oil, nuclear, hydroelectric and other renewables (e.g., solar, wind and biomass) – and in the automotive sector – Internal Combustion Engine, hybrid (mild and plug-in) and electric. The assessment is based on whether the company technology mix is ahead of the market, either in terms of:

- a decrease in fossil fuel-based electricity generating capacity (coal, oil and gas) or Internal Combustion Engine (ICE) vehicle production, or
- an increase in low carbon electricity generation (nuclear, hydro and renewables) or an increase in hybrid and Electric Vehicle (EV) production.

The assessment calculates the percentage deviation of each individual company technology share from the sector average technology share. Possible assessment outcomes reported are as follows:

- Behind (>15% negative deviation);
- Slightly Behind (>5-15% negative deviation);
- Aligned (+ or - 5%);
- Slightly Ahead (>5-15 % positive deviation);
- Ahead (>15% positive deviation).

2.1.2 Comparison of production plans to International Energy Agency (IEA) scenarios

The companies' forecast production capacity per technology is compared to technological pathways to achieve climate goals developed by the IEA. Alignment comparisons are made to scenarios which have the goal of stabilising average global temperature rise at varying levels by 2100, in comparison to pre-industrial levels.

For each scenario, the IEA has forecast the speed at which each technology must grow or decline for the world to meet different climate goals. For the automotive sector, the three technologies assessed are internal combustion engine, hybrid (mild and plug-in) and electric power trains. For the power sector, the technologies are coal, oil, gas, nuclear, hydro and renewables (e.g., solar, wind and biomass). The baseline for the analysis is December 2021. The alignment results are presented for each technology as well as for a weighted aggregate alignment across all technologies, with the weighting based on a combination of:

1. The company's technology mix if it were to be aligned with the scenario in 2026 (i.e., the relative importance of the technology to the company); and
2. The proportional change in production capacity per technology required for the company to be aligned with the scenario in 2026 (i.e., the relative change in capacity per technology required of the company).

A company's decarbonization responsibilities under these scenarios are calculated based on a market-share approach. This means that the decarbonisation efforts are equally distributed amongst all companies in the sector. So, whilst each companies' targets for their technology market share are calculated individually based on their starting point in 2021, the same required rate of change is used, which is based on the trajectory in the scenario.

Electric utilities

For electric utilities the alignment comparisons are made using the [Net Zero by 2050 \(NZE\)](#), [Sustainable Development \(SDS\)](#) and the [Stated Policies \(STEPS\)](#) scenarios according to the following grading:

- Aligned with a Net Zero by 2050 scenario (NZ <1.5°C);

- Close to the Sustainable Development Scenario (SDS 1.5°C-1.8°C);
- Above the Sustainable Development Scenario (SDS >1.8°C); or
- Significantly above the Sustainable Development Scenario (SDS >2.7°C).

An aggregate scenario alignment of each electric utility is calculated based on an alignment comparison with the IEA Net Zero by 2050 Scenario (1.5°C) and via a weighting of the company's alignment across all six technologies.

Automotive

For the automotive sector the alignment comparisons are made using the [Net Zero by 2050 \(NZE\)](#), [Beyond 2°C \(B2DS\)](#), [2 Degrees \(2DS\)](#) and [Reference Technology \(RTS\)](#) scenarios according to the following grading:

- Aligned with a Net Zero by 2050 scenario (NZ <1.5°C);
- Aligned with a Beyond 2°C Scenario (B2DS <1.75°C);
- Close to the 2 Degrees Scenario (2DS 1.75°C-2°C);
- Above the 2 Degrees Scenario (2DS >2°C); or
- Significantly above the 2 Degrees Scenario (2DS >2.7°C).

An aggregate scenario alignment of each automotive manufacturer is calculated based on an alignment comparison with the [IEA Beyond 2°C Scenario \(1.75°C\)](#) and via a weighting of the company's alignment across the three technologies.

2.2. Aviation, cement and steel sectors

2DII provides two assessments each for the aviation, cement and steel sectors.

2.2.1 Assessment of a company's 2021 current emissions intensity

This first metric evaluates the CO₂ emissions of each company in 2021 per unit of service (in the case of aviation) or production (in the case of cement and steel). The overall methodology is based on the Sectoral Decarbonisation Approach (SDA) that was developed by the Science Based Targets Initiative (SBTi).

Aviation

The aviation emissions intensity is calculated for passenger air travel. Asset-backed company-level data on the fuel consumption performance and the annual flight distances (based on real flight data) for individual aircraft are used. This data is used to calculate the emissions for each aircraft in an operator's fleet, normalised to the passenger kilometres travelled and taking into account seat occupation². The weighted average results for all the operational aircraft in a company's fleet are then calculated, with the weighting based on the annual passenger kilometres of each aircraft. Results are calculated for both 2019 and 2021, in order to provide a pre-Covid19 pandemic baseline for passenger airline activity.

Cement and steel

The cement and steel emissions intensities are calculated per tonne of cement and crude steel production. Crude steel production excludes rolling and casting steps.

Asset-backed company level data for the steel and cement sector is used to derive production values for each physical plant. As there is no technology shift or roadmap as such in current given climate scenarios, it follows that production values must be used to derive an emission intensity per unit of production. Calculation of CO₂ emissions encompasses the following scopes:

² A global average load factor (passenger occupation of seats on an aircraft) of 82% is used.

- **Cement:** scope 1 (direct emissions from calcining and from heating kilns) and scope 2 (electricity use for processing) for integrated plants that process cement from raw materials to final product.
- **Steel:** scope 1 (direct emissions from iron and steel furnaces) and scope 2 (electric arc furnaces) for production of both iron and steel.

The company-level emission intensity is calculated as the weighted average of its production plant, with the weighting based on production capacity of each plant.

2.2.2 Comparison of current production to International Energy Agency (IEA) 10-year scenario targets

In the second metric for each sector, investors are encouraged to engage with companies on convergence with target emission intensities taken from IEA climate scenarios. For each sector the percentage improvement required to achieve convergence with a [Beyond 2°C Scenario \(B2DS\)](#) emissions intensity in 2030 is calculated. The greater the distance between the company's current emissions intensity and the B2DS target for 2030, the greater the challenge for the company to align itself with the goals of the Paris Agreement.

For all three sectors a longer 10-year timeframe to 2030 has been selected to better reflect the investment cycles and timing on which the first major plant upgrades and technology replacements identified in IEA scenarios will need to be planned.

The possible assessment outcomes reported are presented in table 1. The thresholds are calibrated to the reduction in emissions intensity required for each sector.

Table 1. 2030 B2DS alignment assessment outcomes for steel, cement and aviation

Sector	Significant distance to alignment with B2DS	Moderate distance to alignment with B2DS	Aligned or close to being aligned with B2DS
Aviation	>30% negative deviation	15-30% negative deviation	< 15% negative deviation
Cement	>20% negative deviation	5-20% negative deviation	< 5% negative deviation
Steel	>36% negative deviation	15-36% negative deviation	< 15% negative deviation

3. About the PACTA methodology

The PACTA methodology measures the alignment of investments in 8 economic sectors. The methodology is based on comparing what needs to happen in these sectors in terms of decarbonization to what the companies in investor portfolios are planning to do in the coming 5 years. The methodology consolidates and aggregates global forward-looking asset-backed company level data (i.e., what are the production plans of a specific manufacturing plant or power plant over the coming five years), based on third-party business intelligence providers up to the level of an ultimate parent company.

For investors, the approach adopted by PACTA allows them to assess the overall alignment of their portfolios with climate scenarios and the Paris Agreement. In 2019, as part of technical support provided to the Climate Action 100+ initiative, 2° Investing Initiative started developing company-level assessments, allowing financial institutions and other investors to assess the alignment of individual companies within their portfolio with climate scenarios. More about the PACTA methodology can be found at transitionmonitor.com.