



CONSTELLATION RESEARCH & TECHNOLOGY, INC.

Methodology Documentation
Automobile Manufacturing Sector
Climate Impact

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Stage 1 – Initial Engagement

The first stage of the Climate Impact Maturity Curve assesses a company’s level of engagement on the issue of climate change with respect to policies, procedures and/or broad statements of intent. Stage 1 is composed of two underlying steps.

Step 1 – Reporting Policy on Emissions or Climate Change

Definition: Measures whether a company publically reports a policy acknowledging climate change as relevant to its business.

Scoring: Boolean (yes/no)

- No = 0
- Yes = 100

Data Sources: Constellation; Refinitiv; Urgentem; company reports

Authorities: Task Force on Climate-related Financial Disclosure (TCFD), Climate Disclosure Standards Board (CDSB) R01 & R02

Step 2 – Reporting Emissions Impacts

Definition: Measures whether a company publically reports scope 1, 2, and 3 emissions.

Scoring: Tiered

- Reporting no emissions = 0
- Reporting scope 1 and 2 emissions = 25
- Reporting scopes 1, 2, and 3 emissions = 100

Data Sources: Constellation; Refinitiv; Urgentem; company reports

Authorities: United Nations Framework Convention on Climate Change (UNFCCC); Chief Executives for Corporate Purpose (CECP)

Stage 2 – Building Capacity for Systematic Management

The second stage of the Climate Impact Maturity Curve assesses the degree to which a company is undertaking systematic management of climate change through reporting verification, goal setting, and operational performance. Stage 2 is comprised of three underlying steps.

Step 3 – Verification of Emissions Impacts

Definition: Measures the degree to which a company has verified their emissions by an independent third-party.

Scoring: Tired

- No verified emissions = 0
- Verified scope 1 and 2 emissions = 25
- Verified scope 1, 2 and 3 emissions = 100

Data Sources: Constellation; Refinitiv; Urgentem; company reports

Authorities: CDP (C6, C7), CDSB R03 & R04, Greenhouse Gas Protocol; Sustainability Accounting Standards Board (SASB) TR0101; Global Reporting Initiative (GRI) 305-1

Step 4 – Public Emissions Reduction Targets

Definition: Measures whether a company has a publically reported target to reduce emissions.

Scoring: Boolean (yes/no)

- No = 0
- Yes = 100

Data Sources: Constellation; Refinitiv; Urgentem; company reports

Authorities: TCFD, Science Based Targets (SBT)

Step 5 – Emissions Intensity of Vehicle Production

Definition: Measures the intensity of emissions produced per vehicle sold by each manufacturer with respect to their peers.

Scoring: Continuous (0-100)

Calculation:
$$= \frac{\text{Scope 1 \& 2 Emissions}}{\text{Total Vehicle Sales}}$$

Data Sources: MarkLines; Constellation; Refinitiv; Urgentem; company reports

Authorities: SASB TR0101, CDP

Stage 3 – Business Operation/Product Transformation

The third stage of the Climate Impact Maturity Curve measures a firm’s meaningful progress and scalable plans for transforming key processes, products and/or systems needed to optimize on a low-carbon value proposition. In the automobile sector, the focus is on decarbonization of the fleet where roughly 75% of emissions are from the use of the sold product. Stage 3 is comprised of four steps.

Step 6 – Company Governance Structures to Decarbonize

Definition: Measures whether a company’s executive compensation is linked to performance on climate, whether a company publically supports climate related policies, and the aggressiveness of a company’s internal price on carbon.

Scoring: Continuous (0-100)

Calculation: *Executive Compensation + Policy Support + \$/tonne CO2*

Data Sources: Urgentem; company reports

Authorities: CDP; CDSB R04 & R07; World Bank Group (WBG)

Step 7 – Current Percentage of Sales from Alternative Drive Vehicles

Definition: Measures company performance on hybrid vehicle (HV), plug-in hybrid electric vehicle (PHV) and zero emission vehicle (ZEV) sales, as a percentage of total company sales, with respect to industry peers. Proprietary weightings are applied to each alternative drive vehicle category based on the relative importance of each in aiding in the transition to an emissions free fleet.

Scoring: Continuous (0-100)

Calculation:
$$= \frac{HV\ Sales + PHV\ Sales + ZEV\ Sales}{Total\ Vehicles\ Sales}$$

Data Sources: MarkLines

Authorities: CDP; SASB TR0101; European Federation for Transport and the Environment

Step 8 – Emissions Performance of the Fleet

Definition: Measures a company’s average fleet emissions in g CO₂/km compared to its peers. Data used for this step comes from the Transition Pathway Initiative’s (TPIs) work on the Automobile Sector.¹

Scoring: Continuous (0-100)

Calculation: = *g CO₂/km*

Data Sources: TPI; United States Environmental Protection Agency (US EPA); International Council on Clean Transportation (ICCT)

Authorities: CDP; SASB TR0101, European Federation for Transport and the Environment

Step 9 – Company Projections of Alternative Drive Vehicle Sales

Definition: Measures the level of ambition of a company’s future sales and/or production projections for ZEVs and Electrified Vehicles, which include a combination of HVs, PHVs, and ZEVs. Companies provide these projections, as either a number of vehicles sold, percent makeup of the sold fleet, or number of models to be released. Based on the metrics provided by each company, data is normalized to ensure equal comparisons across the sector. The rating of company projections is based on 1) time to goal attainment and 2) degree of projected decarbonization.

Scoring: Continuous (0-100)

Calculation: =
$$\frac{ZEV\ Projections + Electrified\ Projections}{Vehicles\ and/or\ Models\ Produced}$$

Data Sources: Public company statements

Authorities: CDP; SASB TR0101; European Federation for Transport and the Environment

Stage 4 - Competitive Differentiation on Decarbonization

The third stage of the Climate Impact Maturity Curve measures whether a firm is successfully executing strategies that create competitive differentiation and the potential for competitive advantage through low carbon innovations in products and/or processes that generate material

improvements in cost structure, revenue growth and/or business model strength. In the automobile sector, the focus is on whether a company is on a 2C pathway out to 2030.

Step 10 – Market Share & Sales Leadership in ZEVs & PHVs

Definition: Measures a company’s weighted market share and percentage of total sales from PHVs and ZEVs with respect to its peers. As done in previous steps, ZEVs are over weighted compared to PHVs due to their greater decarbonization impact.

Scoring: Continuous (0-100)

Calculation: = *PHV Market Share + ZEV Market Share + PHV Sales + ZEV Sales*

Data Sources: MarkLines

Authorities: European Federation for Transport and the Environment; SASB TR0101

Step 11 – 2°C Pathway Alignment to 2030

Definition: Measures a company’s average fleet emissions in g CO₂/km compared to its peers extended out to 2030. Data used for this step comes from the TPI’s work on the Automobile Sector.ⁱⁱ Where projections are available they are used from the TPI’s report; otherwise, projections are calculated based on a linear regression of historical fleet performance that is up-weighted or down-weighted depending on the company’s projections on ZEV and Electrified Vehicle sales and production.

Scoring: Continuous (0-100)

Calculation: = *Projected g CO₂/km*

Data Sources: Constellation; TPI; US EPA; ICCT

Authorities: CDP, TPI, TCFD, SBT

ⁱ Transition Pathway Initiative, Automobile Sector Data, 3/1/2020, <https://www.transitionpathwayinitiative.org/tpi/sectors/autos>

ⁱⁱ Transition Pathway Initiative, Automobile Sector Data, 3/1/2020, <https://www.transitionpathwayinitiative.org/tpi/sectors/autos>