

### Data Availability by company

1	<b>Groupe PSA</b>
2	<b>BMW AG</b>
3	<b>Renault</b>
4	<b>Volkswagen AG</b>
5	<b>Daimler AG</b>
5	<b>Nissan Motor Co., Ltd.</b>
7	<b>Mazda Motor Corporation</b>
8	<b>Toyota Motor Corporation</b>
9	<b>Ford Motor Company</b>
10	<b>Honda Motor Company</b>
11	<b>General Motors Company</b>
12	<b>Tesla Motors, Inc.</b>
13	<b>BAIC Motor Corporation Ltd</b>
14	<b>Chongqing Changan Automobile Company Ltd.</b>
15	<b>Geely Automobile Holdings Limited</b>
16	<b>Tata Motors</b>
17	<b>FAW Car Company Limited</b>
18	<b>Fiat Chrysler Automobiles NV</b>
19	<b>Mitsubishi Motors Corporation</b>
20	<b>Hyundai Motor Co</b>
21	<b>Guangzhou Automobile Group Co. Ltd</b>
22	<b>Subaru Corporation</b>
22	<b>Suzuki Motor Corporation</b>
24	<b>SAIC Motor Corporation Limited</b>
25	<b>Dongfeng Automobile Co., Ltd</b>

The Automotive ranking for 2019 assesses the most reliable, latest available public and verifiable data. Where possible, data points are 5 years historic up to the present - so for some data points, as far back as 2012 - and with future orientated analysis. 2017 was the most recent year for which complete regulatory data was available.

#### **1 – Groupe PSA**

Data for the performance score of the assessment was sourced primarily from Groupe PSA's responses to CDP Climate Change Questionnaires and from the group's annual reports, sustainability reports and corporate website. Regulatory data from the European Environment Agency (EU), the Ministry of Industry and Information Technology (China), and Ministry of Land, Infrastructure, Transport and Tourism (Japan) was also used, together with International Organization of Motor Vehicle Manufacturers' production data and MarkLines' sales figures. Additional information from RepRisk was used to inform the narrative score of the assessment. Analysing the group's intangible investment scoring module proved difficult due to the absence of data on non-mature mitigation technology research and development expenditure, as did the business model scoring module given the group's lack of detail on profitability and growth potential. There was a group boundary change from 2017 to 2018 as a result of the acquisition of Opel-Vauxhall, which had a minor impact on year on year comparability of data.

## **2 – BMW AG**

Data for the performance score of the assessment was sourced primarily from BMW's responses to CDP Climate Change Questionnaires and from its annual reports, sustainability reports and corporate website. Some sales data was sourced from MarkLines, and information from RepRisk was used to inform the narrative score of the assessment. The assessment was hampered by the lack of a single document providing easy oversight on BMW's low-carbon transition planning, use of scenario analysis and climate related stress testing. It was not clear what proportion of BMW's mitigation research and development expenditure in the reporting year was related to non-mature technologies. There was also little detail available on the profitability, growth potential and deployment schedules for business model activities not directly related to the manufacturing of personal vehicles.

## **3 – Renault**

Data for the performance assessment was sourced primarily from the company's responses to CDP Climate Change Questionnaires and from the company's annual reports, sustainability reports and corporate website. Fleet emissions data from 2012 to 2016 for China, Europe, Japan, Brazil, South Korea, Mexico, Australia, India and Russia came from CDP Climate Change Questionnaires. Fleet emissions data for 2017 came from the Ministry of Industry and Information Technology (China), the European Environment Agency (Europe), and the Ministry of Land, Infrastructure, Transport and Tourism (Japan). A linear extrapolation was used for regions where the company's own or regulatory fleet emissions data was not available. Some sales data was sourced from MarkLines, and information from RepRisk was used to inform the narrative score of the assessment. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Renault engaged during the assessment's data validation process, and its feedback was incorporated.

## **4 – Volkswagen AG**

Data for the assessment was sourced primarily from Volkswagen's responses to CDP Climate Change Questionnaires and from the company's annual reports, sustainability reports and corporate website. The 2012 to 2016 fleet emissions data for China, Europe and the USA came from CDP Climate Change Questionnaires. The 2017 fleet emissions data came from the Environmental Protection Agency (US), the European Environment Agency (Europe), and the Ministry of Industry and Information Technology (China). A weighted average of Volkswagen's sales fleet figures was used for regions where neither company data nor regulatory fleet emissions data were available. Some sales data was sourced from MarkLines, and information from RepRisk was used in the narrative assessment. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Volkswagen engaged in the data validation process and feedback was incorporated.

## **5 – Daimler AG**

Information for the assessment was sourced from Daimler's responses to CDP Climate Change Questionnaires and from Daimler's annual reports and corporate website. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles, regulatory data from the European Environment Agency, Environmental Protection Agency (US), Ministry of Industry and Information Technology (China), Ministry of Land, Infrastructure, Transport and Tourism (Japan), and sales data from MarkLines. Daimler provided feedback on the data collected, and this feedback was taken into consideration.

## **5 – Nissan Motor Co., Ltd.**

Information for the assessment was sourced from Nissan's responses to CDP Climate Change Questionnaires and from Nissan's annual reports and corporate website. Some sales data was sourced from MarkLines. RepRisk was used to inform some of the narrative assessment. Regulatory data was used from the Environmental Protection Agency (US), European Environment Agency (Europe), Ministry of Industry and Information Technology (China), and Ministry of Land, Infrastructure, Transport and Tourism (Japan). A sales weighted fleet average was used for regions where neither company data nor regulatory fleet emissions data were available. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles.

## **7 – Mazda Motor Corporation**

Information for the assessment was sourced from Mazda's responses to CDP Climate Change Questionnaires and from Mazda's annual reports and corporate website. Some sales data was sourced from MarkLines. RepRisk was used to inform some of the narrative assessment. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Regulatory data was used from the Environmental Protection Agency (US), European Environment Agency (Europe), Ministry of Industry and Information Technology (China), and Ministry of Land, Infrastructure, Transport and Tourism (Japan). A sales weighted fleet average was used for regions where neither company data nor regulatory fleet emissions data were available. Some data points required for the assessment were affected by limited data availability. No figure was provided for Mazda's research and development spending in electrification and little financial information could be found regarding Mazda's alternative business activities.

## **8 – Toyota Motor Corporation**

Data for the performance score of the assessment was sourced primarily from Toyota's responses to CDP Climate Change Questionnaires and from the company's annual reports, sustainability reports and corporate website. Some sales data was sourced from MarkLines. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Regulatory data was used from the Environmental Protection Agency (US), European Environment Agency (Europe), Ministry of Industry and Information Technology (China), and Ministry of Land, Infrastructure, Transport and Tourism (Japan). Information from RepRisk was used to inform the narrative assessment. Toyota accepted the opportunity to validate the data collected for the performance assessment, and the company's feedback was taken into consideration. It was not clear what proportion of Toyota's mitigation research and development expenditure in the reporting year was related to non-mature technologies. There was also little detail available on the profitability, growth potential and deployment schedules for business model activities not directly related to the manufacturing of personal vehicles. Baseline details in 2010 for the Toyota Environmental Challenge No. 1 target – to reduce in-use fleet emissions by 90 percent by 2050 – were not found in the available materials.

## **9 – Ford Motor Company**

Data for the assessment was sourced primarily from Ford's responses to CDP Climate Change Questionnaires and from the company's annual reports, sustainability reports and corporate website. Some sales data was sourced from MarkLines, and information from RepRisk was used to inform the narrative score of the assessment. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Fleet emissions data for the US and Europe came from company sustainability reports, and fleet emissions for China came from the Chinese Ministry of Industry and Information Technology's fuel consumption data. A weighted average of Ford's sales

fleet figures was used for regions where neither company data nor regulatory fleet emissions data were available. Ford engaged in the assessment's data validation process, and information pertaining to stress testing and the climate leadership council was reviewed and incorporated.

#### **10 – Honda Motor Company**

Data for the performance score of the assessment was sourced primarily from Honda's responses to CDP Climate Change Questionnaires and from its annual reports, sustainability reports and corporate website. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles, sales data from MarkLines and regulatory data from the Environmental Protection Agency (US), the European Environment Agency (Europe), the Ministry of Industry and Information Technology (China), and the Ministry of Land, Infrastructure, Transport and Tourism (Japan). Information from RepRisk was used to inform the narrative score of the assessment. It was not clear what proportion of the company's mitigation research and development expenditure from the reporting year was related to non-mature technologies. There was also little detail available regarding the profitability, growth potential and deployment schedules for business model activities not directly related to passenger vehicle manufacturing.

#### **11 – General Motors Company**

Data for the performance assessment was sourced primarily from General Motors' responses to CDP Climate Change Questionnaires and from the company's annual reports, sustainability reports and corporate website. Some sales data was sourced from MarkLines, and information from RepRisk was used to inform the narrative assessment. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Fleet emissions data came from the Environmental Protection Agency (US), the European Environment Agency's emissions performance data set (Europe), and the Ministry of Industry and Information Technology (China). A weighted average of General Motors' sales fleet figures was used for regions where neither company data nor regulatory fleet emissions data were available. General Motors did not engage during the assessment's data validation process.

#### **12 – Tesla Motors, Inc.**

Data used to carry out this assessment came from Tesla's 10-K Form, its Impact Report and its corporate website. Marklines sales data was also used. RepRisk data was used to inform the narrative score of the assessment. Tesla did not engage in the assessment's data validation process, and its overall performance was impeded due to a lack of transparency.

#### **13 – BAIC Motor Corporation Ltd**

Data used to complete this assessment came from BAIC's annual reports, corporate social responsibility reports and its 2017 Environmental and Social Governance report. Fleet emissions data and internal combustion engine vehicle efficiency data came from the Chinese Ministry of Industry and Information Technology. MarkLines data was used for vehicle sales covering the 2012 to 2017 period.

One reason BAIC outperforms its regional peers is because data on its research and development expenditure into the Optimus initiative was available to compare to Capex. BAIC therefore received full points for intangible investment in the performance assessment.

#### **14 – Chongqing Changan Automobile Company Ltd.**

Data used to complete this assessment came from the Changan's annual reports and corporate social responsibility reports. Fleet emissions data and internal combustion engine vehicle efficiency data came from the Chinese Ministry of Industry and Information Technology. MarkLines data was used for vehicle sales covering the 2012 to 2017 period.

#### **15 – Geely Automobile Holdings Limited**

Data used to complete this assessment came from the Geely's annual reports and corporate social responsibility reports. Fleet emissions data came from the Environmental Protection Agency (US), the European Environment Agency's emissions performance data set (EU), the Ministry of Industry and Information Technology's fuel consumption data (China), and the Ministry of Land, Infrastructure, Transport and Tourism (Japan). A weighted average of Geely's sales fleet figures was used for regions where neither company data nor regulatory fleet emissions data were available. A sales weighted fleet average was used for regions where company's own or regulatory fleet emissions data was not available. MarkLines data was used for vehicle sales covering the 2012 to 2017 period. RepRisk data was used for the narrative score of the assessment.

#### **16 – Tata Motors**

Data for the performance assessment was sourced primarily from the Tata Motors' responses to CDP Climate Change Questionnaires and from the company's annual reports, sustainability reports and corporate website. Some sales data was sourced from MarkLines, and information from RepRisk was used to inform the narrative assessment. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Fleet emissions data for the USA came from the United States Environmental Protection Agency, fleet emissions data for Europe came from the European Environment Agency, fleet emissions data for China came from the Chinese Ministry of Industry and Information Technology and fleet emissions data for Japan came from the Japanese Ministry of Land, Infrastructure, Transport and Tourism. A weighted average of Tata Motors' sales fleet figures was used for regions where neither company data nor regulatory fleet emissions data were available. The company did not engage during the assessment's data validation process.

#### **17 – FAW Car Company Limited**

Data used to complete this assessment came from the FAW's annual reports and corporate social responsibility reports. Fleet emissions data and internal combustion engine vehicle efficiency data came from the Chinese Ministry of Industry and Information Technology. MarkLines data was used for vehicle sales covering the 2012 to 2017 period.

#### **18 – Fiat Chrysler Automobiles NV**

Data for the performance scores was sourced primarily from FCA's responses to CDP Climate Change Questionnaires and from its annual reports, sustainability reports and corporate website. Regulatory data from the Environmental Protection Agency (US), the Ministry of Industry and Information Technology (China), the European Environment Agency (EU) and the Ministry of Land, Infrastructure, Transport and Tourism (Japan) were also applied together with production data from the International Organization of Motor Vehicle Manufacturers and sales figures from MarkLines. Additional information from RepRisk was used to inform the narrative score of the assessment. The assessment was hampered by the lack of documentation bringing together low-carbon transition planning, use of scenario analysis and climate related stress testing in a unified manner. There was

also little detail available on the profitability or growth potential for business model activities not directly related to the manufacturing of personal vehicles.

### **19 – Mitsubishi Motors Corporation**

Data used to complete this assessment came from responses to the CDP Climate Change Questionnaires, the Mitsubishi's annual reports and corporate social responsibility reports. Fleet emissions data came from the Environmental Protection Agency (US), the European Environment Agency emissions performance data set (Europe), the Ministry of Industry and Information Technology (China), and the Ministry of Land, Infrastructure, Transport and Tourism (Japan). A weighted average of Mitsubishi's sales fleet figures was used for regions where neither company data nor regulatory fleet emissions data were available. MarkLines data was used for vehicle sales covering the period from 2012 to 2017. RepRisk data was used in the narrative assessment. Mitsubishi did not engage in the assessment's data validation process.

### **20 – Hyundai Motor Co**

Data for the performance score of the assessment was sourced primarily from Hyundai's responses to CDP Climate Change Questionnaires and from the company's annual reports, sustainability reports and corporate website. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Fleet emissions data came from the Ministry of Industry and Information Technology (China), the European Environment Agency (Europe) and the Environmental Protection Agency (US). A weighted average of Hyundai's sales fleet figures was used for regions where neither company data nor regulatory fleet emissions data were available. Hyundai did not engage in the assessment's data validation process.

### **21 – Guangzhou Automobile Group Co. Ltd**

Data used to complete this assessment came from GAC's annual reports and corporate social responsibility reports. Fleet emissions data and internal combustion engine vehicle efficiency data came from the Chinese Ministry of Industry and Information Technology. MarkLines data was used for vehicle sales covering the 2012 to 2017 period.

### **22 – Subaru Corporation**

Information for the assessment was sourced from Subaru's responses to CDP Climate Change Questionnaires and from Subaru's annual reports and corporate website. Some sales data was sourced from MarkLines. RepRisk was used to inform some of the narrative assessment. Production data was sourced from Organisation Internationale des Constructeurs d'Automobiles. Regulatory data was used from the Environmental Protection Agency (US), European Environment Agency (Europe), Ministry of Industry and Information Technology (China), and Ministry of Land, Infrastructure, Transport and Tourism (Japan). A sales weighted fleet average was used for regions where neither company data nor regulatory fleet emissions data were available. Subaru's rating was affected by limited data availability. There was not any publicly available information concerning the proportion of the company's research and development into electrification and advanced low-carbon technologies. Moreover, Subaru did not provide any feedback during the assessment's validation process.

### **22 – Suzuki Motor Corporation**

Data for the assessment was sourced from Suzuki's responses to CDP Climate Change Questionnaires, from the company's Annual Reports, CSR and Environmental Report, and from its

corporate website. Production data was sourced from International Organization of Motor Vehicle Manufacturers, sales data from MarkLines and some regulatory data from the Japanese Ministry of Land, Infrastructure, Transport and Tourism. Lack of detail on mitigation research and development spending and on business activities outside personal vehicle ownership influenced the scoring of some indicators. Suzuki provided feedback on the data collected and this feedback was taken into consideration.

#### **24 – SAIC Motor Corporation Limited**

Data used to complete this assessment came from SAIC's annual reports and corporate social responsibility reports. Data on its fleet emissions and the fuel efficiency of its internal combustion engine vehicles was provided by the Ministry of Industry and Information Technology (China). MarkLines data was used for vehicle sales covering the 2012 to 2017 period.

#### **25 – Dongfeng Automobile Co., Ltd**

Data used to complete the ACT assessment came from the Dongfeng's annual reports and corporate social responsibility reports. Fleet emissions data and internal combustion engine vehicle efficiency data came from the Chinese Ministry of Industry and Information Technology. MarkLines data was used for vehicle sales covering the 2012 to 2017 period.