



Climate Positive

ClimatePositive is a brand owned by SCB.

Basis of Preparation

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CO2 Emissions Abatement Calculation for Passenger Cars

Introduction

PricewaterhouseCoopers AG (PwC) has been engaged to provide limited assurance on ClimatePositive's CO2 emissions abatement calculation for passenger cars procedures. ClimatePositive is a brand created by SCB Brokers SA (SCB), headquartered at Avenue Perdtemps 23, 1260 Nyon, Switzerland. The methodology summarized below is intended to ensure that SCB's procedures are carried out in a systematic manner, using data whose sources are documented, and all practices are recorded and consistent. This Basis of Preparation document sets out how the quantification procedures have been prepared and reported.

Data Sources

With operations throughout the world, SCB felt it was most appropriate to utilize data from official government agencies located in the company's largest geographical areas of enterprise, the United States and Europe, as the framework of SCB's CO2 emissions abatement calculation for passenger cars via the brand ClimatePositive.

All transactions outside Europe shall follow the average emissions of passenger car as published by United States Environmental Protection Agency (EPA) and U.S. Department of Transportation (DOT). The EPA documents the typical emissions from a passenger vehicle, which can vary based on a vehicle's fuel, fuel economy, and the number of miles driven per year¹.

Data Preparation

A. Extraction of the number of cars to be abated

The scope includes all passenger cars for which SCB, via ClimatePositive has helped to abate the carbon emissions during the calendar years from 2021 onwards.

B. The number of calendar years to be abated

The scope includes all the calendar years that the users have opted to abate their carbon emissions.

If the user has opted to abate only after the commencement of the calendar year, the abatement will be pro-rated respectively.

Example of pro-rated abatement

If the user has selected to abate between 1 July 2021 to 31 December 2021, the calendar year is calculated as 0.5.

¹United States Environmental Protection Agency, Greenhouse Gas Emissions from a Typical Passenger Vehicle, <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=typical%20passenger%20vehicle%3F-,A%20typical%20passenger%20vehicle%20emits%20about%204.6%20metric%20tons%20of,8%2C887%20grams%20of%20CO2.>

If the user has opted to abate for multiple calendar years, the abatement will be multiplied respectively.

Example of multiple years of abatement

If the user has selected to abate 4 calendar years between 1 January 2021 to 31 December 2024, the calendar years is calculated as 4.

C. Determining the CO2 emitted from an average passenger car

In determining the GHG emissions, SCB for ClimatePositive analysed approximately 800 different car models and their emissions as published by Which? UK Consumer Champion NGO². Their emissions vary based on their engine type as below:

- Electric cars produce lower emissions of up to 160 g CO₂ per kilometre driven.
- Regular cars with fuel or hybrid engines produce higher emissions of up to 372 g CO₂ per kilometre driven.

D. Determining the average annual mileage

In determining the average annual mileage, SCB for ClimatePositive utilized the average miles travelled by vehicle type in United States (U.S.) as published by DOT³, along with the average miles travelled by passenger car in the European Union (E.U.) as published by Ecological Transition Agency (ADEME) below⁴:

- Average passenger car mileage in U.S. of 11,599 miles (18,667 km).
- Average passenger car mileage in E.U. of 11,313 km.
- All average passenger car mileages inside Europe shall follow the average passenger car mileage as published by the European Union ('Europe' includes the E.U., Switzerland, Lichtenstein, United Kingdom, Iceland and Norway).
- All average passenger car mileages outside of U.S., E.U. and Europe shall follow the average passenger car mileage as published by DOT. These numbers are conservative, which help ensure full abatement of these passenger cars.

E. Margin of the tolerance

In determining the margin of tolerance where the calculated abatement standard may be exceeded to account for deviations from the actual sample, SCB for ClimatePositive utilized the margin of an additional 25% for each calculated CO₂ emissions.

- For electric cars, an additional 25% tolerance margin amounts to an abatement standard of 200 g CO₂ per kilometre driven.
- For regular cars, an additional 25% tolerance margin amounts to an abatement standard of 465 g CO₂ per kilometre driven.

²Which? UK Consumer Champion NGO, Car CO₂ Emissions, <https://www.which.co.uk/reviews/new-and-used-cars/article/car-emissions/car-co2-emissions-aRVNW9t0zLu6>

³U.S. Department of Transportation, Highway Statistics Series, [Table VM-1 - Highway Statistics 2020 - Policy | Federal Highway Administration \(dot.gov\)](https://www.fhwa.dot.gov/histats/2020/policy/2020-vm-1-highway-statistics-2020-policy-federal-highway-administration-dot.gov)

⁴Odyssee-Mure project is co-ordinated by Ecological Transition Agency, Change in Distance Travelled by Cars, <https://www.odyssee-mure.eu/publications/efficiency-by-sector/transport/distance-travelled-by-car.html>

F. Determining the CO₂ conversion factors for different measurement units

As average mileage above is calculated on a "per mile" basis, the factors were further converted into a "kilometer" basis using the conversion published by University of Wyoming as below⁵:

- 1 mile = 1.61 kilometers

G. Total offsets needed to abate the CO₂ emitted from an average passenger car (A x B x C x D x E or A x B x C x D x E x F)

Lastly, the total metric tons of CO₂ emissions needed to be abated is calculated. The abated emissions of those passenger cars that would have occurred had SCB, via ClimatePositive not assisted in offsetting their emissions. This figure is determined by multiplying the total number of passenger cars abated during the period by the CO₂ abated per passenger car, and by annual mileage, as adjusted for margin of tolerance as well as different measurement units.

Example of abatement of an average electric car in Europe in 1 calendar year

- C. Electric cars produce emissions of up to 160 gCO₂ per kilometer driven.
- D. Average passenger car mileage in E.U. of 11,313 km.
- E. Additional 25% tolerance margin is applied.
- F. N/A
- G. (C) 160 x (D) 11,313 x (E) 1 + 25% = 2.26 metric tons of CO₂ emissions needed to be abated per car.

Example of abatement of an average regular car in Europe in 1 calendar year

- C. Regular cars produce emissions of up to 372 gCO₂ per kilometer driven.
- D. Average passenger car mileage in E.U. of 11,313 km.
- E. Additional 25% tolerance margin is applied.
- F. N/A
- G. (C) 372 x (D) 11,313 x (E) 1 + 25% = 5.26 metric tons of CO₂ emissions needed to be abated per car.

Example of abatement of an average electric car in the Rest of the World in 1 calendar year

- C. Electric cars produce emissions of up to 160 g CO₂ per kilometer driven.
- D. Average passenger car mileage in U.S. of 11,599 miles.
- E. Additional 25% tolerance margin is applied.
- F. 1 mile = 1.61 kilometers.
- G. (C) 160 x (D) 11,599 x (E) 1 + 25% x (F) 1.61 = 3.73 metric tons of CO₂ emissions needed to be abated per car.

⁵University of Wyoming, Step Conversions,
https://www.uwyo.edu/wintherockies_edur/win%20steps/coordinator%20info/step%20conversions.pdf

Example of abatement of an average regular car in the Rest of the World in 1 calendar year

- C. Regular cars produce emissions of up to 372g CO₂ per kilometer driven.
- D. Average passenger car mileage in U.S. of 11,599 miles.
- E. Additional 25% tolerance margin is applied.
- F. 1 mile = 1.61 kilometers.
- G. (C) 372 x (D) 11,599 x (E) 1 + 25% x (F) 1.61 = 8.68 metric tons of CO₂ emissions needed to be abated per car.

Carbon Offsets Schemes

The total offsets needed to abate these emissions are then purchased from various carbon offset schemes that allow individuals and companies to invest in environmental projects around the world to balance out their carbon footprints. These projects reduce carbon emissions, and every metric ton of carbon emissions reduced from such projects translates into the creation of one carbon offset. Examples of these environmental projects include rolling out clean energy technologies, planting of trees, capturing methane gas at landfill sites and distributing efficient cooking stoves.

SCB, via ClimatePositive only funds registered verified projects that are aligned with or contribute to United Nations Sustainable Development Goals⁶. For ClimatePositive, SCB has chosen these schemes with the most stringent requirements.

These goals, particularly Goal 13 on Climate Action, contribute to meeting commitments under the 2030 Agenda for Sustainable Development⁷ that was adopted by all United Nations Member States in 2015.

Also, for ClimatePositive, SCB only funds registered verified projects that meet the requirements of additionality, permanence, and an ensured avoidance of double counting.

Additionality: Carbon offsets must generate units that represent emissions reductions, avoidance, or removals that are on top of any reduction or removal required by law, regulation, or legally binding mandate.

Permanence: Carbon offsets must represent emissions reductions, avoidance, or carbon sequestration that are permanent.

Avoidance of double counting: Measures must be in place to avoid double issuance, double use, and double claiming.

⁶United Nations, The 17 Goals, <https://sdgs.un.org/goals>

⁷United Nations, Transforming Our World: The 2030 Agenda for Sustainable Development, <https://sustainabledevelopment.un.org/post2015/transformingourworld>

Below is a table outlining the basic information of each program that meets all these requirements:

Program	Registry	Scope of Eligibility
American Carbon Registry ⁸	ACR	ACR Emission Reduction Tons excluding California Registry Offset Credits & California Early Action Offset Credits
China GHG Voluntary Emission Reduction Program ⁹	GHGVERP	China Certified Emissions Reductions excluding Afforestation and Reforestation, CCUS, N2O from plants, Ag Ops, Fertilizers, Semiconductors, HFC refrigerants, SF6 insulating gas, HCFC22
Clean Development Mechanism ¹⁰	CDM	Certified Emissions Reductions excluding Afforestation and Reforestation
Climate Action Reserve ¹¹	CAR	Climate Reserve Tons excluding activities not reporting sustainable development contributions or co-benefits, Forecast Mitigation Units, California Registry Offset Credits & California Early Action Offset Credits
The Gold Standard ¹²	GSF	Verified Emission Reductions excluding Planned Emission Reductions, micro scale activities without validation and verification
Verified Carbon Standard ¹³	Verra	Verified Carbon Units excluding those issued from Scenario 1, 2, or 3 of REDD+, activities without reported sustainable development contribution or co-benefits, California Registry Offset Credits & California Early Action Offset Credits

When these carbon offsets are purchased, they are permanently retired by SCB for ClimatePositive. Retiring a carbon offset means that it is taken off the market forever and can never be reused again. For transparency, each carbon offset has its own assigned serial number, and can be tracked on publicly accessible emission registries^{14,15}.

Via ClimatePositive, SCB commits to contributing to lasting benefits to the climate.

⁸American Carbon Registry, How It Works, <https://americancarbonregistry.org/how-it-works/what-we-do>

⁹International Civil Aviation Organization, China GHG Voluntary Emission Reduction Program, <https://starcb.com/wp-content/uploads/2022/10/8-International-Civil-Aviation-Organization-China-GHG-Voluntary-Emission-Reduction-Program.pdf>

¹⁰Clean Development Mechanism, What is the CDM, <https://cdm.unfccc.int/about/index.html>

¹¹Climate Action Reserve, Program, <https://www.climateactionreserve.org/how/program/>

¹²Gold Standard Foundation, Certify a Project, <https://www.goldstandard.org/take-action/certify-project>

¹³Verra Organization, The VCS Program, <https://verra.org/project/vcs-program/>

¹⁴Gold Standard Registry, Issuance and Retirements of Carbon Offsets, <https://registry.goldstandard.org/projects?q=&page=1>

¹⁵Verified Carbon Standard Registry, Issuance and Retirements of Carbon Offsets, <https://registry.verra.org/app/search/VCS>

Offsets Retired for Passenger Cars in 2021

For the 2021 calendar year, SCB has retired on behalf of ClimatePositive passenger car clients a total of 1,221 metric tons of carbon offsets. Through these retirements, SCB for ClimatePositive retired offsets from three different carbon reduction projects all registered under the Verra and Gold Standards.

A. Projects funded during 2021

- Project VCS 981 - Pacajai Reforestation Project, preventing unplanned deforestation in the Amazon Rainforest;¹⁶
- Project VCS 758 - Saraçbendi Run-of-River Hydro Project, providing renewable electricity to the local population;¹⁷
- Project GS 2460 - CDQ China Project, generates electricity by recovering the waste heat generated in coke production¹⁸

B. Retired volumes from projects during 2021

- 1,057 metric tons retired from Project VCS 981¹⁶
- 26 metric tons retired from Project VCS 758¹⁷
- 138 metric tons retired from Project GS 2460¹⁸

The Sale of the ClimatePositive Car Badge

For the 2021 calendar year, SCB sold a total of 158 ClimatePositive car badges to individual passenger car clients.

A. Number of conventional car badges sold in Europe

- 132 conventional car badges were sold in Europe

B. Number of electric car badges sold in Europe

- 8 electric cars badges were sold in Europe

C. Number of conventional car badges sold in the Rest of the World

- 18 conventional car badges were sold in the Rest of the World

¹⁶Verra Standard Registry, VCS 981: <https://registry.verra.org/app/projectDetail/VCS/981>

¹⁷Verra Standard Registry, VCS 758: <https://registry.verra.org/app/projectDetail/VCS/758>

¹⁸Gold Standard Registry, GS 2460: <https://registry.goldstandard.org/projects/details/366>

CO2 Emissions Abatement Calculation for Pet Cats & Dogs

Data Sources

SCB has utilized data from recent pet science books as the framework of the ClimatePositive CO2 emissions abatement calculation for pet cats and dogs.

All transactions shall follow the average emissions of pet cats and dogs as published in "How Bad are Bananas?"¹⁹ and "Bioscience, Volume 69"²⁰. Both books document the typical emissions from pet cats and dogs, which can vary based on the pet's weight, food consumption and expenses, excluding veterinary costs.

Data Preparation

A. Extraction of the number of pet cats & dogs to be abated

The scope includes pet cats and dogs that SCB, via ClimatePositive has helped to abate their carbon emissions during the calendar years from 2022 onwards.

B. The number of calendar years to be abated

The scope includes all the calendar years that the users have opted to abate their carbon emissions. If the user has opted to abate for multiple calendar years, the abatement will be multiplied respectively.

Example of multiple years of abatement

If the user has selected to abate 4 calendar years between 1 January 2021 to 31 December 2024, the calendar years is calculated as 4.

C. Determining the CO2 emitted from pet cats and dogs

In determining the Ecological Pawprint (EPP) of pet cats and dogs, SCB for ClimatePositive analysed their Ecological Footprint (EF), a calculation tool used to measure environmental impact. Their emissions vary based on their weight, nature and pet food consumption annually as below:

- An average-sized cat produces the lowest emissions up to 310 kg¹⁹ of CO2 (<6kg)²⁰
- An average-sized dog produces more emissions of up to 770kg¹⁹ of CO2 (<20kg)²⁰
- A large-sized dog produces the highest emissions of up to 2500kg¹⁹ of CO2 (>20kg)²⁰

D. Determining the CO2 emitted from pet large-sized cat

In determining the large-sized cat emissions, SCB for ClimatePositive utilized the average-sized weight of a cat as published in Bioscience and doubled its emissions:

- An average-sized cat produces the lowest emissions up to 310 kg¹⁹ of CO2 (<6kg)²⁰
- A large-sized cat produces twice the emissions of an average-sized cat, up to 620kg¹⁹ of CO2 (>6kg)²⁰

¹⁹Berners-Lee, M., 2010. How Bad are Bananas? 1st ed. London: Profile Books, Page 110

²⁰Martens, P., Su, B., Deblomme, S. Bioscience, Volume 69, Issue 6, June 2019, Pages 467-474

E. Margin of tolerance

In determining the margin of tolerance where the calculated abatement standard may be exceeded to account for deviations from the actual sample, SCB for ClimatePositive utilized the margin of an additional 25% for each calculated CO₂ emissions.

- For average-sized cats, an additional 25% tolerance margin amounts to an abatement standard of 388 kg of CO₂ per year
- For average-sized dogs, an additional 25% tolerance margin amounts to an abatement standard of 963 kg of CO₂ per year
- For large-sized cats, an additional 25% tolerance margin amounts to an abatement standard of 775 kg of CO₂ per year
- For large-sized dogs, an additional 25% tolerance margin amounts to an abatement standard of 3,125 kg of CO₂ per year

F. Determining the CO₂ conversion factors for different measurement units

As average pet emissions above are calculated on a "per kilogram" basis, the factors were further converted into a "tons" basis using the conversion published by Bureau International des Poids et Mesures²¹ as below:

- 1 ton = 1,000 kilograms²¹

G. Total offsets needed to abate the CO₂ emitted from average and large pets (A x B x C x D x E or A x B x C x D x E x F)

Lastly, the total metric tons of CO₂ emissions needed to be abated is calculated. The abated emissions of those pets that would have occurred had SCB via ClimatePositive not assisted in offsetting their emissions. This figure is determined by the sum of CO₂ emissions and the tolerance margin, divided by the different measurement units. For the large-sized cat, the figure is determined by the CO₂ emissions of an average-sized cat multiplied by two, plus the tolerance margin, divided by the different measurement units.

Example of abatement of an average-sized cat in 1 calendar year

- C. An average-sized cat produces emissions of up to 310 kg of CO₂ (<6kg).
- D. N/A.
- E. Additional 25% tolerance margin is applied.
- F. 1,000 kilograms = 1 ton
- G. (C) 310 + (E) 25% / (F) 1,000 = 0.3875 metric tons of CO₂ emissions needed to be abated per average-sized cat

²¹Bureau International des Poids et Mesures. 2019, page 143, <https://www.bipm.org/documents/20126/41483022/SI-Brochure-9-EN.pdf/2d2b50bf-f2b4-9661-f402-5f9d66e4b507>

Example of abatement of an average-sized dog in 1 calendar year

- C. An average-sized dog produces emissions of up to 770 kg of CO₂ (<20kg).
- D. N/A.
- E. Additional 25% tolerance margin is applied.
- F. 1,000 kilograms = 1 ton
- G. $(C) 770 + (E) 25\% / (F) 1,000 = 0.9625$ metric tons of CO₂ emissions needed to be abated per average-sized dog

Example of abatement of a large-sized cat in calendar year

- C. An average-sized cat produces emissions of up to 310 kg of CO₂ (<6kg)
- D. A large-sized cat produces twice as much emissions as an average-sized cat = 620 kg of CO₂ (>6kg)
- E. Additional 25% tolerance margin is applied.
- F. 1,000 kilograms = 1 ton
- G. $(C) 310 \times (D) 2 + (E) 25\% / (F) 1000 = 0.775$ metric tons of CO₂ emissions needed to be abated per large-sized cat

Example of abatement of a large-sized dog in 1 calendar year

- C. A large-sized dog produces emissions of up to 2,500 kg of CO₂ (>20kg).
- D. N/A.
- E. Additional 25% tolerance margin is applied.
- F. 1000 kilograms = 1 ton.
- G. $(C) 2500 + (E) 25\% / (F) 1000 = 3.125$ metric tons of CO₂ emissions needed to be abated per large-sized dog

Carbon Offsets Schemes (not yet in scope of PwC's current limited assurance scope, as the underlying data will only be available at the end of the financial year 2022)

The total offsets needed to abate these emissions are then purchased from various carbon offset schemes that allow individuals and companies to invest in environmental projects around the world to balance out their carbon footprints. These projects reduce carbon emissions, and every metric ton of carbon emissions reduced from such projects translates into the creation of one carbon offset. Examples of these environmental projects include rolling out clean energy technologies, planting of trees, capturing methane gas at landfill sites and distributing efficient cooking stoves.

SCB, via ClimatePositive only funds registered verified projects that are aligned with or contribute to the United Nations Sustainable Development Goals²². SCB has chosen these schemes for ClimatePositive with the most stringent requirements.

These goals particularly Goal 13 on Climate Action, contribute to meeting commitments under the 2030 Agenda for Sustainable Development²³ that were adopted by all United Nations Member States in 2015.

Also, SCB only funds for ClimatePositive registered verified projects that meet the requirements of additionality, permanence, and an ensured avoidance of double counting.

²²United Nations, The 17 Goals, <https://sdgs.un.org/goals>

²³United Nations, Transforming Our World: The 2030 Agenda for Sustainable Development, <https://sustainabledevelopment.un.org/post2015/transformingourworld>

Additionality: Carbon offsets must generate units that represent emissions reductions, avoidance, or removals that are on top of any reduction or removals required by law, regulation, or legally binding mandate.

Permanence: Carbon offset must represent emissions reductions, avoidance, or carbon sequestration that are permanent.

Avoidance of double counting: Measures must be in place to avoid double issuance, double use, and double claiming.

Below is a table outlining the basic information of each program that meets all these requirements:

Program	Registry	Scope of Eligibility
American Carbon Registry ²⁴	ACR	ACR Emission Reduction Tons excluding California Registry Offset Credits & California Early Action Offset Credits
China GHG Voluntary Emission Reduction Program ²⁵	GHGVERP	China Certified Emissions Reductions excluding Afforestation and Reforestation, CCUS, N2O from plants, Ag Ops, Fertilizers, Semiconductors, HFC refrigerants, SF6 insulating gas, HCFC22
Clean Development Mechanism ²⁶	CDM	Certified Emissions Reductions excluding Afforestation and Reforestation
Climate Action Reserve ²⁷	CAR	Climate Reserve Tons excluding activities not reporting sustainable development contributions or co-benefits, Forecast Mitigation Units, California Registry Offset Credits & California Early Action Offset Credits
The Gold Standard ²⁸	GSF	Verified Emission Reductions excluding Planned Emission Reductions, micro scale activities without validation and verification
Verified Carbon Standard ²⁹	Verra	Verified Carbon Units excluding those issued from Scenario 1, 2, or 3 of REDD+, activities without reported sustainable development contribution or co-benefits, California Registry Offset Credits & California Early Action Offset Credits

When these carbon offsets are purchased, they are permanently retired by SCB on behalf of ClimatePositive. Retiring a carbon offset means that it is taken off the market forever and can never be reused again. For transparency, each carbon offset has its own assigned serial number, and can be tracked on publicly accessible emission registries^{30,31}.

Via ClimatePositive, SCB commits to contributing lasting benefits to the climate.

²⁴American Carbon Registry, How It Works, <https://americancarbonregistry.org/how-it-works/what-we-do>

²⁵International Civil Aviation Organization, China GHG Voluntary Emission Reduction Program, <https://starcb.com/wp-content/uploads/2022/10/8-International-Civil-Aviation-Organization-China-GHG-Voluntary-Emission-Reduction-Program.pdf>

²⁶Clean Development Mechanism, What is the CDM, <https://cdm.unfccc.int/about/index.html>

²⁷Climate Action Reserve, Program, <https://www.climateactionreserve.org/how/program/>

²⁸Gold Standard Foundation, Certify a Project, <https://www.goldstandard.org/take-action/certify-project>

²⁹Verra Organization, The VCS Program, <https://verra.org/project/vcs-program/>

³⁰Gold Standard Registry, Issuance and Retirements of Carbon Offsets, <https://registry.goldstandard.org/projects?q=&page=1>

³¹Verified Carbon Standard Registry, Issuance and Retirements of Carbon Offsets, <https://registry.verra.org/app/search/VCS>

CO2 Emissions Abatement Calculation for Individuals & Employees

Data Sources

With operations throughout the world, SCB felt it was most appropriate to utilize data from official carbon reporting agencies around the globe, as the framework of CO2 emissions abatement calculation for individuals and employees via ClimatePositive.

All transactions shall follow the average CO2e emissions of individuals and employees on a per capita basis as published by Our World in Data³², an average mileage as written in our Basis of Preparation for Passenger Cars, as well as an average flight mileage as published in Our World in Data³³, Government UK³⁴, Eurocontrol³⁵. Each individual or employee will have their footprint compensated, calculated on the average emissions per capita, car mileage and flight mileage, adjusted for trade and geographical region.

Data Preparation

A. Extraction of the number of individuals and employees to be abated

The scope includes individuals and employees that SCB's ClimatePositive has helped to abate their carbon emissions during the calendar years from 2022 onwards.

B. The number of calendar years to be abated

The scope includes all the calendar years that the users have opted to abate their carbon emissions. If the user has opted to abate for multiple calendar years, the abatement will be multiplied, respectively.

Example of multiple years of abatement

If the user has selected to abate 4 calendar years between 1 January 2021 to 31 December 2024, the calendar years is calculated as 4.

C. Determining the CO2 emitted per capita basis

In determining the carbon footprint of small-emitting individuals and employees, SCB for ClimatePositive analysed consumption-based emissions for individuals on a per capita basis separated into geographical locations taken from Our World in Data³⁶. Annual consumption-based emissions of carbon dioxide (CO2) are measured in tons per person. Consumption-based emissions are national or regional emissions which have been adjusted for trade (i.e. territorial/production emissions minus emissions embedded in exports, plus emissions embedded in imports). SCB separated them into six geographical locations for ClimatePositive:

³²Our World in Data. Annual Consumption-based CO2 emissions per capita. 2020.

<https://ourworldindata.org/grapher/consumption-co2-per-capita?tab=table&time=2019..latest&country=GBR-USA-AUS-DEU>

³³Our World in Data. Annual Consumption-based CO2 emissions per capita. 2019. <https://ourworldindata.org/grapher/air-trips-per-capita?tab=table>

³⁴Government UK, Department for Business, Energy and Industrial Strategy, 2020:

<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019>

³⁵Eurocontrol. January 2011. p. 21. Archived (PDF) <https://starcb.com/wp-content/uploads/2022/10/Eurocontrol-Study-into-the-impact-of-the-gloabl-economic-crisis-on-airframe-utilifisation.pdf>

³⁶American Airlines. Archived from the original on 2018-11-12. <https://starcb.com/wp-content/uploads/2022/10/Your-travel-just-got-more-rewarding-American-Airlines.pdf>

- An individual produces on average 7.82 tons of CO₂ in Europe³⁷
- An individual produces on average 15.38 tons of CO₂ in Canada³⁷
- An individual produces on average 3.57 tons of CO₂ in Mexico³⁷
- An individual produces on average 2.67 tons of CO₂ in South America³⁷
- An individual produces on average 17.1 tons of CO₂ in United States³⁷
- An individual produces on average 14.9 tons of CO₂ in Australia³⁷

D. Determining the average annual car mileage and consumption

In determining the GHG emissions of an individual for ClimatePositive, SCB analyzed the above consumption-based emissions which include annual average car mileage. However, for a medium and large emitting individual, ClimatePositive added car mileage to ensure all emissions have been accounted for and based its figures on its passenger car methodology for a conventional car in Europe (see page 8). Instead of using the entire 11.313 km, SCB used 2/3 of 11.313 km and multiplied it by 372 gCO₂ / km.

- Average passenger car mileage represents 2/3 of 11.313 km which equates to 7.542 km which we rounded up to 8000 km
- Average car mileage and consumption equals 8,000 * 372 = 2.9 tons

E. Determining the CO₂ emitted from average passenger flight

In determining the GHG emissions of an individual for ClimatePositive, SCB analyzed the above consumption-based emissions which include annual average flight kilometers. However, for a medium and large emitting individual to be considered ClimatePositive, SCB added flight kilometers to ensure all emissions have been accounted for and based its figures on the UK Government Conversion Factors for greenhouse gas (GHG) reporting³⁸.

- The average CO₂e consumption of an average passenger flying internationally, to/from non-UK flight represents 0.18078 kg CO₂e/ km

F. Determining the average annual flight lengths

Route category lengths tend to define short-haul routes as being shorter than 1,500 km³⁹, long-haul as being longer than 4,000 km³⁹, and medium-haul as being in-between. These numbers shall remain conservative to help ensure a fair abatement of passenger flight.

- Average short-haul flight worldwide is 1,500 km
- Average long-haul flight worldwide is 4,000 km

A medium emitting individual will benefit from 1 long-haul flight abatement which represents 4,000 km.

A medium & large emitting employee will benefit from 1 long-haul flight and 2 short-haul flights abatement which represent 7,000 km.

³⁷Our World in Data. Annual Consumption-based CO₂ emissions per capita. 2020.

<https://ourworldindata.org/grapher/consumption-co2-per-capita?tab=table&time=2019..latest&country=GBR-USA-AUS-DEU>

³⁸Government UK, Department for Business, Energy and Industrial Strategy, 2020:

<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019>

³⁹Eurocontrol. January 2011. p. 21. Archived PDF. <https://starcb.com/wp-content/uploads/2022/10/Eurocontrol-Study-into-the-impact-of-the-global-economic-crisis-on-airframe-utilisation.pdf>

G. Extraction of the number of flights to be abated

SCB based its ClimatePositive calculations on data from Our World in Data (2019) for average number of flights per capita representing 1.3 flights per person⁴⁰.

H. Margin of tolerance

In determining the margin of tolerance where the ClimatePositive calculated abatement standard may be exceeded to account for deviations from the actual sample, SCB utilized the margin of an additional 25% for each calculated CO₂ emissions.

I. Footprint conversion for a large-emitting individual

In determining the margin of tolerance for a large-emitting individual, ClimatePositive utilized the margin of an additional 50% on top of a medium-emitting individual figure.

J. Total offsets needed to abate the CO₂ emitted for an individual (A x B x C x D x E or A x B x C x D x E x F x G x I x J)

Lastly, the total metric tons of CO₂ emissions needed to be abated is calculated. The abated emissions of those individuals that would have occurred had SCB's ClimatePositive not assisted in offsetting their emissions.

Example of abatement of a small-emitting individual in Europe in 1 calendar year

This figure is determined by the sum of CO₂ emissions in Europe and the 25% tolerance margin.

- C. A European individual produces on average 7.82 metric tons of CO₂.
- D. N/A.
- E. N/A.
- F. N/A.
- G. N/A.
- H. Additional 25% tolerance margin is applied.
- I. N/A
- J. (C) 7.82* + (H) 25% = 9.78 metric tons of CO₂ emissions needed to be abated per small-emitting individual in Europe

⁴⁰Our World in Data. Annual Consumption-based CO₂ emissions per capita. 2019. <https://ourworldindata.org/grapher/air-trips-per-capita?tab=table>

Example of abatement of a medium-emitting individual in Europe in 1 calendar year

This figure is determined by summing the CO₂ consumptions-based emissions, the determined car CO₂ emissions and flight emissions for a medium-emitting individual.

- C. A European individual produces on average 7.82 metric tons of CO₂.
- D. A regular car produces emissions of up to 372 gCO₂ per kilometer driven based on the average passenger car mileage covered of 8,000 km.
- E. The CO₂ emitted from average passenger flight is 0.18078 kg CO₂e.
- F. One long-haul flight mileage represents 4,000 km.
- G. Average number of flight per capita of 1.3 flight.
- H. Additional 25% tolerance margin is applied.
- I. N/A
- J. $(C) 7.82^* + (D) 372 \times 0.000001 \times 8,000 + (E) 0.18078 \times 0.001 \times (F) 4,000 \times (G) 1.3 \times (H) 1 + 25\% = 14.67$ metric tons of CO₂ emissions needed to be abated per medium-emitting individual in Europe.

Example of abatement of a large-emitting individual in Europe in 1 calendar year

This figure is determined by summing the CO₂ consumptions-based emissions, the determined car CO₂ emissions and flight emissions and multiplying by 1.5 for a large-emitting individual.

- C. A European individual produces on average 7.82 metric tons of CO₂.
- D. A regular car produces emissions of up to 372 gCO₂ per kilometer driven based on the average passenger car mileage covered of 8,000 km.
- E. The CO₂ emitted from average passenger flight is 0.18078 kg CO₂e.
- F. One long-haul flight mileage represents 4,000 km.
- G. Average number of flight per capita of 1.3 flights.
- H. Additional 25% tolerance margin is applied.
- I. 50% large-emitter margin of tolerance.
- J. $(C) 7.82^* + (D) 372 \times 0.000001 \times 8,000 + (E) 0.18078 \times 0.001 \times (F) 4,000 \times (G) 1.3 \times (H) 1 + 25\% \times (I) 1.5 = 22.01$ metric tons of CO₂ emissions needed to be abated per large-emitting individual in Europe.

INDIVIDUAL PLAN	Small-Emitting	Medium-Emitting	Large-Emitting
Australia	18.63	23.52	35.28
Canada	19.23	24.12	36.18
Europe	9.78	14.67	22.01
Mexico	4.46	9.36	14.04
South America	3.34	8.23	12.35
United States	21.38	26.27	39.41

*Refer to table on page 12.

K. Total offsets needed to abate the CO₂ emitted for an employee

(A x B x C x D x E or A x B x C x D x E x F x G x I x J)

Lastly, the total metric tons of CO₂ emissions needed to be abated is calculated. The abated emissions of those employees that would have occurred had SCB's ClimatePositive not assisted in offsetting their emissions.

Example of abatement of a small-emitting employee in Europe in 1 calendar year

This figure is determined by the sum of CO₂ emissions in Europe and the 25% tolerance margin.

- C. A European employee produces on average 7.82 metric tons of CO₂.
- D. N/A.
- E. N/A.
- F. N/A.
- G. N/A.
- H. Additional 25% tolerance margin is applied.
- I. N/A
- J. $(C) 7.82^* + (H) 25\% = 9.78$ metric tons of CO₂ emissions needed to be abated per small-emitting employee in Europe.

Example of abatement of a medium-emitting employee in Europe in 1 calendar year

This figure is determined by summing the CO₂ consumptions-based emissions, the determined car CO₂ emissions and flight emissions for a medium-emitting individual.

- C. A European individual produces on average 7.82 metric tons of CO₂.
- D. A regular car produces emissions of up to 372 gCO₂ per kilometer driven based on the average passenger car mileage covered of 8,000 km.
- E. The CO₂ emitted from average passenger flight is 0.18078 kg CO₂e.
- F. Average annual flight length represents 7,000 km.
- G. N/A
- H. Additional 25% tolerance margin is applied.
- I. N/A
- J. $(C) 7.82^* + (D) 372 \times 0.000001 \times 8,000 + (E) 0.18078 \times 0.001 \times (F) 7,000 \times (H) 1 + 25\% = 15.08$ metric tons of CO₂ emissions needed to be abated per medium-emitting employee in Europe.

*Refer to table on page 12 for other countries' emissions.

Example of abatement of a large-emitting employee in Europe in 1 calendar year

This figure is determined by summing the CO2 consumptions-based emissions, the determined car CO2 emissions and flight emissions and multiplying by 1.5 for a large-emitting employee.

- C. A European individual produces on average 7.82 metric tons of CO2.
- D. A regular car produces emissions of up to 372 gCO2 per kilometer driven based on the average passenger car mileage covered of 8,000 km.
- E. The CO2 emitted from average passenger flight is 0.18078 kg CO2e.
- F. Average annual flight length represents 7,000 km.
- G. N/A.
- H. Additional 25% tolerance margin is applied.
- I. 50% large-emitter margin of tolerance
- J. $(C) 7.82^* + (D) 372 \times 0.000001 \times 8,000 + (E) 0.18078 \times 0.001 \times (F) 7,000 \times (H) 1 + 25\% \times (I) 1.5 = 22.89$ metric tons of CO2 emissions needed to be abated per large-emitting employee in Europe.

EMPLOYEE PLAN	Small-Emitting	Medium-Emitting	Large-Emitting
Australia	18.63	23.93	35.90
Canada	19.23	24.53	36.80
Europe	9.78	15.08	22.62
Mexico	4.46	9.76	14.64
South America	3.34	8.64	12.96
United States	21.38	26.68	40.02

*Refer to table above for other countries' emissions.

Carbon Offsets Schemes (not yet in scope of PwC's current limited assurance scope, as the underlying data will only be available at the end of the financial year 2022)

The total offsets needed to abate the emissions of Climate Positive cars, teams, businesses or pets are purchased from various carbon offset schemes that allow individual and companies to invest in environmental projects around the world to balance out their carbon footprints. These projects reduce carbon emissions, and every metric ton of carbon emissions reduced from such projects equates to one carbon offset. Examples of these environmental projects include rolling out clean energy technologies, planting of trees, capturing methane gas at landfill sites and distributing efficient cooking stoves.

Via ClimatePositive, SCB only funds registered verified projects that are aligned with or contribute to United Nations Sustainable Development Goals⁴¹.

SCB has chosen these schemes for ClimatePositive with the most stringent requirements.

These goals, particularly Goal 13 on Climate Action, contribute to meeting commitments under the 2030 Agenda for Sustainable Development⁴² that was adopted by all United Nations Member States in 2015.

Also, via ClimatePositive, SCB only funds registered verified projects that meet the requirements of additionality, permanence, and an ensured avoidance of double counting.

Additionality: Carbon offsets must generate units that represent emissions reductions, avoidance, or removals that are on top of any reduction or removals required by law, regulation, or legally binding mandate.

Permanence: Carbon offset must represent emissions reductions, avoidance, or carbon sequestration that are permanent.

Avoidance of double counting: Measures must be in place to avoid double issuance, double use, and double claiming.

⁴¹United Nations, The 17 Goals, <https://sdgs.un.org/goals>

⁴²United Nations, Transforming Our World: The 2030 Agenda for Sustainable Development, <https://sustainabledevelopment.un.org/post2015/transformingourworld>

Below is a table outlining the basic information of each program that meets all these requirements:

Program	Registry	Scope of Eligibility
American Carbon Registry ⁴³	ACR	ACR Emission Reduction Tons excluding California Registry Offset Credits & California Early Action Offset Credits
China GHG Voluntary Emission Reduction Program ⁴⁴	GHGVERP	China Certified Emissions Reductions excluding Afforestation and Reforestation, CCUS, N2O from plants, Ag Ops, Fertilizers, Semiconductors, HFC refrigerants, SF6 insulating gas, HCFC22
Clean Development Mechanism ⁴⁵	CDM	Certified Emissions Reductions excluding Afforestation and Reforestation
Climate Action Reserve ⁴⁶	CAR	Climate Reserve Tons excluding activities not reporting sustainable development contributions or co-benefits, Forecast Mitigation Units, California Registry Offset Credits & California Early Action Offset Credits
The Gold Standard ⁴⁷	GSF	Verified Emission Reductions excluding Planned Emission Reductions, micro scale activities without validation and verification
Verified Carbon Standard ⁴⁸	Verra	Verified Carbon Units excluding those issued from Scenario 1, 2, or 3 of REDD+, activities without reported sustainable development contribution or co-benefits, California Registry Offset Credits & California Early Action Offset Credits

When these carbon offsets are purchased, they are permanently retired by SCB on behalf of ClimatePositive. Retiring a carbon offset means that it is taken off the market forever and can never be reused again. For transparency, each carbon offset has its own assigned serial number, and can be tracked on publicly accessible emission registries^{49, 50}.

Via ClimatePositive, SCB commits to contributing lasting benefits to the climate.

⁴³American Carbon Registry, How It Works, <https://americancarbonregistry.org/how-it-works/what-we-do>

⁴⁴International Civil Aviation Organization, China GHG Voluntary Emission Reduction Program, <https://starcb.com/wp-content/uploads/2022/10/8-International-Civil-Aviation-Organization-China-GHG-Voluntary-Emission-Reduction-Program.pdf>

⁴⁵Clean Development Mechanism, What is the CDM, <https://cdm.unfccc.int/about/index.html>

⁴⁶Climate Action Reserve, Program, <https://www.climateactionreserve.org/how/program/>

⁴⁷Gold Standard Foundation, Certify a Project, <https://www.goldstandard.org/take-action/certify-project>

⁴⁸Verra Organization, The VCS Program, <https://verra.org/project/vcs-program/>

⁴⁹Gold Standard Registry, Issuance and Retirements of Carbon Offsets, <https://registry.goldstandard.org/projects?q=&page=1>

⁵⁰Verified Carbon Standard Registry, Issuance and Retirements of Carbon Offsets, <https://registry.verra.org/app/search/VCS>



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