Basis of Preparation

October 27th, 2022

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CO2 Emissions Abatement Calculation

Introduction

PricewaterhouseCoopers AG (PwC) has been selected to provide limited assurance on SCB Group (SCB)'s CO2 emissions abatement calculation procedures. The methodology summarized below is intended to ensure that our 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.

Scope

The performance data includes all brokerage transactions in the biodiesel, ethanol, and carbon markets, including principal carbon transactions of renewable energy certificates, during the calendar year 2021.

All SCB entity locations were considered in compiling the performance data. Locations exist in Puerto Rico, Singapore, Switzerland, the United Kingdom and in the United States. Where new SCB entities were formed during the relevant period, the data begins the first day a brokerage transaction in one of the above markets took place at that entity. For any SCB mergers, the data measures up to the date of merger for the non-surviving entity. Excluded SCB entities include those where no biodiesel, ethanol or carbon brokerage transactions took place during the relevant period.

Data Sources

A. Brokerage Transactions

With operations throughout the world, we felt it most appropriate to utilize two separate legislative bodies located in our largest geographical areas, the United States and Europe, as the framework of our CO2 emissions abatement calculation for biodiesel and ethanol brokerage transactions.

All biodiesel and ethanol brokerage transactions outside of the U.S. and the U.S. territory of Puerto Rico, shall follow the criteria as published by the European Union's Renewable Energy Directive (RED). The RED documents several sustainability criteria that fuels must meet in order to be considered a biofuel, including the minimum greenhouse gas (GHG) savings rate from using a biofuel versus a traditional, non-renewable fuel source[1].

[1]European Commission, https://joint-research-centre.ec.europa.eu/welcome-jec-website/reference-regulatory-framework/renewable-energy-recast-2030-red-ii_en

Unlike Europe, the U.S., has no such policy as it relates to renewable energy. Each state however has its own regulations and guidelines. As California is known for having some of the most extensive guidelines, we have elected to follow the publications set forth by the Low Carbon Fuel Standards (LCFS) program, as governed by the California Air Resource Board (CARB) for U.S. biodiesel, ethanol and carbon fuel emissions transactions. The program is designed to reduce greenhouse gas emissions associated with the life cycle of transportation fuels. As part of its program, the LCFS determines the emissions of each baseline fuel and the corresponding alternative fuel sources, referred to as the carbon intensity (CI)[2] .

For Renewable Identification Number (RIN) transactions, which are brokered only in our U.S. locations, we have elected to follow the publications set forth by the Renewable Fuel Standard (RFS) Program, as governed by the U.S. Environmental Protection Agency (EPA). By statute, the RFS program includes four categories of renewable fuel, each with a specific fuel pathway requirement and RIN D-Codes[3]. Each RIN category requires a specific reduction in lifecycle greenhouse gas emissions as compared to traditional fuel sources.

European carbon brokerage transactions will follow three different frameworks depending on the product brokered. Renewable transport fuel certificates and greenhouse gas credits transactions will follow the UK Statutory Instrument, The Renewable Transport Fuels & Greenhouse Gas Emissions Regulations 2018 No. 374 (UK Statutory Instrument). German Tickets and German Upstream Emissions Reduction transactions will follow the guidelines published in the German Legislation[4] and HBE Dutch Tickets and Dutch Upstream Emissions Reductions shall follow the guidelines as set forth by the Dutch Emissions Authority's Energy for Transport[5].

B. Principal Carbon Transactions

The majority of our principal carbon transactions are VCUs traded via the VCS Program. As such, all VCS transactions will utilize the methodology presented by its registry platform, VERRA. Emission reductions certified by VERRA are eligible to be issued as verified carbon units (VCUs), with one VCU representing one metric ton of greenhouse gas emissions reduced or removed from the atmosphere[6].

Like the VCS program, Gold Standard and the Clean Development Mechanism are also voluntary offset programs in which SCB participates. All transactions via both programs represent the reduction or removal of one ton of CO2 equivalent (tCO2e).

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[2]California Air Resources Board, https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/about

[3]United States Environmental Protection Agency, https://www.epa.gov/renewable-fuel-standard-program/what-fuel-pathway#RIN

[4]German Legislation, https://www.gesetze-im-internet.de/bimschv_38_2017/BJNR389200017.html

[5]Dutch Emissions Authority, https://www.emissionsauthority.nl/topics/obligations---energy-for-transport/obligation-to-reduce-greenhouse-gas-emissions-2020/complying-with-obligation-to-reduce-greenhouse-gas-emissions-2020

[6]VERRA, https://verra.org/about-verra/who-we-are/

Transactions adhering to the International REC Standard (IREC) follow the guidelines put forth in the country in which the credit originates and or the project takes place. As such, we obtained the emissions output data from the four countries with the largest volume transacted by SCB during the year through IREC (China, India, Malaysia and Russia), in order to calculate the overall emissions reduction. For IREC transactions involving projects outside of the four previously noted, we have utilized an average displacement rate of the four countries listed above.

Principal carbon transactions performed on a U.S. based registry will employ the methodology set out by The Emissions & Generation Resource Integrated Database (eGrid). eGrid comprises data from both the Energy Information Administration (EIA) and the EPA to produce a multitude of variables such as emissions per megawatt hour of electricity generation (lb/MWH), which depicts the environmental impact of electricity generation[7].

All remaining principal carbon transactions, not taking place one on of the above-mentioned registries, will take into consideration the European Residual Mixes as calculated by Grexel, on behalf of the Association of Issuing Bodies (AIB)[8]. The 2021 residual mix is defined on a country level (34 European countries are considered) and as such, we have elected to utilize the emissions data from the respective country in which the registry is located, which in our case is Great Britain, Germany and or Norway[9].

Data Preparation

A. Extraction of product volumes

All brokerage transactions, which include volumes, are exported from SCB's deal management system. The information contained in the deal management system has been subject to the 2021 annual audits of each respective entity. Brokerage transactions are classified into the appropriate product group, such as biodiesel, ethanol, carbon, etc. Volumes have been converted to a single unit of measurement, which for purposes of this analysis is metric tons.

Principal carbon volumes are kept in megawatt hours (MWh), Verified Carbon Units (VCUs) and tons of CO2 equivalent (tCO2e).

As there are two sides in a transaction, a buyer and a seller, only the total quantity transacted, and the corresponding spread quantity, if applicable, has been included in the calculation for brokerage transactions. For carbon principal deals, only completed back-to-back transactions are included. Any inventory purchased and not yet transferred to a buyer has been excluded and will be included in the year the inventory is sold.

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[7]Grexel, https://grexel.com/european-residual-mix-calculation/

[8]Energywatch, https://energywatch-inc.com/egrid-explained-what-it-is-how-its-used-and-whats-new-in-the-2020-released-data/

[9]European Residual Mixes 2021, https://www.aib-net.org/sites/default/files/assets/facts/residual-mix/2021/AIB_2021_Residual_Mix_Results_1_1.pdf

B. Determining the CO2 emitted from non-renewable fuel sources on a per metric ton basis

SCB's mission is to promote the adoption of a low carbon future. As such the company's aim is to broker products that will assist in achieving this goal and therefore displace the use of non-renewable fuel sources. In determining the GHG emissions from each non-renewable source, SCB utilized the common CO2 conversion factors as published and agreed upon by the EPA, along with the Department of Transportation[10] below:

.010180 metric tons of CO2e emitted per gallon of diesel consumed

.008887 metric tons of CO2e emitted per gallon of gasoline consumed

As the CO2 conversion factors above are calculated on a "***per gallon***" basis, the factors were further converted into a "***metric tons***" basis using the liquid fuel measurements and conversion interpreted by Iowa State University:

Diesel:

Where 1 gallon of diesel = .003192[11] metric tons, this equates to

3.1892 metric tons of CO2 emitted per ton consumed

Gasoline:

Where 1 gallon of gasoline = .002791[11] metric tons, this equates to

3.1842 metric tons of CO2 per ton consumed

Note that the conversion factors for diesel and gasoline were only used for the brokerage transactions involving biodiesel and ethanol, including RINS. All carbon brokerage and principal carbon transactions utilized a factor of 1, the credits themselves represent a 1 MT CO2 reduction in traditional fuel emissions.

C. Determining the CO2 reduction rate of using renewable fuel sources on a per metric ton basis

Using the referenced legislative sources discussed under the Data Sources section of this document, SCB obtained the appropriate GHG reduction rate or CI for each renewable fuel source brokered during calendar year 2021.

The LCFS's CI[12] will vary by product type depending on feedstock and how the fuel is produced or manufactured.

[10]United States Environmental Protection Agency, https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

[11]Iowa State University Extension & Outreach, https://www.yumpu.com/en/document/read/4241894/liquid-fuel-measurements-and-conversions-iowa-state-university-

[12]California Air Resources Board, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2009/lcfs09/finalfro.pdf

Note that in regard to the CI published by the LCFS, only the direct emissions factor has been utilized in the emissions abatement calculation for U.S. products. The purpose of our calculation is to quantify the emissions that were abated (by substituting 100% gasoline or diesel with renewable fuel sources) as a result of assisting our clients' close transactions. Indirect emissions factors were excluded as it refers to the carbon emitted in getting products into the state of California, which occurs after the deal is closed or potentially not at all if the product is going elsewhere or remains stationary.

Further note that as the U.S. brokers Midwest ethanol blends, we have elected to utilize the direct CI of Midwest ethanol corn blends only, excluding all coal and California blended CI factors.

Lastly, the CO2 reduction rate was only referenced for the brokerage transactions involving biodiesel and ethanol, including RINS. All carbon brokerage and principal carbon transactions again utilized a factor of 1, as the credits themselves represent a reduction of 1 metric ton of CO2 or CO2 equivalent.

D. Determining the CO2 abated, as adjusted for the CO2 reduction rate, on a per metric ton basis (B*C)

The CO2 displaced per MT from using renewable fuel sources, such as the ones SCB brokers, is determined by multiplying the CO2 emitted per metric ton of non-renewable fuel by the GHG savings rate or CI of using a renewable fuel source.

For principal carbon transactions, the CO2 displaced per Mwh from utilizing clean electricity sources (wind, hydro, solar, etc), is determined by utilizing the CO2 output of non-renewable energy sources within the country where the renewable energy project is located. If the location of the project is not available, or not significant on an aggregate level, the country in which the registry is located was utilized.

E. Total metric tons of CO2 abated as a result of brokering a renewable fuel source (A*D)

Lastly, the total metric tons of CO2 emissions abated is calculated. The abated emissions are those that would have occurred, had SCB not assisted in transacting a renewable fuel source deal. This figure is determined by multiplying the total volume of product brokered during the period by the CO2 abated per metric ton or Mwh, as adjusted for the GHG reduction.

ClimatePositive - Basis of Preparation

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 year[13].

Data Preparation

A. Extraction of the number of cars to be abated

The scope includes all passenger cars that SCB, via ClimatePositive has helped to abate their 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.

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[13]United 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[14]. Their emissions vary based on their engine type as below:

- Electric cars produce lower emissions of up to 160 gCO2 per kilometre driven.
- Regular cars with fuel or hybrid engines produce higher emissions of up to 372 gCO2 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 DOT[15], along with the average miles travelled by passenger car in the European Union (E.U.) as published by Ecological Transition Agency (ADEME) below[16]:

- 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 gCO2 per kilometre driven.
- For regular cars, an additional 25% tolerance margin amounts to an abatement standard of 465 gCO2 per kilometre driven.

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

[15]U.S. Department of Transportation, Highway Statistics Series, Table VM-1 - Highway Statistics 2020 - Policy | Federal Highway Administration (dot.gov)

[16]Odyssee-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 table published by University of Wyoming as below[17]:

- 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 gCO2 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.

[17]University 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 Goals[18]. 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 Development[19] 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.

[18]United Nations, The 17 Goals, https://sdgs.un.org/goals
[19]United 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[20]	ACR	ACR Emission Reduction Tons excluding California Registry Offset Credits & California Early Action Offset Credits
China GHG Voluntary Emission Reduction Program[21]	GHGVERP	China Certified Emissions Reductions excluding Afforestation and Reforestation, CCUS, N20 from plants, Ag Ops, Fertilizers, Semiconductors, HFC refrigerants, SF6 insulating gas, HCFC22
Clean Development Mechanism[22]	CDM	Certified Emissions Reductions excluding Afforestation and Reforestation
Climate Action Reserve[23]	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[24]	GSF	Verified Emission Reductions excluding Planned Emission Reductions, micro scale activities without validation and verification
Verified Carbon Standard[25]	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[26][27].

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

[20]American Carbon Registry, How It Works, https://americancarbonregistry.org/how-it-works/what-we-do
[21]International 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
[22]Clean Development Mechanism, What is the CDM, https://cdm.unfccc.int/about/index.html
[23]Climate Action Reserve, Program, https://www.climateactionreserve.org/how/program/
[24]Gold Standard Foundation, Certify a Project, https://www.goldstandard.org/take-action/certify-project
[25]Verra Organization, The VCS Program, https://verra.org/project/vcs-program/
[26]Gold Standard Registry, Issuance and Retirements of Carbon Offsets, https://registry.goldstandard.org/projects?q=&page=1
[27]Verified 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;[28]
- Project VCS 758 - Saraçbendi Run-of-River Hydro Project, providing renewable electricity to the local population;[29]
- Project GS 2460 - CDQ China Project, generates electricity by recovering the waste heat generated in coke production[30]

B. Retired volumes from projects during 2021

- 1,057 metric tons retired from Project VCS 981[28]
- 26 metric tons retired from Project VCS 758[29]
- 138 metric tons retried from Project GS 2460[30]

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

[28]Verra Standard Registry, VCS 981: https://registry.verra.org/app/projectDetail/VCS/981
[29]Verra Standard Registry, VCS 758: https://registry.verra.org/app/projectDetail/VCS/758
[30]Gold 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?"[31] and "Bioscience, Volume 69"[32]. 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 (EP), 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 kg[31] of CO2 (<6kg)[32]
- An average-sized dog produces more emissions of up to 770kg[31] of CO2 (<20kg)[32]
- A large-sized dog produces the highest emissions of up to 2500kg[31] of CO2 (>20kg)[32]

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 kg[31] of CO2 (<6kg)[32]
- A large-sized cat produces twice the emissions of an average-sized cat, up to 620kg[31] of CO2 (>6kg)[32]

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

[32]Martens, 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 3125 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 table published by Bureau International des Poids et Mesures[33] as below:

- 1 ton = 1,000 kilograms[33]

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. 1000 kilograms = 1 ton
G. (C) 310 + (E) 25% / (F) 1000 = 0.3875 metric tons of CO2 emissions needed to be abated per average-sized cat

[33]Bureau 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. 1000 kilograms = 1 ton
G. (C) 770 + (E) 25% / (F) 1000 = 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. 1000 kilograms = 1 ton
G. (C) 310 x (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 Goals[34]. 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 Development[35] 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.

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.

[34]United Nations, The 17 Goals, https://sdgs.un.org/goals
[35]United Nations, Transforming Our World: The 2030 Agenda for Sustainable Development, https://sustainabledevelopment.un.org/post2015/transformingourworld

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[36]	ACR	ACR Emission Reduction Tons excluding California Registry Offset Credits & California Early Action Offset Credits
China GHG Voluntary Emission Reduction Program[37]	GHGVERP	China Certified Emissions Reductions excluding Afforestation and Reforestation, CCUS, N20 from plants, Ag Ops, Fertilizers, Semiconductors, HFC refrigerants, SF6 insulating gas, HCFC22
Clean Development Mechanism[38]	CDM	Certified Emissions Reductions excluding Afforestation and Reforestation
Climate Action Reserve[39]	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[40]	GSF	Verified Emission Reductions excluding Planned Emission Reductions, micro scale activities without validation and verification
Verified Carbon Standard[41]	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[42][43].

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

[36]American Carbon Registry, How It Works, https://americancarbonregistry.org/how-it-works/what-we-do
[37]International 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
[38]Clean Development Mechanism, What is the CDM, https://cdm.unfccc.int/about/index.html
[39]Climate Action Reserve, Program, https://www.climateactionreserve.org/how/program/
[40]Gold Standard Foundation, Certify a Project, https://www.goldstandard.org/take-action/certify-project
[41]Verra Organization, The VCS Program, https://verra.org/project/vcs-program/
[42]Gold Standard Registry, Issuance and Retirements of Carbon Offsets, https://registry.goldstandard.org/projects?q=&page=1
[43]Verified 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 Data[44], 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 Data[45], Government UK[46] and Eurocontrol[47]. 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 Data[43]. 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:

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[44]Our 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

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

[46]Government UK, Department for Business, Energy and Industrial Strategy, 2020: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019

[47]Eurocontrol. 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

- An individual produces on average 7.82 tons of CO2 in Europe[48]
- An individual produces on average 15.38 tons of CO2 in Canada[48]
- An individual produces on average 3.57 tons of CO2 in Mexico[48]
- An individual produces on average 2.67 tons of CO2 in South America[48]
- An individual produces on average 17.1 tons of CO2 in United States[48]
- An individual produces on average 14.9 tons of CO2 in Australia[48]

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) reporting[49].

- 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 km[50], long-haul as being longer than 4,000 km[50], 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.

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[48]Our 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

[49]Government UK, Department for Business, Energy and Industrial Strategy, 2020: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019

[50]Eurocontrol. 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

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 person[51].

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

[51]Our 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 x 0.000001 x 8,000 + (E) 0.18078 x 0.001 x (F) 4,000 x (G) 1.3 x (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 x 0.000001 x 8,000 + (E) 0.18078 x 0.001 x (F) 4,000 x (G) 1.3 x (H) 1 +25% x (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 17.

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 x 0.000001 x (E) 8,000 + (F) 0.18078 x 0.001 x (G) 7,000 x (I) 1 +25% = 15.08 metric tons of CO2 emissions needed to be abated per medium-emitting employee in Europe.

*Refer to table on page 21 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 x 0.000001 x 8,000 + (E) 0.18078 x 0.001 x (F) 7,000 x (H) 1 +25% x (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 Goals[52].

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 Development[53] 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.

[52]United Nations, The 17 Goals, https://sdgs.un.org/goals
[53]United 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[54]	ACR	ACR Emission Reduction Tons excluding California Registry Offset Credits & California Early Action Offset Credits
China GHG Voluntary Emission Reduction Program[55]	GHGVERP	China Certified Emissions Reductions excluding Afforestation and Reforestation, CCUS, N20 from plants, Ag Ops, Fertilizers, Semiconductors, HFC refrigerants, SF6 insulating gas, HCFC22
Clean Development Mechanism[56]	CDM	Certified Emissions Reductions excluding Afforestation and Reforestation
Climate Action Reserve[57]	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[58]	GSF	Verified Emission Reductions excluding Planned Emission Reductions, micro scale activities without validation and verification
Verified Carbon Standard[59]	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[60, 61].

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

[54]American Carbon Registry, How It Works, https://americancarbonregistry.org/how-it-works/what-we-do
[55]International 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
[56]Clean Development Mechanism, What is the CDM, https://cdm.unfccc.int/about/index.html
[57]Climate Action Reserve, Program, https://www.climateactionreserve.org/how/program/
[58]Gold Standard Foundation, Certify a Project, https://www.goldstandard.org/take-action/certify-project
[59]Verra Organization, The VCS Program, https://verra.org/project/vcs-program/
[60]Gold Standard Registry, Issuance and Retirements of Carbon Offsets, https://registry.goldstandard.org/projects?q=&page=1
[61]Verified Carbon Standard Registry, Issuance and Retirements of Carbon Offsets, https://registry.verra.org/app/search/VCS

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