more different framework data and corresponding results at: http://results-espm.save-the-climate.info

| **framework data** (input values here: yellow fields) | | Gt | determination |
|---|---|---|---|
| **global CO2 budget 2020 - 2100** | | **550** | global budget |
| land-use change (LUC) emissions 2020 - 2100 | | **0** | |
| international shipping and aviation (ISA) emissions 2020 - 2100 | 3.3% | -18 | |
| global CO2 budget 2020 - 2100 to distribute here | | 532 | |
| **weighting population** in the weighted key | **70%** | | national budget |
| potential for net negative emissions | **-2%** | | overshoot |
| scenario type used for the reference values | **RM-4-quadr** | | paths |

Calculation **global budget** to distribute here:

LUC and ISA emissions are not considered here. Global LUC and ISA budgets are therefore offset against the global budget.

A value of **zero** for **LUC** means that by 2100, in total, net positive LUC emissions are offset by net negative LUC emissions.

**Overshoot**: The percentage stated is applied to the 2019 emissions and represents the minimum of the emissions pathway.

| **reference values for the countries with the highest emissions** | | | | emissions 2019 in Gt | per capita 2019 in t | share in global emissions 2019 | share in global population 2019 | year emissions neutrality | temporary overshoot in Gt | normalised start change rate 2025 |
|---|---|---|---|---|---|---|---|---|---|---|
| target year: | 2030 | 2035 | 2040 | | | | | | | |
| reference year: | | 2019 | | | | | | | | |
| China | -43% | -102% | -102% | 12 | 8 | 32% | 18% | 2035 | 16 | 0.8% |
| United States | -73% | -102% | -102% | 5 | 15 | 14% | 4% | 2033 | 7 | 0.3% |
| EU27 | -32% | -61% | -90% | 3 | 7 | 8% | 6% | 2045 | 3 | -2.4% |
| India | 55% | 51% | -4% | 3 | 2 | 7% | 18% | 2052 | 2 | 4.6% |
| Russia | -91% | -102% | -102% | 2 | 13 | 5% | 2% | 2031 | 3 | 3.1% |
| Japan | -40% | -81% | -100% | 1 | 9 | 3% | 2% | 2040 | 1 | -3.5% |
| sum | | | | 25 | | 69% | 50% | | 32 | |

| **largest national budgets 2020 - 2100** | national budget | weighted key | emissions 2019 | scope years |
|---|---|---|---|---|
| | Gt | | Gt | |
| China | 120.0 | 22.5% | 11.81 | 10 |
| India | 77.2 | 14.5% | 2.55 | 30 |
| United States | 37.5 | 7.0% | 4.97 | 8 |
| EU27 | 34.1 | 6.4% | 2.91 | 12 |
| Indonesia | 15.8 | 3.0% | 0.64 | 25 |
| Russia | 15.0 | 2.8% | 1.86 | 8 |
| Brazil | 12.3 | 2.3% | 0.47 | 26 |
| Japan | 11.0 | 2.1% | 1.12 | 10 |
| Pakistan | 10.7 | 2.0% | 0.20 | 54 |
| Nigeria | 10.3 | 1.9% | 0.13 | 81 |
| Bangladesh | 8.6 | 1.6% | 0.11 | 79 |
| Mexico | 8.5 | 1.6% | 0.49 | 17 |
| Iran | 7.1 | 1.3% | 0.71 | 10 |
| Germany | 7.0 | 1.3% | 0.70 | 10 |
| Viet Nam | 6.2 | 1.2% | 0.34 | 18 |
| Egypt | 5.9 | 1.1% | 0.24 | 25 |
| Philippines | 5.9 | 1.1% | 0.15 | 40 |
| Türkiye | 5.8 | 1.1% | 0.41 | 14 |
| Ethiopia | 5.4 | 1.0% | 0.02 | 292 |
| South Korea | 5.3 | 1.0% | 0.65 | 8 |
| South Africa | 4.9 | 0.9% | 0.48 | 10 |
| United Kingdom | 4.8 | 0.9% | 0.36 | 13 |
| Thailand | 4.6 | 0.9% | 0.29 | 16 |
| France and Monaco | 4.6 | 0.9% | 0.32 | 14 |
| Canada | 4.4 | 0.8% | 0.61 | 7 |
| Italy, San Marino and the Holy See | 4.3 | 0.8% | 0.33 | 13 |
| Democratic Republic of the Congo | 4.2 | 0.8% | 0.00 | 946 |
| Saudi Arabia | 4.2 | 0.8% | 0.58 | 7 |
| Spain and Andorra | 3.3 | 0.6% | 0.25 | 13 |
| Poland | 3.2 | 0.6% | 0.31 | 10 |
| Ukraine | 3.0 | 0.6% | 0.21 | 15 |
| Tanzania | 3.0 | 0.6% | 0.02 | 177 |
| Australia | 3.0 | 0.6% | 0.41 | 7 |
| Argentina | 3.0 | 0.6% | 0.18 | 16 |
| Algeria | 2.9 | 0.5% | 0.18 | 16 |
| Iraq | 2.8 | 0.5% | 0.19 | 14 |
| Colombia | 2.8 | 0.5% | 0.09 | 32 |
| Myanmar/Burma | 2.8 | 0.5% | 0.03 | 81 |
| Sudan and South Sudan | 2.7 | 0.5% | 0.02 | 116 |
| Malaysia | 2.7 | 0.5% | 0.26 | 10 |
| Kenya | 2.6 | 0.5% | 0.02 | 134 |
| Taiwan | 2.4 | 0.5% | 0.29 | 8 |
| Uganda | 2.2 | 0.4% | 0.01 | 317 |
| Venezuela | 2.1 | 0.4% | 0.12 | 18 |
| sum without EU | 456 | | 33 | |
| sum across all countries | 532 | | 37 | 14 |

**Basic idea behind the ESPM**

The ESPM consists of two steps:

(1) **National budgets**: A predefined global CO2 budget is distributed to countries. The ESPM tool offers the use of a **weighted distribution key** that includes the **'population'** and the **'emissions'** in a base year (here: 2019).

(2) **National paths**: The ESPM tool offers the Regensburg Model Scenario Types to derive plausible national paths that adhere to a national budget.

**Basic idea behind the scenario types RM 1 - 6**

With the help of the RM Scenario Types, emission paths can be determined that meet a given budget. The scenario types differ in the **assumption** about the **property** of the **annual reductions**. This approach is particularly useful when it comes

Brief description of the ESPM:
http://espm-short.climate-calculator.info

Brief description of the RM Scenario Types:
http://rm-scenario-types.climate-calculator.info

Published paper for the six largest emitters:
https://doi.org/10.5281/zenodo.4764408

Overview of web apps for ESPM:
https://climate-calculator.info