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** | | **400** | global budget |
| land-use change (LUC) emissions 2020 - 2100 | | **0** | |
| international shipping and aviation (ISA) emissions 2020 - 2100 | 3% | -12 | |
| global CO2 budget 2020 - 2100 to distribute here | | 388 | |
| **weighting population** key in the weighted key | **100%** | | national budget |
| | | | |
| scenario type used for the reference values | **RM-3-lin** | | 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.

| **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 | normalised change rate 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| target year: | 2030 | | 2040 | | | | | | | |
| reference year: | 1990 | 2019 | 1990 | 2019 | | | | | | |
| China | -88% | -98% | -100% | -100% | 11.8 | 8 | 32% | 18% | 2031 | 2.3% |
| United States | -100% | -100% | -100% | -100% | 5.0 | 15 | 14% | 4% | 2026 | -2.9% |
| EU27 | -82% | -76% | -100% | -100% | 2.9 | 7 | 8% | 6% | 2039 | -5.2% |
| India | 274% | -12% | 159% | -39% | 2.5 | 2 | 7% | 18% | 2088 | -1.3% |
| Russia | -100% | -100% | -100% | -100% | 1.9 | 13 | 5% | 2% | 2027 | 3.9% |
| Japan | -96% | -95% | -100% | -100% | 1.1 | 9 | 3% | 2% | 2032 | -3.3% |
| sum | | | | | | | 69% | 50% | | |

| **largest national budgets 2020 - 2100** | national budget | weighted key | emissions 2019 | scope years |
|---|---|---|---|---|
| | Gt | | Gt | |
| China | 71.4 | 18.4% | 11.82 | 6 |
| India | 68.9 | 17.7% | 2.54 | 27 |
| EU27 | 22.3 | 5.7% | 2.90 | 8 |
| United States | 16.6 | 4.3% | 4.97 | 3 |
| Indonesia | 13.6 | 3.5% | 0.64 | 21 |
| Brazil | 10.7 | 2.8% | 0.47 | 23 |
| Pakistan | 10.3 | 2.7% | 0.20 | 53 |
| Nigeria | 10.1 | 2.6% | 0.12 | 82 |
| Bangladesh | 8.5 | 2.2% | 0.11 | 79 |
| Russia | 7.2 | 1.9% | 1.88 | 4 |
| Mexico | 6.7 | 1.7% | 0.48 | 14 |
| Japan | 6.4 | 1.6% | 1.13 | 6 |
| Ethiopia | 5.5 | 1.4% | 0.02 | 302 |
| Philippines | 5.4 | 1.4% | 0.15 | 37 |
| Egypt | 5.1 | 1.3% | 0.23 | 22 |
| Vietnam | 4.9 | 1.3% | 0.33 | 15 |
| Democratic Republic of the Congo | 4.4 | 1.1% | 0.00 | 1,302 |
| Türkiye | 4.2 | 1.1% | 0.42 | 10 |
| Iran | 4.2 | 1.1% | 0.66 | 6 |
| Germany | 4.1 | 1.1% | 0.69 | 6 |
| Thailand | 3.5 | 0.9% | 0.28 | 12 |
| United Kingdom | 3.4 | 0.9% | 0.36 | 9 |
| France and Monaco | 3.3 | 0.8% | 0.32 | 10 |
| Tanzania | 3.1 | 0.8% | 0.02 | 201 |
| Italy, San Marino and the Holy See | 3.0 | 0.8% | 0.33 | 9 |
| South Africa | 2.9 | 0.8% | 0.48 | 6 |
| Myanmar/Burma | 2.7 | 0.7% | 0.04 | 77 |
| Sudan and South Sudan | 2.7 | 0.7% | 0.02 | 115 |
| Kenya | 2.6 | 0.7% | 0.02 | 135 |
| South Korea | 2.6 | 0.7% | 0.65 | 4 |
| Colombia | 2.5 | 0.6% | 0.08 | 31 |
| Spain and Andorra | 2.3 | 0.6% | 0.26 | 9 |
| Uganda | 2.3 | 0.6% | 0.01 | 334 |
| Argentina | 2.3 | 0.6% | 0.18 | 13 |
| Ukraine | 2.2 | 0.6% | 0.20 | 11 |
| Algeria | 2.1 | 0.6% | 0.18 | 12 |
| Iraq | 2.0 | 0.5% | 0.19 | 11 |
| Poland | 1.9 | 0.5% | 0.31 | 6 |
| Canada | 1.9 | 0.5% | 0.59 | 3 |
| Afghanistan | 1.9 | 0.5% | 0.01 | 251 |
| Morocco | 1.8 | 0.5% | 0.07 | 26 |
| Saudi Arabia | 1.7 | 0.4% | 0.58 | 3 |
| Peru | 1.7 | 0.4% | 0.06 | 28 |
| Uzbekistan | 1.7 | 0.4% | 0.12 | 13 |
| sum without EU | 326 | | 32 | |
| sum across all countries | 388 | | 37 | 11 |

**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