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** | | **700** | global budget |
| land-use change (LUC) emissions 2020 - 2100 | | **0** | |
| international shipping and aviation (ISA) emissions 2020 - 2100 | 3.3% | -23 | |
| global CO2 budget 2020 - 2100 to distribute here | | 677 | |
| **weighting population** in the weighted key | **85%** | | national budget |
| potential for net negative emissions | **-2%** | | overshoot |
| scenario type used for the reference values | **RM-6-abs** | | 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 | -34% | -72% | -102% | 12 | 8 | 32% | 18% | 2039 | 15 | - |
| United States | -61% | -102% | -102% | 5 | 15 | 14% | 4% | 2035 | 7 | - |
| EU27 | -35% | -51% | -67% | 3 | 7 | 8% | 6% | 2051 | 3 | - |
| India | 12% | 2% | -8% | 3 | 2 | 7% | 18% | 2086 | 1 | - |
| Russia | -59% | -102% | -102% | 2 | 13 | 5% | 2% | 2034 | 2 | - |
| Japan | -41% | -64% | -87% | 1 | 9 | 3% | 2% | 2043 | 1 | - |
| sum | | | | 25 | | 69% | 50% | | 29 | |

| **largest national budgets 2020 - 2100** | national budget | weighted key | emissions 2019 | scope years |
|---|---|---|---|---|
| | Gt | | Gt | |
| China | 138.7 | 20.5% | 11.81 | 12 |
| India | 109.2 | 16.1% | 2.55 | 43 |
| EU27 | 41.1 | 6.1% | 2.91 | 14 |
| United States | 38.3 | 5.7% | 4.97 | 8 |
| Indonesia | 21.9 | 3.2% | 0.64 | 34 |
| Brazil | 17.1 | 2.5% | 0.47 | 37 |
| Russia | 15.9 | 2.3% | 1.86 | 9 |
| Pakistan | 15.8 | 2.3% | 0.20 | 80 |
| Nigeria | 15.3 | 2.3% | 0.13 | 122 |
| Bangladesh | 12.8 | 1.9% | 0.11 | 117 |
| Japan | 12.6 | 1.9% | 1.12 | 11 |
| Mexico | 11.2 | 1.7% | 0.49 | 23 |
| Philippines | 8.5 | 1.3% | 0.15 | 57 |
| Ethiopia | 8.3 | 1.2% | 0.02 | 447 |
| Egypt | 8.2 | 1.2% | 0.24 | 35 |
| Viet Nam | 8.2 | 1.2% | 0.34 | 24 |
| Iran | 8.2 | 1.2% | 0.71 | 11 |
| Germany | 8.1 | 1.2% | 0.70 | 12 |
| Türkiye | 7.3 | 1.1% | 0.41 | 18 |
| Democratic Republic of the Congo | 6.5 | 1.0% | 0.00 | 1,458 |
| United Kingdom | 6.0 | 0.9% | 0.36 | 17 |
| Thailand | 6.0 | 0.9% | 0.29 | 21 |
| France and Monaco | 5.8 | 0.9% | 0.32 | 18 |
| South Africa | 5.7 | 0.8% | 0.48 | 12 |
| South Korea | 5.6 | 0.8% | 0.65 | 9 |
| Italy, San Marino and the Holy See | 5.3 | 0.8% | 0.33 | 16 |
| Tanzania | 4.6 | 0.7% | 0.02 | 270 |
| Canada | 4.5 | 0.7% | 0.61 | 7 |
| Spain and Andorra | 4.2 | 0.6% | 0.25 | 16 |
| Saudi Arabia | 4.2 | 0.6% | 0.58 | 7 |
| Myanmar/Burma | 4.1 | 0.6% | 0.03 | 121 |
| Sudan and South Sudan | 4.1 | 0.6% | 0.02 | 175 |
| Colombia | 4.0 | 0.6% | 0.09 | 46 |
| Kenya | 4.0 | 0.6% | 0.02 | 203 |
| Argentina | 3.9 | 0.6% | 0.18 | 21 |
| Ukraine | 3.8 | 0.6% | 0.21 | 18 |
| Poland | 3.7 | 0.5% | 0.31 | 12 |
| Algeria | 3.7 | 0.5% | 0.18 | 20 |
| Iraq | 3.6 | 0.5% | 0.19 | 18 |
| Uganda | 3.4 | 0.5% | 0.01 | 486 |
| Malaysia | 3.1 | 0.5% | 0.26 | 12 |
| Australia | 3.0 | 0.4% | 0.41 | 7 |
| Morocco | 2.9 | 0.4% | 0.07 | 41 |
| Afghanistan | 2.8 | 0.4% | 0.01 | 232 |
| sum without EU | 574 | | 33 | |
| sum across all countries | 677 | | 37 | 18 |

**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