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 | **0%** | | national budget |
| potential for net negative emissions | **-2%** | | overshoot |
| 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.

**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 | -13% | -60% | -90% | 12 | 8 | 32% | 18% | 2046 | 13 | 0.8% |
| United States | -20% | -50% | -78% | 5 | 15 | 14% | 4% | 2051 | 5 | 0.3% |
| EU27 | -31% | -52% | -71% | 3 | 7 | 8% | 6% | 2058 | 2 | -1.9% |
| India | -3% | -73% | -98% | 3 | 2 | 7% | 18% | 2042 | 3 | 4.6% |
| Russia | -8% | -60% | -91% | 2 | 13 | 5% | 2% | 2045 | 2 | 3.1% |
| Japan | -33% | -54% | -72% | 1 | 9 | 3% | 2% | 2059 | 1 | -3.0% |
| sum | | | | 25 | | 69% | 50% | | 26 | |

| **largest national budgets 2020 - 2100** | national budget | weighted key | emissions 2019 | scope years |
|---|---|---|---|---|
| | Gt | | Gt | |
| China | 171.3 | 32.2% | 11.81 | 14 |
| United States | 72.0 | 13.5% | 4.97 | 14 |
| EU27 | 42.2 | 7.9% | 2.91 | 14 |
| India | 37.0 | 7.0% | 2.55 | 14 |
| Russia | 26.9 | 5.1% | 1.86 | 14 |
| Japan | 16.3 | 3.1% | 1.12 | 14 |
| Iran | 10.3 | 1.9% | 0.71 | 14 |
| Germany | 10.1 | 1.9% | 0.70 | 14 |
| South Korea | 9.5 | 1.8% | 0.65 | 14 |
| Indonesia | 9.2 | 1.7% | 0.64 | 14 |
| Canada | 8.8 | 1.7% | 0.61 | 14 |
| Saudi Arabia | 8.4 | 1.6% | 0.58 | 14 |
| Mexico | 7.2 | 1.3% | 0.49 | 14 |
| South Africa | 6.9 | 1.3% | 0.48 | 14 |
| Brazil | 6.8 | 1.3% | 0.47 | 14 |
| Türkiye | 6.0 | 1.1% | 0.41 | 14 |
| Australia | 5.9 | 1.1% | 0.41 | 14 |
| United Kingdom | 5.2 | 1.0% | 0.36 | 14 |
| Viet Nam | 4.9 | 0.9% | 0.34 | 14 |
| Italy, San Marino and the Holy See | 4.8 | 0.9% | 0.33 | 14 |
| France and Monaco | 4.7 | 0.9% | 0.32 | 14 |
| Poland | 4.5 | 0.9% | 0.31 | 14 |
| Taiwan | 4.2 | 0.8% | 0.29 | 14 |
| Thailand | 4.2 | 0.8% | 0.29 | 14 |
| Malaysia | 3.7 | 0.7% | 0.26 | 14 |
| Spain and Andorra | 3.7 | 0.7% | 0.25 | 14 |
| Egypt | 3.4 | 0.6% | 0.24 | 14 |
| Kazakhstan | 3.2 | 0.6% | 0.22 | 14 |
| Ukraine | 3.0 | 0.6% | 0.21 | 14 |
| Pakistan | 2.9 | 0.5% | 0.20 | 14 |
| United Arab Emirates | 2.9 | 0.5% | 0.20 | 14 |
| Iraq | 2.8 | 0.5% | 0.19 | 14 |
| Argentina | 2.7 | 0.5% | 0.18 | 14 |
| Algeria | 2.6 | 0.5% | 0.18 | 14 |
| Netherlands | 2.3 | 0.4% | 0.16 | 14 |
| Philippines | 2.1 | 0.4% | 0.15 | 14 |
| Nigeria | 1.8 | 0.3% | 0.13 | 14 |
| Venezuela | 1.7 | 0.3% | 0.12 | 14 |
| Qatar | 1.7 | 0.3% | 0.12 | 14 |
| Uzbekistan | 1.7 | 0.3% | 0.12 | 14 |
| Bangladesh | 1.6 | 0.3% | 0.11 | 14 |
| Czechia | 1.5 | 0.3% | 0.10 | 14 |
| Belgium | 1.5 | 0.3% | 0.10 | 14 |
| Kuwait | 1.4 | 0.3% | 0.10 | 14 |
| sum without EU | 493 | | 34 | |
| 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