

more different framework data and corresponding results at: <http://results-esp.msave-the-climate.info>

| framework data (input values here: yellow fields) | | | determination |
|---|----|-----------------|-----------------|
| global CO2 budget 2020 - 2100 | Gt | 550 | global budget |
| land-use change (LUC) emissions 2020 - 2100 | | 0 | |
| international shipping and aviation (ISA) emissions 2020 - 2100 | 3% | -17 | |
| global CO2 budget 2020 - 2100 to distribute here | | 533 | |
| weighting population key in the weighted key | | 30% | 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 | accumulated share | year emissions neutrality | normalised change rate 2020 |
|---|------|------|-------|-------|----------------------|----------------------|--------------------------------|-------------------|---------------------------|-----------------------------|
| target year: | 2030 | | 2050 | | | | | | | |
| reference year: | 1990 | 2010 | 1990 | 2010 | | | | | | |
| China | 193% | -24% | -100% | -100% | 11.5 | 8 | 31% | 31% | 2046 | 2.2% |
| United States | -49% | -53% | -99% | -99% | 5.0 | 15 | 14% | 45% | 2050 | -2.4% |
| EU27 | -59% | -55% | -94% | -93% | 2.9 | 7 | 8% | 53% | 2063 | -4.5% |
| India | 285% | 32% | -33% | -77% | 2.6 | 2 | 7% | 60% | 2063 | 1.5% |
| Russia | -59% | -44% | -100% | -100% | 1.8 | 12 | 5% | 65% | 2048 | -0.7% |
| Japan | -47% | -50% | -97% | -97% | 1.1 | 9 | 3% | 68% | 2054 | -3.0% |

| largest national budgets 2020 - 2100 | national budget | weighted key | emissions 2019 | scope years |
|--------------------------------------|-----------------|--------------|----------------|-------------|
| | Gt | | Gt | |
| China | 147.2 | 27.6% | 11.50 | 13 |
| United States | 58.3 | 10.9% | 5.04 | 12 |
| India | 54.5 | 10.2% | 2.56 | 21 |
| EU27 | 39.2 | 7.4% | 2.93 | 13 |
| Russia | 21.2 | 4.0% | 1.78 | 12 |
| Japan | 14.3 | 2.7% | 1.14 | 13 |
| Indonesia | 12.2 | 2.3% | 0.65 | 19 |
| Brazil | 9.2 | 1.7% | 0.48 | 19 |
| Germany | 8.9 | 1.7% | 0.70 | 13 |
| Iran | 8.7 | 1.6% | 0.69 | 13 |
| South Korea | 7.8 | 1.5% | 0.66 | 12 |
| Mexico | 7.6 | 1.4% | 0.49 | 16 |
| Canada | 6.9 | 1.3% | 0.60 | 12 |
| Saudi Arabia | 6.8 | 1.3% | 0.59 | 11 |
| Pakistan | 6.7 | 1.3% | 0.22 | 31 |
| South Africa | 6.0 | 1.1% | 0.47 | 13 |
| Turkey | 6.0 | 1.1% | 0.41 | 14 |
| Nigeria | 5.5 | 1.0% | 0.13 | 41 |
| Vietnam | 5.4 | 1.0% | 0.33 | 16 |
| United Kingdom | 5.1 | 1.0% | 0.36 | 14 |
| Egypt | 5.0 | 0.9% | 0.28 | 18 |
| Australia | 4.7 | 0.9% | 0.41 | 11 |
| Italy, San Marino and the Holy See | 4.7 | 0.9% | 0.33 | 14 |
| France and Monaco | 4.6 | 0.9% | 0.32 | 14 |
| Bangladesh | 4.5 | 0.8% | 0.11 | 41 |
| Thailand | 4.2 | 0.8% | 0.27 | 16 |
| Poland | 4.0 | 0.7% | 0.31 | 13 |
| Philippines | 3.8 | 0.7% | 0.15 | 25 |
| Spain and Andorra | 3.6 | 0.7% | 0.26 | 14 |
| Taiwan | 3.4 | 0.6% | 0.28 | 12 |
| Malaysia | 3.4 | 0.6% | 0.26 | 13 |
| Kazakhstan | 3.2 | 0.6% | 0.27 | 12 |
| Ukraine | 2.9 | 0.5% | 0.20 | 15 |
| Iraq | 2.9 | 0.5% | 0.21 | 14 |
| Argentina | 2.9 | 0.5% | 0.19 | 15 |
| Algeria | 2.7 | 0.5% | 0.18 | 15 |
| Ethiopia | 2.5 | 0.5% | 0.02 | 132 |
| United Arab Emirates | 2.4 | 0.4% | 0.21 | 11 |
| Colombia | 2.0 | 0.4% | 0.09 | 21 |
| Netherlands | 2.0 | 0.4% | 0.16 | 12 |
| Democratic Republic of the Congo | 1.8 | 0.3% | 0.00 | 528 |
| Venezuela | 1.7 | 0.3% | 0.11 | 16 |
| Uzbekistan | 1.6 | 0.3% | 0.09 | 18 |
| Myanmar/Burma | 1.5 | 0.3% | 0.04 | 40 |
| sum without EU | 474 | | 34 | |
| sum across all countries | 533 | | 37 | 15 |

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 Regensburg Model 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 to making **political decisions** about emission **paths**.

Brief description of the ESPM:

https://www.klima-rettet.info/PDF/ESPM_Background.pdf

Brief description of the RM Scenario Types:

https://www.klima-rettet.info/Downloads/RM-Scenario-Types_short.pdf

Published paper for the six largest emitters:

<https://doi.org/10.5281/zenodo.4764408>