

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

| framework data (input values here: yellow fields) | | | determination |
|---|-----------------|-----|-----------------|
| | Gt | | |
| global CO2 budget 2020 - 2100 | 650 | | global budget |
| land-use change (LUC) emissions 2020 - 2100 | 0 | | |
| international shipping and aviation (ISA) emissions 2020 - 2100 | 3% | -20 | |
| global CO2 budget 2020 - 2100 to distribute here | | 630 | |
| weighting population key in the weighted key | 30% | | national budget |
| 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.

| 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 | | 2050 | | | | | | | |
| reference year: | 1990 | 2019 | 1990 | 2019 | | | | | | |
| China | 232% | -32% | -100% | -100% | 11.8 | 8 | 32% | 18% | 2047 | - |
| United States | -39% | -38% | -100% | -100% | 5.0 | 15 | 14% | 4% | 2047 | - |
| EU27 | -49% | -33% | -97% | -96% | 2.9 | 7 | 8% | 6% | 2052 | - |
| India | 255% | -17% | 62% | -62% | 2.6 | 2 | 7% | 18% | 2067 | - |
| Russia | -49% | -35% | -100% | -100% | 1.9 | 13 | 5% | 2% | 2046 | - |
| Japan | -37% | -35% | -100% | -100% | 1.1 | 9 | 3% | 2% | 2050 | - |
| sum | | | | | | | 69% | 50% | | |

| largest national budgets 2020 - 2100 | national budget | weighted key | emissions 2019 | scope years |
|---|--------------------|-----------------|-------------------|----------------|
| | Gt | | Gt | |
| China | 176.3 | 28.0% | 11.77 | 15 |
| United States | 68.3 | 10.8% | 5.01 | 14 |
| India | 64.4 | 10.2% | 2.56 | 25 |
| EU27 | 46.0 | 7.3% | 2.92 | 16 |
| Russia | 26.1 | 4.2% | 1.88 | 14 |
| Japan | 16.8 | 2.7% | 1.14 | 15 |
| Indonesia | 14.4 | 2.3% | 0.65 | 22 |
| Brazil | 11.0 | 1.7% | 0.48 | 23 |
| Germany | 10.5 | 1.7% | 0.70 | 15 |
| Iran | 10.1 | 1.6% | 0.67 | 15 |
| South Korea | 9.1 | 1.4% | 0.65 | 14 |
| Mexico | 9.0 | 1.4% | 0.48 | 19 |
| Canada | 8.2 | 1.3% | 0.61 | 14 |
| Saudi Arabia | 7.8 | 1.2% | 0.58 | 13 |
| Pakistan | 7.4 | 1.2% | 0.20 | 37 |
| South Africa | 7.1 | 1.1% | 0.47 | 15 |
| Turkey | 7.0 | 1.1% | 0.42 | 17 |
| Vietnam | 6.4 | 1.0% | 0.33 | 19 |
| Nigeria | 6.4 | 1.0% | 0.12 | 53 |
| United Kingdom | 6.1 | 1.0% | 0.37 | 16 |
| Egypt | 5.7 | 0.9% | 0.27 | 21 |
| Australia | 5.5 | 0.9% | 0.41 | 14 |
| France and Monaco | 5.5 | 0.9% | 0.32 | 17 |
| Italy, San Marino and the Holy See | 5.5 | 0.9% | 0.33 | 16 |
| Bangladesh | 5.4 | 0.9% | 0.10 | 51 |
| Thailand | 5.1 | 0.8% | 0.28 | 18 |
| Poland | 4.7 | 0.7% | 0.31 | 15 |
| Philippines | 4.5 | 0.7% | 0.15 | 30 |
| Spain and Andorra | 4.2 | 0.7% | 0.26 | 16 |
| Malaysia | 4.0 | 0.6% | 0.27 | 15 |
| Taiwan | 3.9 | 0.6% | 0.28 | 14 |
| Ukraine | 3.5 | 0.6% | 0.20 | 17 |
| Argentina | 3.3 | 0.5% | 0.18 | 18 |
| Algeria | 3.2 | 0.5% | 0.18 | 18 |
| Iraq | 3.2 | 0.5% | 0.18 | 17 |
| Kazakhstan | 3.1 | 0.5% | 0.22 | 14 |
| Ethiopia | 2.9 | 0.5% | 0.02 | 148 |
| United Arab Emirates | 2.6 | 0.4% | 0.20 | 13 |
| Netherlands | 2.3 | 0.4% | 0.16 | 15 |
| Uzbekistan | 2.3 | 0.4% | 0.12 | 19 |
| Venezuela | 2.2 | 0.4% | 0.12 | 19 |
| Colombia | 2.2 | 0.4% | 0.08 | 27 |
| Democratic Republic of the Congo | 2.2 | 0.3% | 0.00 | 644 |
| Myanmar/Burma | 1.8 | 0.3% | 0.04 | 46 |
| sum without EU | 561 | | 34 | |
| sum across all countries | 630 | | 37 | 17 |

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>