

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 | 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 | | 15% | 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 | | 2050 | | | | | | | |
| reference year: | 1990 | 2019 | 1990 | 2019 | | | | | | |
| China | 223% | -34% | -100% | -100% | 11.8 | 8 | 32% | 18% | 2047 | 2.4% |
| United States | -45% | -45% | -95% | -95% | 5.0 | 15 | 14% | 4% | 2058 | -3.0% |
| EU27 | -58% | -45% | -94% | -92% | 2.9 | 7 | 8% | 6% | 2065 | -4.7% |
| India | 239% | -21% | -64% | -92% | 2.6 | 2 | 7% | 18% | 2060 | 0.3% |
| Russia | -48% | -34% | -100% | -100% | 1.9 | 13 | 5% | 2% | 2046 | 3.9% |
| Japan | -44% | -43% | -95% | -95% | 1.1 | 9 | 3% | 2% | 2059 | -3.1% |
| sum | | | | | | | 69% | 50% | | |

| largest national budgets 2020 - 2100 | national budget | weighted key | emissions 2019 | scope years |
|--------------------------------------|-----------------|--------------|----------------|-------------|
| | Gt | | Gt | |
| China | 160.1 | 30.0% | 11.77 | 14 |
| United States | 65.3 | 12.2% | 5.01 | 13 |
| India | 45.9 | 8.6% | 2.56 | 18 |
| EU27 | 40.7 | 7.6% | 2.92 | 14 |
| Russia | 24.7 | 4.6% | 1.88 | 13 |
| Japan | 15.4 | 2.9% | 1.14 | 14 |
| Indonesia | 10.8 | 2.0% | 0.65 | 17 |
| Germany | 9.5 | 1.8% | 0.70 | 14 |
| Iran | 9.1 | 1.7% | 0.67 | 14 |
| South Korea | 8.6 | 1.6% | 0.65 | 13 |
| Brazil | 8.1 | 1.5% | 0.48 | 17 |
| Canada | 7.9 | 1.5% | 0.61 | 13 |
| Saudi Arabia | 7.5 | 1.4% | 0.58 | 13 |
| Mexico | 7.3 | 1.4% | 0.48 | 15 |
| South Africa | 6.4 | 1.2% | 0.47 | 14 |
| Turkey | 6.0 | 1.1% | 0.42 | 14 |
| Australia | 5.3 | 1.0% | 0.41 | 13 |
| United Kingdom | 5.2 | 1.0% | 0.37 | 14 |
| Vietnam | 5.1 | 1.0% | 0.33 | 15 |
| Italy, San Marino and the Holy See | 4.7 | 0.9% | 0.33 | 14 |
| France and Monaco | 4.7 | 0.9% | 0.32 | 14 |
| Pakistan | 4.6 | 0.9% | 0.20 | 23 |
| Egypt | 4.4 | 0.8% | 0.27 | 16 |
| Poland | 4.2 | 0.8% | 0.31 | 14 |
| Thailand | 4.2 | 0.8% | 0.28 | 15 |
| Taiwan | 3.7 | 0.7% | 0.28 | 13 |
| Spain and Andorra | 3.7 | 0.7% | 0.26 | 14 |
| Malaysia | 3.6 | 0.7% | 0.27 | 14 |
| Nigeria | 3.6 | 0.7% | 0.12 | 30 |
| Bangladesh | 3.0 | 0.6% | 0.10 | 29 |
| Philippines | 3.0 | 0.6% | 0.15 | 20 |
| Kazakhstan | 2.9 | 0.6% | 0.22 | 13 |
| Ukraine | 2.9 | 0.5% | 0.20 | 15 |
| Argentina | 2.7 | 0.5% | 0.18 | 15 |
| Iraq | 2.7 | 0.5% | 0.18 | 15 |
| Algeria | 2.6 | 0.5% | 0.18 | 15 |
| United Arab Emirates | 2.6 | 0.5% | 0.20 | 13 |
| Netherlands | 2.1 | 0.4% | 0.16 | 13 |
| Uzbekistan | 1.9 | 0.3% | 0.12 | 15 |
| Venezuela | 1.8 | 0.3% | 0.12 | 15 |
| Colombia | 1.5 | 0.3% | 0.08 | 19 |
| Ethiopia | 1.4 | 0.3% | 0.02 | 70 |
| Czechia | 1.4 | 0.3% | 0.10 | 13 |
| Belgium | 1.4 | 0.3% | 0.10 | 14 |
| sum without EU | 484 | | 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>