

more different framework data and corresponding results at: <http://results-esp.msave-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% | -17 | |
| global CO2 budget 2020 - 2100 to distribute here | | 533 | |
| weighting population key in the weighted key | | 85% | 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 | accu- mulated share | year emissions neutrality | normalised change rate 2020 |
|---------------------------------------------------------------|------|------|-------|-------|----------------------------|----------------------------|-----------------------------------------|---------------------------|---------------------------------|--------------------------------------|
| target year: | 2030 | | 2050 | | | | | | | |
| reference year: | 1990 | 2010 | 1990 | 2010 | | | | | | |
| China | 76% | -54% | -100% | -100% | 11.5 | 8 | 31% | 31% | 2039 | 2.2% |
| United States | -89% | -90% | -100% | -100% | 5.0 | 15 | 14% | 45% | 2034 | -2.4% |
| EU27 | -64% | -60% | -98% | -98% | 2.9 | 7 | 8% | 53% | 2053 | -4.5% |
| India | 342% | 51% | 126% | -23% | 2.6 | 2 | 7% | 60% | 2086 | 1.5% |
| Russia | -87% | -81% | -100% | -100% | 1.8 | 12 | 5% | 65% | 2035 | -0.7% |
| Japan | -66% | -67% | -100% | -100% | 1.1 | 9 | 3% | 68% | 2042 | -3.0% |

| largest national budgets 2020 - 2100 | national budget | weighted key | emissions 2019 | scope years |
|-----------------------------------------|--------------------|-----------------|-------------------|----------------|
| | Gt | | Gt | |
| China | 109.4 | 20.5% | 11.50 | 10 |
| India | 85.9 | 16.1% | 2.56 | 33 |
| EU27 | 32.6 | 6.1% | 2.93 | 11 |
| United States | 30.4 | 5.7% | 5.04 | 6 |
| Indonesia | 17.3 | 3.2% | 0.65 | 27 |
| Brazil | 13.4 | 2.5% | 0.48 | 28 |
| Pakistan | 13.2 | 2.5% | 0.22 | 61 |
| Russia | 12.5 | 2.3% | 1.78 | 7 |
| Nigeria | 12.1 | 2.3% | 0.13 | 91 |
| Japan | 9.9 | 1.9% | 1.14 | 9 |
| Bangladesh | 9.8 | 1.8% | 0.11 | 89 |
| Mexico | 8.6 | 1.6% | 0.49 | 18 |
| Philippines | 6.7 | 1.3% | 0.15 | 44 |
| Ethiopia | 6.6 | 1.2% | 0.02 | 347 |
| Egypt | 6.5 | 1.2% | 0.28 | 23 |
| Germany | 6.4 | 1.2% | 0.70 | 9 |
| Vietnam | 6.4 | 1.2% | 0.33 | 19 |
| Iran | 6.4 | 1.2% | 0.69 | 9 |
| Turkey | 5.8 | 1.1% | 0.41 | 14 |
| Democratic Republic of the Congo | 5.1 | 1.0% | 0.00 | 1,469 |
| United Kingdom | 4.8 | 0.9% | 0.36 | 13 |
| Thailand | 4.7 | 0.9% | 0.27 | 17 |
| France and Monaco | 4.5 | 0.8% | 0.32 | 14 |
| South Africa | 4.5 | 0.8% | 0.47 | 10 |
| South Korea | 4.5 | 0.8% | 0.66 | 7 |
| Italy, San Marino and the Holy See | 4.3 | 0.8% | 0.33 | 13 |
| Canada | 3.5 | 0.7% | 0.60 | 6 |
| Tanzania | 3.4 | 0.6% | 0.01 | 269 |
| Saudi Arabia | 3.3 | 0.6% | 0.59 | 6 |
| Spain and Andorra | 3.3 | 0.6% | 0.26 | 13 |
| Myanmar/Burma | 3.3 | 0.6% | 0.04 | 86 |
| Sudan and South Sudan | 3.2 | 0.6% | 0.02 | 136 |
| Colombia | 3.2 | 0.6% | 0.09 | 34 |
| Kenya | 3.1 | 0.6% | 0.02 | 164 |
| Argentina | 3.0 | 0.6% | 0.19 | 16 |
| Ukraine | 3.0 | 0.6% | 0.20 | 15 |
| Algeria | 2.9 | 0.5% | 0.18 | 17 |
| Poland | 2.9 | 0.5% | 0.31 | 9 |
| Iraq | 2.8 | 0.5% | 0.21 | 13 |
| Uganda | 2.6 | 0.5% | 0.01 | 421 |
| Malaysia | 2.5 | 0.5% | 0.26 | 9 |
| Australia | 2.4 | 0.4% | 0.41 | 6 |
| Morocco | 2.3 | 0.4% | 0.07 | 32 |
| Afghanistan | 2.3 | 0.4% | 0.01 | 188 |
| sum without EU | 453 | | 33 | |
| 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>