

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

| framework data (input values here: yellow fields)               |    |                 | determination   |
|---|----|-----------------|-----------------|
| <b>global CO2 budget 2020 - 2100</b>                            | Gt | <b>700</b>      | global budget   |
| land-use change (LUC) emissions 2020 - 2100                     |    | <b>0</b>        |                 |
| international shipping and aviation (ISA) emissions 2020 - 2100 | 3% | -21             |                 |
| global CO2 budget 2020 - 2100 to distribute here                |    | 679             |                 |
| <b>weighting population</b> key in the weighted key             |    | <b>100%</b>     | national budget |
| scenario type used for the reference values                     |    | <b>RM-6-abs</b> | 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   | 148% | -35% | -100% | -100% | 11.5                 | 8                    | 31%                            | 31%               | 2040                      | 2.2%                        |
| United States   | -92% | -92% | -100% | -100% | 5.0                  | 15                   | 14%                            | 45%               | 2030                      | -2.4%                       |
| EU27  | -54% | -48% | -100% | -100% | 2.9                  | 7                    | 8%                             | 53%               | 2047                      | -4.5%                       |
| India   | 288% | 33%  | 195%  | 1%    | 2.6                  | 2                    | 7%                             | 60%               | -                         | 1.5%                        |
| Russia  | -80% | -73% | -100% | -100% | 1.8                  | 12                   | 5%                             | 65%               | 2033                      | -0.7%                       |
| Japan   | -54% | -56% | -100% | -100% | 1.1                  | 9                    | 3%                             | 68%               | 2039                      | -3.0%                       |

| largest national budgets 2020 - 2100 | national budget | weighted key | emissions 2019 | scope years |
|--------------------------------------|-----------------|--------------|----------------|-------------|
|                                      | Gt              |              | Gt             |             |
| China                                | 126.2           | 18.6%        | 11.50          | 11          |
| India                                | 120.3           | 17.7%        | 2.56           | 47          |
| EU27                                 | 39.2            | 5.8%         | 2.93           | 13          |
| United States                        | 29.0            | 4.3%         | 5.04           | 6           |
| Indonesia                            | 23.8            | 3.5%         | 0.65           | 37          |
| Pakistan                             | 19.1            | 2.8%         | 0.22           | 87          |
| Brazil                               | 18.6            | 2.7%         | 0.48           | 39          |
| Nigeria                              | 17.7            | 2.6%         | 0.13           | 133         |
| Bangladesh                           | 14.4            | 2.1%         | 0.11           | 130         |
| Russia                               | 12.8            | 1.9%         | 1.78           | 7           |
| Mexico                               | 11.2            | 1.7%         | 0.49           | 23          |
| Japan                                | 11.2            | 1.6%         | 1.14           | 10          |
| Ethiopia                             | 9.9             | 1.5%         | 0.02           | 517         |
| Philippines                          | 9.5             | 1.4%         | 0.15           | 63          |
| Egypt                                | 8.8             | 1.3%         | 0.28           | 31          |
| Vietnam                              | 8.5             | 1.3%         | 0.33           | 26          |
| Democratic Republic of the Congo     | 7.6             | 1.1%         | 0.00           | 2,198       |
| Germany                              | 7.4             | 1.1%         | 0.70           | 10          |
| Turkey                               | 7.3             | 1.1%         | 0.41           | 18          |
| Iran                                 | 7.3             | 1.1%         | 0.69           | 11          |
| Thailand                             | 6.1             | 0.9%         | 0.27           | 23          |
| United Kingdom                       | 5.9             | 0.9%         | 0.36           | 17          |
| France and Monaco                    | 5.7             | 0.8%         | 0.32           | 18          |
| Italy, San Marino and the Holy See   | 5.3             | 0.8%         | 0.33           | 16          |
| South Africa                         | 5.2             | 0.8%         | 0.47           | 11          |
| Tanzania                             | 5.1             | 0.8%         | 0.01           | 400         |
| Myanmar/Burma                        | 4.8             | 0.7%         | 0.04           | 126         |
| Sudan and South Sudan                | 4.7             | 0.7%         | 0.02           | 201         |
| Kenya                                | 4.6             | 0.7%         | 0.02           | 243         |
| South Korea                          | 4.5             | 0.7%         | 0.66           | 7           |
| Colombia                             | 4.4             | 0.7%         | 0.09           | 48          |
| Spain and Andorra                    | 4.1             | 0.6%         | 0.26           | 16          |
| Argentina                            | 3.9             | 0.6%         | 0.19           | 21          |
| Uganda                               | 3.9             | 0.6%         | 0.01           | 628         |
| Ukraine                              | 3.9             | 0.6%         | 0.20           | 20          |
| Algeria                              | 3.8             | 0.6%         | 0.18           | 21          |
| Iraq                                 | 3.5             | 0.5%         | 0.21           | 17          |
| Afghanistan                          | 3.3             | 0.5%         | 0.01           | 278         |
| Poland                               | 3.3             | 0.5%         | 0.31           | 11          |
| Canada                               | 3.3             | 0.5%         | 0.60           | 6           |
| Morocco                              | 3.2             | 0.5%         | 0.07           | 45          |
| Saudi Arabia                         | 3.0             | 0.4%         | 0.59           | 5           |
| Uzbekistan                           | 2.9             | 0.4%         | 0.09           | 32          |
| Peru                                 | 2.9             | 0.4%         | 0.06           | 52          |
| sum without EU                       | 572             |              | 32             |             |
| sum across all countries             | 679             |              | 37             | 19          |

**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-retten.info/PDF/ESPM\\_Background.pdf](https://www.klima-retten.info/PDF/ESPM_Background.pdf)

Brief description of the RM Scenario Types:

[https://www.klima-retten.info/Downloads/RM-Scenario-Types\\_short.pdf](https://www.klima-retten.info/Downloads/RM-Scenario-Types_short.pdf)

Published paper for the six largest emitters:

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