

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 | 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-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   | 251% | -9%  | -96% | -99% | 11.5                 | 8                    | 31%                            | 31%               | 2051                      | 2.2%                        |
| United States   | -41% | -47% | -95% | -96% | 5.0                  | 15                   | 14%                            | 45%               | 2056                      | -2.4%                       |
| EU27  | -56% | -51% | -89% | -88% | 2.9                  | 7                    | 8%                             | 53%               | 2076                      | -4.5%                       |
| India   | 311% | 40%  | 18%  | -60% | 2.6                  | 2                    | 7%                             | 60%               | 2071                      | 1.5%                        |
| Russia  | -52% | -34% | -98% | -97% | 1.8                  | 12                   | 5%                             | 65%               | 2053                      | -0.7%                       |
| Japan   | -41% | -44% | -91% | -92% | 1.1                  | 9                    | 3%                             | 68%               | 2063                      | -3.0%                       |

| largest national budgets 2020 - 2100 | national budget | weighted key | emissions 2019 | scope years |
|--------------------------------------|-----------------|--------------|----------------|-------------|
|                                      | Gt              |              | Gt             |             |
| China                                | 174.0           | 27.6%        | 11.50          | 15          |
| United States                        | 68.9            | 10.9%        | 5.04           | 14          |
| India                                | 64.4            | 10.2%        | 2.56           | 25          |
| EU27                                 | 46.3            | 7.4%         | 2.93           | 16          |
| Russia                               | 25.0            | 4.0%         | 1.78           | 14          |
| Japan                                | 16.9            | 2.7%         | 1.14           | 15          |
| Indonesia                            | 14.4            | 2.3%         | 0.65           | 22          |
| Brazil                               | 10.9            | 1.7%         | 0.48           | 23          |
| Germany                              | 10.5            | 1.7%         | 0.70           | 15          |
| Iran                                 | 10.3            | 1.6%         | 0.69           | 15          |
| South Korea                          | 9.3             | 1.5%         | 0.66           | 14          |
| Mexico                               | 9.0             | 1.4%         | 0.49           | 18          |
| Canada                               | 8.1             | 1.3%         | 0.60           | 14          |
| Saudi Arabia                         | 8.0             | 1.3%         | 0.59           | 13          |
| Pakistan                             | 7.9             | 1.3%         | 0.22           | 36          |
| South Africa                         | 7.1             | 1.1%         | 0.47           | 15          |
| Turkey                               | 7.0             | 1.1%         | 0.41           | 17          |
| Nigeria                              | 6.5             | 1.0%         | 0.13           | 49          |
| Vietnam                              | 6.3             | 1.0%         | 0.33           | 19          |
| United Kingdom                       | 6.0             | 1.0%         | 0.36           | 17          |
| Egypt                                | 5.9             | 0.9%         | 0.28           | 21          |
| Australia                            | 5.6             | 0.9%         | 0.41           | 14          |
| Italy, San Marino and the Holy See   | 5.5             | 0.9%         | 0.33           | 17          |
| France and Monaco                    | 5.5             | 0.9%         | 0.32           | 17          |
| Bangladesh                           | 5.3             | 0.8%         | 0.11           | 48          |
| Thailand                             | 5.0             | 0.8%         | 0.27           | 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           | 17          |
| Taiwan                               | 4.0             | 0.6%         | 0.28           | 14          |
| Malaysia                             | 4.0             | 0.6%         | 0.26           | 15          |
| Kazakhstan                           | 3.8             | 0.6%         | 0.27           | 14          |
| Ukraine                              | 3.5             | 0.5%         | 0.20           | 18          |
| Iraq                                 | 3.4             | 0.5%         | 0.21           | 17          |
| Argentina                            | 3.4             | 0.5%         | 0.19           | 18          |
| Algeria                              | 3.2             | 0.5%         | 0.18           | 18          |
| Ethiopia                             | 3.0             | 0.5%         | 0.02           | 156         |
| United Arab Emirates                 | 2.8             | 0.4%         | 0.21           | 13          |
| Colombia                             | 2.4             | 0.4%         | 0.09           | 25          |
| Netherlands                          | 2.3             | 0.4%         | 0.16           | 15          |
| Democratic Republic of the Congo     | 2.2             | 0.3%         | 0.00           | 624         |
| Venezuela                            | 2.0             | 0.3%         | 0.11           | 18          |
| Uzbekistan                           | 1.9             | 0.3%         | 0.09           | 21          |
| Myanmar/Burma                        | 1.8             | 0.3%         | 0.04           | 47          |
| sum without EU                       | 560             |              | 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](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](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>