

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

framework data (input values here: yellow fields)		
	Gt	
<b>global CO2 budget 2018 - 2100</b>		<b>420</b>
land-use change (LUC) emissions from 2018 on	<b>10%</b>	-42
international shipping and aviation (ISA) emissions from 2018 on	3%	-13
global CO2 emissions 2018 - 2019 without LUC and ISA		-73
global CO2 budget 2020 - 2100 to distribute here		292
<b>weighting population</b> key in the weighted key	<b>70%</b>	national budget
scenario type used for the reference values	<b>RM-4-quadr</b>	reference values
<b>minimum</b> annual <b>emissions</b> as a percentage of the country's current emissions	<b>-10%</b>	

**global budget** to distribute here:  
LUC and ISA emissions are subtracted from the global budget because no reliable data are available at the country level. The emissions for countries used and the country budgets determined here also do not include LUC and ISA emissions.

reference values for the countries with the highest emissions					emissions	per capita	share in global	accu-	temporary	reduction
target year:	2030		2050		2019	2019	emissions	mulated	overshoot	rate
reference year:	1990	2010	1990	2010	in Gt	in t	2019	share	in Gt	used
China	167%	-30%	-148%	-95%	11.5	8	31%	31%	63	-2.1%
United States	-52%	-57%	-110%	-101%	5.1	16	14%	45%	30	-2.4%
EU27	-54%	-49%	-107%	-95%	2.9	7	8%	53%	16	-2.0%
India	256%	21%	-41%	-29%	2.6	2	7%	61%	9	-1.2%
Russia	-63%	-48%	-107%	-99%	1.8	12	5%	65%	10	-2.3%
Japan	-45%	-48%	-110%	-97%	1.2	9	3%	69%	6	-2.2%

largest national budgets 2020 - 2100	national budget	weighted key	emissions 2019	scope years
	Gt		Gt	
China	65.6	22.5%	11.5	5.7
India	42.5	14.5%	2.6	16.4
EU28	21.5	7.4%	3.3	6.5
United States	21.0	7.2%	5.1	4.1
EU27	18.8	6.4%	2.9	6.4
Indonesia	8.7	3.0%	0.6	13.9
Russia	8.2	2.8%	1.8	4.6
Brazil	6.7	2.3%	0.5	14.1
Pakistan	6.3	2.1%	0.2	28.1
Japan	6.1	2.1%	1.2	5.3
Nigeria	5.6	1.9%	0.1	55.6
Bangladesh	4.6	1.6%	0.1	41.7
Mexico	4.5	1.6%	0.5	9.4
Germany	3.9	1.3%	0.7	5.5
Iran	3.9	1.3%	0.7	5.5
Vietnam	3.3	1.1%	0.3	10.8
Egypt	3.3	1.1%	0.3	12.8
Philippines	3.2	1.1%	0.2	21.4
Turkey	3.2	1.1%	0.4	7.7
Ethiopia	3.0	1.0%	0.0	165.3
South Korea	2.9	1.0%	0.7	4.5
South Africa	2.7	0.9%	0.5	5.5
United Kingdom	2.7	0.9%	0.4	7.3
Thailand	2.5	0.9%	0.3	9.1
France and Monaco	2.5	0.8%	0.3	7.9
Italy, San Marino and the Holy See	2.4	0.8%	0.3	7.2
sum without EU	219		29	
sum across all countries	292		37	8.0

**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 scenario types **RM 1 - 6** to derive plausible national paths that adhere to a national budget.

The **weighting of the population distribution key** is therefore an important parameter when determining national budgets.

An important parameter for determining the national paths is the potential for **net negative emissions** that is assumed. This is given here by the minimum value of annual emissions up to 2100 as a percentage of the country's current emissions. A negative percentage stands for net negative emissions. If net negative emissions are taken into account, the budget is temporarily exceeded (overshoot). Please note: The potential of negative emissions is controversial. In addition, a resulting **overshoot** can be problematic with regard to the **tipping points** in the climate system.

**Basic idea behind the RM Scenario Types 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**.

Here is a 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)