

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

framework data (input values here: yellow fields)		
	Gt	
global CO2 budget 2018 - 2100	680	
land-use change (LUC) emissions from 2018 on	16%	-109
international shipping and aviation (ISA) emissions from 2018 on	3%	-20
global CO2 emissions 2018 - 2019 without LUC and ISA		-73
global CO2 budget 2020 - 2100 to distribute here	478	
weighting population key in the weighted key	15%	national budget
scenario type used for the reference values	RM-4-quadr	reference values
minimum annual emissions as a percentage of the country's current emissions	-10%	

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	252%	-8%	-78%	-59%	11.5	8	31%	31%	46	-1.9%
United States	-24%	-31%	-97%	-73%	5.1	16	14%	45%	22	-1.5%
EU27	-41%	-34%	-97%	-71%	2.9	7	8%	53%	12	-1.4%
India	254%	21%	-44%	-30%	2.6	2	7%	61%	9	-1.2%
Russia	-43%	-22%	-98%	-69%	1.8	12	5%	65%	8	-1.5%
Japan	-26%	-29%	-96%	-69%	1.2	9	3%	69%	5	-1.8%

largest national budgets 2020 - 2100	national budget	weighted key	emissions 2019	scope years
	Gt		Gt	
China	141.1	29.5%	11.5	12.2
United States	59.6	12.5%	5.1	11.7
India	41.5	8.7%	2.6	16.0
EU28	41.4	8.7%	3.3	12.5
EU27	36.7	7.7%	2.9	12.5
Russia	21.2	4.4%	1.8	11.8
Japan	14.0	2.9%	1.2	12.1
Indonesia	9.4	2.0%	0.6	15.1
Germany	8.6	1.8%	0.7	12.2
Iran	8.5	1.8%	0.7	12.2
South Korea	7.7	1.6%	0.7	11.8
Brazil	7.3	1.5%	0.5	15.2
Saudi Arabia	7.1	1.5%	0.6	11.6
Canada	6.8	1.4%	0.6	11.7
Mexico	6.6	1.4%	0.5	13.5
South Africa	6.0	1.3%	0.5	12.2
Turkey	5.4	1.1%	0.4	12.9
Australia	5.0	1.1%	0.4	11.6
United Kingdom	4.7	1.0%	0.4	12.8
Pakistan	4.5	0.9%	0.2	20.1
Vietnam	4.3	0.9%	0.3	14.0
Italy, San Marino and the Holy See	4.2	0.9%	0.3	12.8
France and Monaco	4.1	0.9%	0.3	13.0
Poland	3.9	0.8%	0.3	12.2
Egypt	3.8	0.8%	0.3	14.7
Thailand	3.7	0.8%	0.3	13.4
sum without EU	389		31	
sum across all countries	478		37	13.0

**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)