

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

**framework data (input values here: yellow fields)**

global CO2 budget 2020 - 2100	Gt	determination
land-use change (LUC) emissions 2020 - 2100	700	
international shipping and aviation (ISA) emissions 2020 - 2100	0	
global CO2 budget 2020 - 2100 to distribute here	3.3%	-23
weighting population in the weighted key	677	national budget
potential for net negative emissions	50%	overshoot
scenario type used for the reference values	-2%	RM-4-quadr
		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.

**Overshoot:** The percentage stated is applied to the 2019 emissions and represents the minimum of the emissions pathway.

**reference values for the countries with the highest emissions**

target year:	2030	2035	2040	emissions 2019 in Gt	per capita 2019 in t	share in global emissions 2019	share in global population 2019	year emissions neutrality	temporary overshoot in Gt	normalised start change rate 2025
	reference year:	2019	2019							
China	0%	-62%	-98%	12	8	32%	18%	2041	14	0.8%
United States	-18%	-67%	-98%	5	15	14%	4%	2041	6	0.3%
EU27	-26%	-41%	-61%	3	7	8%	6%	2055	3	-1.9%
India	57%	59%	14%	3	2	7%	18%	2054	2	4.6%
Russia	-5%	-89%	-102%	2	13	5%	2%	2038	2	3.1%
Japan	-32%	-50%	-71%	1	9	3%	2%	2053	1	-3.5%
sum				25		69%	50%		28	

largest national budgets 2020 - 2100	national budget	weighted key	emissions 2019	scope years
	Gt	Gt		
China	171.3	25.3%	11.81	15
India	83.6	12.4%	2.55	33
United States	60.3	8.9%	4.97	12
EU27	46.3	6.8%	2.91	16
Russia	23.5	3.5%	1.86	13
Indonesia	17.7	2.6%	0.64	28
Japan	15.9	2.4%	1.12	14
Brazil	13.6	2.0%	0.47	29
Pakistan	10.8	1.6%	0.20	54
Mexico	10.4	1.5%	0.49	21
Iran	10.2	1.5%	0.71	14
Germany	10.0	1.5%	0.70	14
Nigeria	10.0	1.5%	0.13	79
Bangladesh	8.4	1.2%	0.11	77
South Korea	8.3	1.2%	0.65	13
Türkiye	7.5	1.1%	0.41	18
Viet Nam	7.4	1.1%	0.34	22
Canada	7.3	1.1%	0.61	12
South Africa	7.0	1.0%	0.48	15
Saudi Arabia	6.8	1.0%	0.58	12
Egypt	6.6	1.0%	0.24	28
United Kingdom	6.3	0.9%	0.36	17
Philippines	6.1	0.9%	0.15	41
France and Monaco	5.9	0.9%	0.32	18
Thailand	5.7	0.8%	0.29	20
Italy, San Marino and the Holy See	5.7	0.8%	0.33	17
Ethiopia	5.0	0.7%	0.02	271
Australia	4.9	0.7%	0.41	12
Poland	4.5	0.7%	0.31	15
Spain and Andorra	4.4	0.6%	0.25	17
Democratic Republic of the Congo	3.8	0.6%	0.00	865
Ukraine	3.8	0.6%	0.21	18
Malaysia	3.8	0.6%	0.26	15
Taiwan	3.7	0.5%	0.29	13
Argentina	3.7	0.5%	0.18	20
Iraq	3.6	0.5%	0.19	18
Algeria	3.5	0.5%	0.18	20
Colombia	3.0	0.4%	0.09	35
Kazakhstan	2.8	0.4%	0.22	13
Tanzania	2.8	0.4%	0.02	166
Myanmar/Burma	2.7	0.4%	0.03	79
Sudan and South Sudan	2.6	0.4%	0.02	111
Venezuela	2.5	0.4%	0.12	21
Uzbekistan	2.5	0.4%	0.12	22
sum without EU	590		33	
sum across all countries	677		37	18

**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 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

Brief description of the ESPM:

<http://espm-short.climate-calculator.info>

Brief description of the RM Scenario Types:

<http://rm-scenario-types.climate-calculator.info>

Published paper for the six largest emitters:

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

Overview of web apps for ESPM:

<https://climate-calculator.info>