



Supplement of

The IPCC Sixth Assessment Report WGIII climate assessment of mitigation pathways: from emissions to global temperatures

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Supplement Fig. S1: sensitivity to temperature estimate changes of number of scenarios and net zero CO2 and GHG characteristics.

Sect. S1: Vetting process for the climate assessment in AR6 WGIII

As explained in more detail in Annex III section 3.1 (IPCC, 2022a) of the Working Group III contribution to the IPCC Sixth Assessment Report (AR6 WGIII), a vetting process was undertaken for all scenarios reporting global data. Of the 2266 scenarios submitted to the scenario database during the 22-month long open call, about three quarters passed the vetting criteria, while 1202 passed also the additional criteria specified in Annex III section 3.2.1 (IPCC, 2022a). Vetting scenarios was therefore done both to ensure reasonable historical alignment for energy and emissions and minimum variable coverage. For the climate assessment process, the vetting ensures a certain level of confidence that only scenarios with sufficient, quality emissions data remained in the climate assessment. This was done to prevent the harmonization and infilling procedures behaving in unexpected ways for scenarios with either low levels of emissions data or reporting errors. For instance, if important quantitative information on the development of either land-use related emissions or methane mitigation is not provided, it would be possible that the climate outcome is not consistent with the storyline because there is uncertainty in whether the infilled emissions pathways are in line with the storyline and these large emissions sources do affect global mean surface temperature outcomes significantly. Another example would be that it is possible that some of the methods in the harmonisation process project very large future deviations from original scenario data if there are very high starting deltas (i.e., if there is a big difference between the modelled pathway and the historical data).

To provide an overview of the reason that scenarios were filtered out, we provide three illustrations. **Supplement Fig. S2** shows by model framework how many scenarios were excluded because of the vetting process, grouped by high-level reason. **Supplement Table S1** shows a disaggregation of the vetting and how many scenarios were affected by these vetting rules. The selected vetting rules and the threshold values come from the assessment of the IPCC writing team, based on their expert judgement. **Supplement Table S2** shows a summary of the number of scenarios that passed vetting by climate category and model framework.



Vetting information for scenarios with a global scope in the AR6 Scenario Database.

Supplement Fig. S2: Vetting information for the scenarios in the AR6 Scenario database (Byers et al., 2022). This figure shows how many scenarios of different model framework passed vetting criteria and were suitable to receive a climate assessment in IPCC AR6 WGIII (IPCC, 2022b). If a scenario both failed vetting and did not provide information until 2100, it is shown as "No. Not until 2100.".

	Reference Value	Range	Number of scenarios out of range
CO ₂ (total) in 2019	44,251 MtCO2	$\pm 40\%$	23
CO ₂ -FFI in 2019	37,646 MtCO2	± 20%	55
CH4 in 2019	379 MtCH4	± 20%	139
CO ₂ -FFI percentage change 2010-2020	-	0 - 50%	74
CCS from energy in 2020	-	0-250 Mt/CO2	77
Primary Energy in 202	578 EJ	± 20%	73
Electricity Nuclear in 2020	9.77 EJ	± 30%	266
Electricity Solar and Wind in 2020	8.51 EJ	± 50%	377

Supplement Table S1: The vetting criteria applied for the selection of global scenarios for the climate assessment based on Annex III Table II.4 of AR6 WGIII (IPCC, 2022a).

Model framework	C1	C2	C3	C4	C5	C6	C7	C8	Total
AIM	4	3	17	8	13	4	6	0	55
C-ROADS-5.005	3	2	0	0	0	0	0	1	6
COFFEE 1.1	1	4	14	15	21	9	1	0	65
GCAM	6	6	13	9	6	1	6	1	48
GEM-E3_V2021	2	10	12	6	5	3	3	0	41
IMAGE	7	9	34	18	22	16	34	2	142
MESSAGE	20	43	59	39	57	20	28	0	266
POLES	4	10	26	24	20	11	19	0	114
REMIND	41	44	84	16	34	19	48	11	297
WITCH	9	2	31	14	24	9	12	14	115
EPPA 6	0	0	1	3	0	1	2	0	7
TIAM-ECN 1.1	0	0	20	6	10	4	5	0	45
MERGE-ETL 6.0	0	0	0	1	0	0	0	0	1
Total	97	133	311	159	212	97	164	29	1202

Supplement Table S2: Overview of number of classified scenarios by modelling framework and temperature classification.

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Forcing C2F6 * for hexafluoroethane. 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95. FaIR, and CICERO. AR6 climate diagnostics Effective Radiative Forcing C6F14 * Effective radiative forcing for perfluorohexane. Percentiles: Available for MAGICC, 83.3, 90, and 95. AR6 climate diagnostics Effective Radiative Forcing CF4 * Effective radiative forcing for tetrafluorohexane. Percentiles: Available for MAGICC, 83.3, 90, and 95. AR6 climate diagnostics Effective Radiative Forcing CF4 * Effective radiative forcing for tetrafluorohexane. Percentiles: Available for MAGICC, 83.3, 90, and 95.	AR6 climate diagnostics Effective Radiative	Effective radiative forcing	Percentiles:	Available for MAGICC,
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Forcing C6F14 *for perfluorohexane.5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.FaIR, and CICERO.AR6 climate diagnostics Effective Radiative Forcing CF4 *Effective radiative forcing for tetrafluorohexane.Percentiles: 5, 10, 16.7, 33, 50, 67, 5, 10, 16.7, 33, 50, 67, FaIR, and CICERO.Available for MAGICC, FaIR, and CICERO.	AR6 climate diagnostics Effective Radiative	Effective radiative forcing	Percentiles:	Available for MAGICC,
AR6 climate diagnostics Effective Radiative Effective radiative forcing Percentiles: Available for MAGICC, Forcing CF4 * for tetrafluorohexane. 5, 10, 16.7, 33, 50, 67, FaIR, and CICERO.	Forcing C6F14 *	for perfluorohexane.	5, 10, 16.7, 33, 50, 67,	FaIR, and CICERO.
Accountate diagnostics/Effective radiativeEffective radiative forcingPercentiles:Available for MAGICC,Forcing/CF4/*for tetrafluorohexane.5, 10, 16.7, 33, 50, 67,FaIR, and CICERO.83.3.90 and 95	ADC aligned diagonatics ID(C) (C) D I' (C)	Tiffe ations and the first	83.3, 90, and 95.	Amilable for MACICC
rorenig C1'4 ² for terrariuoronexalle. 5, 10, 10, 7, 55, 50, 67, Fark, and CICEKO. 83.3.90 and 95	AKO CIIMATE diagnostics Effective Kadiative	for tetrafluorohovana	rercentiles:	Available for MAGICC,
03.3, 90, and 93.	r oremg C1'4		83.3, 90, and 95.	Fair, and CICERO.

AR6 climate diagnostics Effective Radiative Forcing CH4 *	Effective radiative forcing for methane.	Percentiles: 5, 10, 16.7, 33, 50, 67,	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing CO2 *	Effective radiative forcing for carbon dioxide.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing F-Gases *	Effective radiative forcing for the basket of fluorinated gases.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC125 *	Effective radiative forcing for HFC125.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC134a *	Effective radiative forcing for HFC134a.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC143a *	Effective radiative forcing for HFC143a.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC227ea *	Effective radiative forcing for HFC227ea.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC23 *	Effective radiative forcing for HFC23.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC245fa *	Effective radiative forcing for HFC245fa.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC32 *	Effective radiative forcing for HFC32.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing HFC4310mee *	Effective radiative forcing for HFC43-10.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing N2O *	Effective radiative forcing for nitrous oxide.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Effective Radiative Forcing SF6 *	Effective radiative forcing for sulfur hexafluoride.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Heat Uptake *	Total earth system heat uptake (land, ocean, cryosphere and atmosphere), equivalent to the the energy imbalance at the top of the atmosphere.	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Raw Surface Temperature (GMST) *	Raw global-mean air ocean blended temperature change (GMST i.e. a blend of 2m air temperature over land and surface temperatures over the ocean; raw to distinguish it from the GSAT output which is	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.

	adjusted to match the WG1 best-estimate historical warming		
	between 1850-1900 and 1995-2014)		
AR6 climate diagnostics Raw Surface Temperature (GSAT) *	Raw global-mean surface air temperature change (GSAT i.e. 2m air temperature; raw to distinguish it from the GSAT output which is adjusted to match the WGI best-estimate historical warming between 1850-1900 and 1995-2014).	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Surface Temperature (GSAT) *	Global-mean surface air temperature change to be used for e.g. scenario categorisation (this output has been adjusted to match the WGI best- estimate historical warming between 1850- 1900 and 1995-2014).	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC, FaIR, and CICERO.
AR6 climate diagnostics Net Atmosphere to Land Flux CO2 MAGICCv7.5.3 50.0th Percentile	Net flux of carbon dioxide from the atmosphere to the land (not including AFOLU and other anthropogenic emissions). A positive value indicates uptake of carbon dioxide from the land (i.e. the land is acting as a carbon sink), a negative value indicates release of carbon dioxide from the land (i.e. the land is acting as a carbon source).	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC.
AR6 climate diagnostics Net Atmosphere to Ocean Flux CO2 MAGICCv7.5.3 50.0th Percentile	Net flux of carbon dioxide from the atmosphere to the ocean. A positive value indicates uptake of carbon dioxide from the ocean (i.e. the ocean is acting as a carbon sink), a negative value indicates release of carbon dioxide from the ocean (i.e. the ocean is acting as a carbon source).	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC.
AR6 climate diagnostics Net Land to Atmosphere Flux due to Permafrost CH4 MAGICCv7.5.3 50.0th Percentile	Net flux of methane from the land to the atmosphere due to the permafrost feedback. A positive	Percentiles: 5, 10, 16.7, 33, 50, 67, 83.3, 90, and 95.	Available for MAGICC.

	value indicates release of		
	methane from the land.		
AR6 climate diagnostics Net Land to	Net flux of carbon dioxide	Percentiles:	Available for MAGICC.
Atmosphere Flux due to	from the land to the	5, 10, 16.7, 33, 50, 67,	
Permafrost CO2 MAGICCv7.5.3 50.0th	atmosphere due to the	83.3, 90, and 95.	
Percentile	permafrost feedback. A		
	positive value indicates		
	release of carbon dioxide		
	from the land.		

Supplement Table S3: Global climate variables reported in the AR6 Scenarios Database hosted by IIASA (AR6DB).

Variable name	Used as input for the IPCC AR6
	workflow to calculate global
	temperature change?
Emissions BC	Yes.
Emissions BC AFOLU	No.
Emissions BC AFOLU Agriculture	No.
Emissions BC AFOLU Land	No.
Emissions BC Energy	No.
Emissions BC Energy Demand Industry	No.
Emissions BC Energy Demand Residential and Commercial	No.
Emissions BC Energy Demand Residential and Commercial Commercial	No.
Emissions BC Energy Demand Residential and Commercial Residential	No.
Emissions BC Energy Demand Transportation	No.
Emissions BC Energy Supply	No.
Emissions BC Industrial Processes	No.
Emissions BC Other	No.
Emissions BC Waste	No.
Emissions C2F6	No.
Emissions CF4	No.
Emissions CH4	Yes.
Emissions CH4 AFOLU	No.
Emissions CH4 AFOLU Agriculture	No.
Emissions CH4 AFOLU Agriculture Livestock	No.
Emissions CH4 AFOLU Agriculture Livestock Enteric Fermentation	No.
Emissions CH4 AFOLU Agriculture Livestock Manure Management	No.
Emissions CH4 AFOLU Agriculture Rice	No.
Emissions CH4 AFOLU Land	No.
Emissions CH4 Energy	No.
Emissions CH4 Energy Demand Industry	No.
Emissions CH4 Energy Demand Residential and Commercial	No.
Emissions CH4 Energy Demand Residential and Commercial Commercial	No.
Emissions CH4 Energy Demand Residential and Commercial Residential	No.
Emissions CH4 Energy Demand Transportation	No.
Emissions CH4 Energy Supply	No.
Emissions CH4 Industrial Processes	No.
Emissions CH4 Industrial Processes Chemicals	No.
Emissions CH4 Industrial Processes Steel	No.
Emissions CH4 Other	No.
Emissions CH4 Waste	No.
Emissions CO	Yes.
Emissions CO AFOLU	No.
Emissions CO AFOLU Agriculture	No.
Emissions CO AFOLU Land	No.
Emissions CO Energy	No.
Emissions CO Energy Demand Industry	No.
Emissions CO Energy Demand Residential and Commercial	No.
Emissions CO Energy Demand Residential and Commercial Commercial	No.
Emissions CO Energy Demand Residential and Commercial Residential	No.
Emissions CO Energy Demand Transportation	No.
Emissions CO Energy Supply	No.
Emissions CO Industrial Processes	No.
Emissions CO Other	No.
Emissions CO Waste	No.

Encircipation al CO2	$\mathbf{V}_{}(\mathbf{*})$
	Yes. (*)
Emissions CO2 AFOLU	Yes.
Emissions/CO2/AFOLU/Agriculture	No.
Emissions CO2 AFOLU Land	No.
Emissions CO2 Energy	Yes. (*)
Emissions CO2 Energy and Industrial Processes	Yes.
Emissions CO2 Energy Demand	No.
Emissions CO2 Energy Demand AFOFI	No.
Emissions CO2 Energy Demand Industry	No.
Emissions CO2 Energy Demand Industry Cement	No.
Emissions CO2 Energy Demand Industry Chemicals	No.
Emissions CO2 Energy Demand Industry Chemicals Ammonia	No.
Emissions CO2 Energy Demand Industry Chemicals High value chemicals	No.
Emissions CO2 Energy Demand Industry Chemicals Methanol	No.
Emissions CO2 Energy Demand Industry Chemicals Other	No.
Emissions CO2 Energy Demand Industry Non-ferrous metals	No.
Emissions CO2 Energy Demand Industry Other	No.
Emissions CO2 Energy Demand Industry Pulp and Paper	No.
Emissions CO2 Energy Demand Industry Steel	No.
Emissions/CO2/Energy/Demand/Other Sector	No
Emissions/CO2/Energy/Demand/Residential and Commercial	No
Emissions/CO2/Energy/Demand/Residential and Commercial/Commercial	No
Emissions/CO2/Energy/Demand/Residential and Commercial/Commercial/Heating	No.
Emissions/CO2/Energy/Demand/Residential and Commercial/Commercial/Iteating	No.
Commercial/Commercial/Heating/Cooking	140.
Commercial Commercial Hearing Cooking	No
Commercial/Commercial/Heating/Space	NO.
Emissions/CO2/Energy/Demand/Residential and	No
Commercial/Commercial/Heating/Water	NO.
Commercial Commercial Heating water	N-
Emissions CO2 Energy Demand Residential and Commercial Residential	NO.
Emissions CO2 Energy Demand Residential and Commercial Residential Heating	NO.
Emissions/CO2/Energy/Demand/Residential and	No.
	N
Emissions/CO2/Energy/Demand/Residential and	No.
Commercial/Residential/Heating/Space	N
Emissions/CO2/Energy/Demand/Residential and	No.
Commercial Residential Heating Water	
Emissions CO2 Energy Demand Transportation	No.
Emissions CO2 Energy Demand Transportation Aviation	No.
Emissions CO2 Energy Demand Transportation Aviation Freight	No.
Emissions CO2 Energy Demand Transportation Aviation Passenger	No.
Emissions CO2 Energy Demand Transportation Freight	No.
Emissions CO2 Energy Demand Transportation Maritime	No.
Emissions CO2 Energy Demand Transportation Maritime Freight	No.
Emissions CO2 Energy Demand Transportation Maritime Passenger	No.
Emissions CO2 Energy Demand Transportation Passenger	No.
Emissions CO2 Energy Demand Transportation Rail	No.
Emissions CO2 Energy Demand Transportation Rail Freight	No.
Emissions CO2 Energy Demand Transportation Rail Passenger	No.
Emissions CO2 Energy Demand Transportation Road	No.
Emissions/CO2/Energy/Demand/Transportation/Road/Freight	No.
Emissions CO2 Energy Demand Transportation Road Passenger	No.
Emissions/CO2/Energy/Demand/Transportation/Road/Passenger/2W&3W	No
Emissions/CO2/Energy/Demand/Transportation/Road/Passenger/Bus	No.

Emissions CO2 Energy Demand Transportation Road Passenger LDV	No
Emissions/CO2/Energy/Supply	No
Emissions/CO2/Energy/Supply/Electricity	No
Emissions/CO2/Energy/Supply/Electricity	No
Emissions/CO2/Energy/Supply/Cases	No
Emissions/CO2/Energy/Supply/Heat	No
Emissions/CO2/Energy/Supply/Elquids	No.
Emissions/CO2/Energy/Supply/Onici Sector	No.
Emissions/CO2/Energy/Supply/Solids	NO. Vac. (*)
Emissions/CO2/Industrial Processes	
Emissions/CO2/Industrial Processes/Cement	NO.
Emissions CO2 Industrial Processes Chemicals	NO.
Emissions CO2 Industrial Processes Chemicals Ammonia	No.
Emissions CO2 Industrial Processes Chemicals High value chemicals	No.
Emissions CO2 Industrial Processes Chemicals Methanol	No.
Emissions CO2 Industrial Processes Chemicals Other	No.
Emissions CO2 Industrial Processes Non-ferrous metals	No.
Emissions CO2 Industrial Processes Other	No.
Emissions CO2 Industrial Processes Pulp and Paper	No.
Emissions CO2 Industrial Processes Steel	No.
Emissions CO2 Other	Yes. (*)
Emissions CO2 Waste	Yes. (*)
Emissions F-Gases	No.
Emissions HFC	No.
Emissions HFC HFC125	Yes.
Emissions HFC HFC134a	Yes.
Emissions HFC HFC143a	Yes.
Emissions HFC HFC227ea	Yes.
Emissions/HFC/HFC23	Yes.
Emissions/HFC/HFC245fa	No.
Emissions/HFC/HFC32	Yes
Emissions/HFC/HFC43-10	Yes
Emissions/HFC/Industrial Processes	No
Emissions/Kyoto Gases	No
Emissions/N2O	Ves
Emissions[N2O] A FOL U	No
Emissions/N2O/A FOLULA grigulture	No.
Emissions N2O AFOLU Agriculture Livestock Manure Management	No.
Emissions/N2O/AFOLU/Agriculture/Envestock/Wahure Management	No.
Emissions/N2O/AFOLU/Land	No.
Emissions N2O AFOLU Land	No.
Emissions N20 Energy	NO.
Emissions N2O Energy Demand Residential and Commercial Commercial	NO.
Emissions N2O Energy Demand Residential and Commercial Residential	No.
Emissions/N2O/Energy/Demand/Transportation	No.
Emissions N2O Industrial Processes	No.
Emissions N2O Industrial Processes Chemicals	No.
Emissions N2O Other	No.
Emissions N2O Waste	No.
Emissions NH3	Yes.
Emissions NH3 AFOLU	No.
Emissions NH3 AFOLU Agriculture	No.
Emissions NH3 AFOLU Land	No.
Emissions NH3 Energy	No.
Emissions NH3 Energy Demand Industry	No.

Emissions NH3 Energy Demand Residential and Commercial	No.
Emissions NH3 Energy Demand Transportation	No.
Emissions NH3 Energy Supply	No.
Emissions NH3 Industrial Processes	No.
Emissions NH3 Other	No.
Emissions NH3 Waste	No.
Emissions	Yes.
Emissions NOx AFOLU	No.
Emissions NOx AFOLU Agriculture	No.
Emissions NOx AFOLU Land	No.
Emissions NOx Energy	No.
Emissions NOx Energy Demand Industry	No.
Emissions NOx Energy Demand Residential and Commercial	No.
Emissions NOx Energy Demand Residential and Commercial Commercial	No.
Emissions NOx Energy Demand Residential and Commercial Residential	No.
Emissions NOx Energy Demand Transportation	No.
Emissions NOx Energy Supply	No.
Emissions NOx Industrial Processes	No.
Emissions NOx Other	No.
Emissions NOx Waste	No.
Emissions OC	Yes.
Emissions OC AFOLU	No.
Emissions OC AFOLU Agriculture	No.
Emissions OC AFOLU Land	No.
Emissions OC Energy	No.
Emissions OC Energy Demand Industry	No.
Emissions OC Energy Demand Residential and Commercial	No.
Emissions OC Energy Demand Residential and Commercial Commercial	No.
Emissions OC Energy Demand Residential and Commercial Residential	No.
Emissions OC Energy Demand Transportation	No.
Emissions OC Energy Supply	No.
Emissions OC Industrial Processes	No.
Emissions OC Other	No.
Emissions OC Waste	No.
Emissions PFC	No.
Emissions PFC C2F6	Yes.
Emissions PFC C6F14	Yes.
Emissions PFC CF4	Yes.
Emissions PM2.5	No.
Emissions SF6	Yes.
Emissions Sulfur	Yes.
Emissions Sulfur AFOLU	No.
Emissions Sulfur AFOLU Agriculture	No.
Emissions Sulfur AFOLU Land	No.
Emissions Sulfur Energy	No.
Emissions Sulfur Energy Demand Industry	No.
Emissions Sulfur Energy Demand Residential and Commercial	No.
Emissions Sulfur Energy Demand Residential and Commercial Commercial	No.
Emissions Sulfur Energy Demand Residential and Commercial Residential	No.
Emissions Sulfur Energy Demand Transportation	No.
Emissions Sulfur Energy Supply	No.
Emissions Sulfur Industrial Processes	No.
Emissions Sulfur Other	No.

Emissions Sulfur Waste	No.
Emissions	Yes.
Emissions VOC AFOLU	No.
Emissions VOC AFOLU Agriculture	No.
Emissions VOC AFOLU Land	No.
Emissions VOC Energy	No.
Emissions VOC Energy Demand Industry	No.
Emissions VOC Energy Demand Residential and Commercial	No.
Emissions VOC Energy Demand Residential and Commercial Commercial	No.
Emissions VOC Energy Demand Residential and Commercial Residential	No.
Emissions VOC Energy Demand Transportation	No.
Emissions VOC Energy Supply	No.
Emissions VOC Industrial Processes	No.
Emissions VOC Other	No.
Emissions/VOC/Waste	No.

Supplement Table S4: Global emissions variables reported by the IAM modelling frameworks as available in the AR6 Scenarios Database hosted by IIASA (AR6DB), marking the variables that were used in the IPCC AR6 WGIII climate assessment workflow. (*) = only used in exceptional cases if not all information if captured in the combination of "Emissions|CO2|AFOLU" and "Emissions|CO2|Energy and Industrial Processes".

Variable name	Description	Note
AR6 climate diagnostics Emissions Kyoto Gases (AR5-	Total greenhouse gases	Based on IAM-reported emissions,
GWP100)	falling under the Kyoto	i.e. "Emissions *".
	Protocol, here calculated as	
	the sum of C2F6, C6F14,	
	CF4, CO2, CH4, HFC125,	
	HFC134a, HFC143a,	
	HFC227ea, HFC23, HFC32,	
	HFC43-10, N2O, SF6.	
	Calculated using 100-year	
	global warming potential	
	from the IPCC Fifth	
	Assessment Report.	
AR6 climate diagnostics Emissions Kyoto Gases (AR6-	Total greenhouse gases	Based on IAM-reported emissions,
GWP100)	falling under the Kyoto	i.e. "Emissions *".
	Protocol, here calculated as	
	the sum of C2F6, C6F14,	
	CF4, CO2, CH4, HFC125,	
	HFC134a, HFC143a,	
	HFC227ea, HFC23, HFC32,	
	HFC43-10, N2O, SF6.	
	Calculated using 100-year	
	global warming potential	
	from the IPCC Sixth	
	Assessment Report.	
AR6 climate diagnostics Harmonized Emissions BC	Harmonized anthropogenic	
	black carbon emissions.	
AR6 climate diagnostics Harmonized Emissions CH4	Harmonized anthropogenic	
AD6 alimate diagnostical Harmonizad Emissional CO	Hermonized onthronogenia	
ARO chinate diagnostics Harmonized Emissions CO	carbon monoxide emissions	
AB6 alimete diagnostics Harmonized Emissions CO2	Harmonized anthronogenia	This backet was not used directly for
ARO chinate diagnostics/Harmonized/Emissions/CO2	carbon dioxide emissions	climate simulations
AR6 climate	Harmonized anthropogenic	enniate sinitiations.
diagnostics Harmonized Emissions CO2 AEOLU	carbon dioxide emissions	
diagnostics/Harmonized/Enhissions/CO2/Fit OEC	from agriculture forestry and	
	other land use (IPCC category	
	3).	
AR6 climate diagnostics Harmonized Emissions CO2 Energy	Harmonized anthropogenic	
and Industrial Processes	carbon dioxide emissions	
	from energy use on supply	
	and demand side, including	
	fugitive emissions from fuels	
	(IPCC category 1A, 1B) and	
	industrial processes.	
AR6 climate diagnostics Harmonized Emissions F-Gases	Harmonized anthropogenic	This basket was not used directly for
	fluorinated gases emissions,	climate simulations.
	including SF6, HFCs, and	
	PFCs.	
AR6 climate diagnostics Harmonized Emissions HFC	Harmonized anthropogenic	This basket was not used directly for
	hydrofluorocarbons	climate simulations.
	emissions.	
AR6 climate	Harmonized anthropogenic	
diagnostics Harmonized Emissions HFC HFC125	HFC125 emissions.	

AR6 climate	Harmonized anthropogenic	
diagnostics Harmonized Emissions HFC HFC134a	HFC134a emissions.	
AR6 climate	Harmonized anthropogenic	
diagnostics Harmonized Emissions HFC HFC143a	HFC143a emissions.	
AR6 climate	Harmonized anthropogenic	
diagnostics Harmonized Emissions HFC HFC22/ea	HFC22/ea emissions.	
AR6 climate diagnostics Harmonized Emissions HFC HFC23	Harmonized anthropogenic	
	HFC23 emissions.	
AR6 climate diagnostics Harmonized Emissions HFC HFC32	Harmonized anthropogenic	
AD6 alimata	HFC32 emissions.	
ARO CIIMALE diagnostical Harmoniza d'Emissional HECHIEC/12, 10	Harmonized anthropogenic	
A R6 alimete diagnostical Harmonized Emissional Kyoto Cases	Total graanhousa gasas	Pasad on harmonized emissions, i.e.
(AP5 GWP100)	folling under the Kyoto	"A P6 climate
(AKJ-OWF100)	Protocol here calculated as	diagnostics Harmonized Emissions *"
	the sum of C2E6. C6E14	diagnostics framonized Emissions .
	CF4 CO2 CH4 HEC125	
	HFC134a $HFC143a$	
	HFC227ea, HFC23, HFC32,	
	HFC43-10, N2O, SF6.	
	Calculated using 100-year	
	global warming potential	
	from the IPCC Fifth	
	Assessment Report.	
AR6 climate diagnostics Harmonized Emissions Kyoto Gases	Total greenhouse gases	Based on harmonised emissions, i.e.
(AR6-GWP100)	falling under the Kyoto	"AR6 climate
	Protocol, here calculated as	diagnostics Harmonized Emissions *".
	the sum of C2F6, C6F14,	
	CF4, CO2, CH4, HFC125,	
	HFC134a, HFC143a,	
	HFC227ea, HFC23, HFC32,	
	HFC43-10, N2O, SF6.	
	Calculated using 100-year	
	global warming potential	
	from the IPCC Sixth	
	Assessment Report.	
AR6 climate diagnostics Harmonized Emissions N2O	Harmonized anthropogenic	
	nitrous oxide emissions.	
AR6 climate diagnostics Harmonized Emissions NH3	Harmonized anthropogenic	
AP6 alimete diagnostics Harmonizad Emissions NOv	Hermonized anthronogenia	
ARO chinate diagnostics Harmonized Emissions NOx	NOv emissions	
AP6 climate diagnostics Harmonized Emissions OC	Harmonized anthronogenic	
ARO enimate diagnostics/Harmonized/Eninssions/OC	organic carbon emissions	
AR6 climate diagnostics/Harmonized/Emissions/PEC	Harmonized anthropogenic	This basket was not used directly in
	perfluorocarbons emissions	for infilling or climate simulations
AR6 climate diagnostics Harmonized Emissions PEC C2E6	Harmonized anthropogenic	Ter mining of emilate simulatoris.
	hexafluoroethane emissions	
AR6 climate diagnostics Harmonized Emissions PFC C6F14	Harmonized anthropogenic	
	perfluorohexane emissions	
AR6 climate diagnostics Harmonized Emissions PFC CF4	Harmonized anthropogenic	
	tetrafluorohexane emissions.	
AR6 climate diagnostics Harmonized Emissions SF6	Harmonized anthropogenic	
	sulfur hexafluoride emissions	

AR6 climate diagnostics Harmonized Emissions Sulfur	Harmonized anthropogenic sulfur emissions	
AR6 climate diagnostics Harmonized Emissions VOC	Harmonized anthronogenic	
ARO enniate diagnosties marmonized Ennissions VOC	volatile organic compound	
	emissions	
AD6 alimate diagnosticalInfilled/Emissions/DC	Infilled (and harmonized)	
	infined (and narmonized)	
	anthropogenic black carbon	
	emissions.	
AR6 climate diagnostics/Infilled/Emissions/CCl4	Infilled (and harmonized)	
	anthropogenic CCl4	
	emissions.	
AR6 climate diagnostics Infilled Emissions CFC11	Infilled (and harmonized)	
	anthropogenic CFC11	
	emissions.	
AR6 climate diagnostics Infilled Emissions CFC113	Infilled (and harmonized)	
	anthropogenic CFC113	
	emissions.	
AR6 climate diagnostics Infilled Emissions CFC114	Infilled (and harmonized)	
	anthropogenic CFC114	
	emissions.	
AR6 climate diagnostics Infilled Emissions CFC115	Infilled (and harmonized)	
	anthropogenic CFC115	
	emissions.	
AR6 climate diagnostics Infilled Emissions CEC12	Infilled (and harmonized)	
	anthropogenic CFC12	
	emissions	
AR6 climate diagnostics Infilled Emissions CH2Cl2	Infilled (and harmonized)	
Arto ennate diagnosticojimmed Ennissionoje 112 e 12	anthropogenic CH2Cl2	
	emissions	
AP6 climate diagnostics Infilled Emissions CH3Br	Infilled (and harmonized)	
ARO enniate diagnosties minied Ennissions (CII) En	anthronogenic CH3Br	
	emissions	
AD6 alimate diagnostical Infilled Emissional CH2CC12	Infilled (and harmonized)	
ARO enniate diagnostics/infined/Ennissions/effsectis	anthropogenic CH3CCl3	
	aminopogenic CH5CC15	
ADC -limete die en etien Infille di Emissiene (CU2C)		
AR6 climate diagnostics[inified[Emissions[CH3C]	Infilied (and narmonized)	
	anthropogenic CH3CI	
AR6 climate diagnostics [Infilled Emissions CH4	Infilled (and harmonized)	
	anthropogenic methane	
	emissions.	
AR6 climate diagnostics [Infilled Emissions CHCl3	Infilled (and harmonized)	
	anthropogenic CHCl3	
	emissions.	
AR6 climate diagnostics Infilled Emissions CO	Infilled (and harmonized)	
	anthropogenic carbon	
	monoxide emissions.	
AR6 climate diagnostics Infilled Emissions CO2	Infilled (and harmonized)	This basket was not used directly for
	anthropogenic carbon dioxide	climate simulations.
	emissions.	
AR6 climate diagnostics Infilled Emissions CO2 AFOLU	Infilled (and harmonized)	
	anthropogenic carbon dioxide	
	emissions from agriculture,	
	forestry and other land use	
	(IPCC category 3).	

AR6 climate diagnostics Infilled Emissions CO2 Energy and	Infilled (and harmonized)	
Industrial Processes	anthropogenic carbon dioxide	
	emissions from energy use on	
	supply and demand side.	
	including fugitive emissions	
	from fuels (IPCC category	
	1A 1B) and industrial	
	processes	
AP6 climate diagnostics Infilled EmissionalE Gases	Infilled (and harmonized)	This basket was not used directly for
ARO chinate diagnostics/minied/Emissions/F-Oases	anthropogenic fluorinated	climate simulations
	antinopogenic induinated	chinate sinulations.
	SEC LIECa and DECa	
ADC alimate dia ana stiral Infille di Emissiona (III-len 1202	SFO, HFCS, and PFCS.	
AR6 climate diagnostics/infilied/Emissions/Halon1202	Infilied (and narmonized)	
	anthropogenic Halon1202	
	emissions.	
AR6 climate diagnostics Infilled Emissions Halon 1211	Infilled (and harmonized)	
	anthropogenic Halon1211	
	emissions.	
AR6 climate diagnostics Infilled Emissions Halon1301	Infilled (and harmonized)	
	anthropogenic Halon1301	
	emissions.	
AR6 climate diagnostics Infilled Emissions Halon2402	Infilled (and harmonized)	
	anthropogenic Halon2402	
	emissions.	
AR6 climate diagnostics Infilled Emissions HCFC141b	Infilled (and harmonized)	
	anthropogenic HCFC141b	
	emissions.	
AR6 climate diagnostics Infilled Emissions HCFC142b	Infilled (and harmonized)	
	anthropogenic HCFC142b	
	emissions.	
AR6 climate diagnostics Infilled Emissions HCFC22	Infilled (and harmonized)	
	anthropogenic HCFC22	
	emissions	
AR6 climate diagnostics/Infilled/Emissions/HEC	Infilled (and harmonized)	This basket was not used directly for
	anthropogenic	climate simulations
	hydrofluorocarbons	ennace siniciations.
	emissions	
AP6 climate diagnostics Infilled Emissions HECHEC125	Infilled (and harmonized)	
ARO enniate diagnostics/infined/Ennissions/iff C/Iff C125	anthropogenic HEC125	
	antinopogenic HFC125	
AD6 alimate diagnostical Infilled Emissional UEC/UEC124a	Infilled (and hormonized)	
ARO cimiate diagnostics/infined/Emissions/HFC/HFC154a	anthrono agenia LIEC124a	
	anthropogenic HFC134a	
	emissions.	
AR6 climate diagnostics/Infilled/Emissions/HFC/HFC143a	Infilled (and harmonized)	
	anthropogenic HFC143a	
	emissions.	
AR6 climate diagnostics/Infilled/Emissions/HFC/HFC152a	Infilled (and harmonized)	
	anurropogenic HFC152a	
	emissions.	
AR6 climate diagnostics/Infilled/Emissions/HFC/HFC227ea	Infilled (and harmonized)	
	anthropogenic HFC22/ea	
	emissions.	
AR6 climate diagnostics Infilled Emissions HFC HFC23	Intilled (and harmonized)	
	anthropogenic HFC23	
	emissions.	

AR6 climate diagnostics/Infilled/Emissions/HFC/HFC236fa	Infilled (and harmonized)	
	anthropogenic HFC236fa	
	emissions.	
AR6 climate diagnostics Infilled Emissions HFC HFC245ca	Infilled (and harmonized)	
	anthropogenic HFC245ca	
	emissions.	
AR6 climate diagnostics Infilled Emissions HFC HFC32	Infilled (and harmonized)	
	anthropogenic HFC32	
	emissions.	
AR6 climate diagnostics/Infilled/Emissions/HFC/HFC365mfc	Infilled (and harmonized)	
	anthropogenic HFC365mfc	
	emissions	
AR6 climate diagnostics/Infilled/Emissions/HEC/HEC43-10	Infilled (and harmonized)	
	anthropogenic HEC43-10	
	emissions	
AP6 climate diagnostics Infilled Emissional Kyoto Cases	Total graanhouse gases	Based on infilled emissions i.e. "AP6
(AD5 CWD100)	folling under the Kuote	alimate
(ARJ-GWP100)	Proto col here coloradore	$\frac{1}{1} = \frac{1}{1} = \frac{1}$
	Protocol, here calculated as	diagnostics/infined/Emissions/* .
	the sum of C2F6, C6F14, $CE1$	
	CF4, CO2, CH4, HFC125,	
	HFC134a, HFC143a,	
	HFC22/ea, HFC23, HFC32,	
	HFC43-10, N2O, SF6.	
	Calculated using 100-year	
	global warming potential	
	from the IPCC Fifth	
	Assessment Report	
	Assessment Report.	
AR6 climate diagnostics Infilled Emissions Kyoto Gases	Total greenhouse gases	Based on infilled emissions, i.e. "AR6
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14,	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125,	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a,	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32,	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100)	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and barmonized)	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N2O	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthronogenic nitrous oxide	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N2O	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthropogenic nitrous oxide emissions	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthropogenic nitrous oxide emissions.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthropogenic nitrous oxide emissions.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthropogenic nitrous oxide emissions. Infilled (and harmonized) anthropogenic nitrogen trifluerida aminging	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthropogenic nitrous oxide emissions. Infilled (and harmonized) anthropogenic nitrogen trifluoride emissions.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthropogenic nitrous oxide emissions. Infilled (and harmonized) anthropogenic nitrogen trifluoride emissions. Infilled (and harmonized)	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3	Total greenhouse gasesfalling under the KyotoProtocol, here calculated asthe sum of C2F6, C6F14,CF4, CO2, CH4, HFC125,HFC134a, HFC143a,HFC227ea, HFC23, HFC32,HFC43-10, N2O, SF6.Calculated using 100-yearglobal warming potentialfrom the IPCC SixthAssessment Report.Infilled (and harmonized)anthropogenic nitrous oxideemissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride anthronized)anthropogenic nitrogentrifluoride anthronized)anthropogenic nitrogentrifluoride anthronized)anthropogenic nitrogentrifluoride anthronized)anthropogenic anthronized)	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3	Total greenhouse gases falling under the Kyoto Protocol, here calculated as the sum of C2F6, C6F14, CF4, CO2, CH4, HFC125, HFC134a, HFC143a, HFC227ea, HFC23, HFC32, HFC43-10, N2O, SF6. Calculated using 100-year global warming potential from the IPCC Sixth Assessment Report. Infilled (and harmonized) anthropogenic nitrous oxide emissions. Infilled (and harmonized) anthropogenic nitrogen trifluoride emissions. Infilled (and harmonized) anthropogenic nitrogen trifluoride emissions.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3 AR6 climate diagnostics Infilled Emissions NH3	Total greenhouse gasesfalling under the KyotoProtocol, here calculated asthe sum of C2F6, C6F14,CF4, CO2, CH4, HFC125,HFC134a, HFC143a,HFC227ea, HFC23, HFC32,HFC43-10, N2O, SF6.Calculated using 100-yearglobal warming potentialfrom the IPCC SixthAssessment Report.Infilled (and harmonized)anthropogenic nitrous oxideemissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride anthronized)anthropogenic nitrogenInfilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic ammoniaemissions.Infilled (and harmonized)	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3 AR6 climate diagnostics Infilled Emissions NH3	Total greenhouse gasesfalling under the KyotoProtocol, here calculated asthe sum of C2F6, C6F14,CF4, CO2, CH4, HFC125,HFC134a, HFC143a,HFC227ea, HFC23, HFC32,HFC43-10, N2O, SF6.Calculated using 100-yearglobal warming potentialfrom the IPCC SixthAssessment Report.Infilled (and harmonized)anthropogenic nitrous oxideemissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride anthronized)anthropogenic nitrogentrifluoride anthronized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride anthronized)anthropogenic nitrogentrifluoride (and harmonized)anthropogenic NOx	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3 AR6 climate diagnostics Infilled Emissions NH3	Total greenhouse gasesfalling under the KyotoProtocol, here calculated asthe sum of C2F6, C6F14,CF4, CO2, CH4, HFC125,HFC134a, HFC143a,HFC227ea, HFC23, HFC32,HFC43-10, N2O, SF6.Calculated using 100-yearglobal warming potentialfrom the IPCC SixthAssessment Report.Infilled (and harmonized)anthropogenic nitrous oxideemissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic nutrogentrifluoride emissions.Infilled (and harmonized)anthropogenic nutrogentrifluoride componenceanthropogenic nutrogentrifluoride componenceanthropogenic nutrogentrifluoride componenceanthropogenic nutrogenanthropogenic nutrogenmissions.Infilled (and harmonized)anthropogenic NOxemissions.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3 AR6 climate diagnostics Infilled Emissions NH3 AR6 climate diagnostics Infilled Emissions NOx AR6 climate diagnostics Infilled Emissions NOX	Total greenhouse gasesfalling under the KyotoProtocol, here calculated asthe sum of C2F6, C6F14,CF4, CO2, CH4, HFC125,HFC134a, HFC143a,HFC227ea, HFC23, HFC32,HFC43-10, N2O, SF6.Calculated using 100-yearglobal warming potentialfrom the IPCC SixthAssessment Report.Infilled (and harmonized)anthropogenic nitrous oxideemissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic nutrogentrifluoride componenciesInfilled (and harmonized)anthropogenic nutrogentrifluoride componenciesInfilled (and harmonized)anthropogenic nutrogentrifluoride (and harmonized)anthropogenic NOxemissions.Infilled (and harmonized)anthropogenic NOxemissions.Infilled (and harmonized)	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6-GWP100) AR6 climate diagnostics Infilled Emissions N20 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3 AR6 climate diagnostics Infilled Emissions NOx AR6 climate diagnostics Infilled Emissions NOx	Total greenhouse gasesfalling under the KyotoProtocol, here calculated asthe sum of C2F6, C6F14,CF4, CO2, CH4, HFC125,HFC134a, HFC143a,HFC227ea, HFC23, HFC32,HFC43-10, N2O, SF6.Calculated using 100-yearglobal warming potentialfrom the IPCC SixthAssessment Report.Infilled (and harmonized)anthropogenic nitrous oxideemissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic NOxemissions.Infilled (and harmonized)	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".
AR6 climate diagnostics Infilled Emissions Kyoto Gases (AR6-GWP100) AR6 climate diagnostics Infilled Emissions N2O AR6 climate diagnostics Infilled Emissions NF3 AR6 climate diagnostics Infilled Emissions NH3 AR6 climate diagnostics Infilled Emissions NOx AR6 climate diagnostics Infilled Emissions NOx	Total greenhouse gasesfalling under the KyotoProtocol, here calculated asthe sum of C2F6, C6F14,CF4, CO2, CH4, HFC125,HFC134a, HFC143a,HFC227ea, HFC23, HFC32,HFC43-10, N2O, SF6.Calculated using 100-yearglobal warming potentialfrom the IPCC SixthAssessment Report.Infilled (and harmonized)anthropogenic nitrous oxideemissions.Infilled (and harmonized)anthropogenic nitrogentrifluoride emissions.Infilled (and harmonized)anthropogenic NOxemissions.Infilled (and harmonized)anthropogenic NOxemissions.Infilled (and harmonized)anthropogenic corganic carbonemissions.Infilled (and harmonized)anthropogenic NOxemissions.Infilled (and harmonized)anthropogenic organic carbonemissions.	Based on infilled emissions, i.e. "AR6 climate diagnostics Infilled Emissions *".

AR6 climate diagnostics Infilled Emissions PFC	Infilled (and harmonized)	This basket was not used directly for
	anthropogenic	climate simulations.
	perfluorocarbons emissions.	
AR6 climate diagnostics Infilled Emissions PFC C2F6	Infilled (and harmonized)	
	anthropogenic C2F6	
	emissions	
AR6 climate diagnostics Infilled Emissions PEC/C3E8	Infilled (and harmonized)	
ARO enniate diagnostics/minicu/Ennissions/i 1 C/C51 8	anthronogenic C3E8	
	aminopogenie CSF8	
ADC dimente discussedire llufille di Envireire nel DECIC 4E10		
ARO cimiate diagnostics/inimed/Emissions/PFC/C4F10	anthread (and narmonized)	
	anthropogenic C4F10	
	emissions.	
AR6 climate diagnostics/Infilled/Emissions/PFC/C5F12	Infilled (and harmonized)	
	anthropogenic C5F12	
	emissions.	
AR6 climate diagnostics Infilled Emissions PFC C6F14	Infilled (and harmonized)	
	anthropogenic C6F14	
	emissions.	
AR6 climate diagnostics Infilled Emissions PFC C7F16	Infilled (and harmonized)	
-	anthropogenic C7F16	
	emissions.	
AR6 climate diagnostics/Infilled/Emissions/PFC/C8F18	Infilled (and harmonized)	
	anthropogenic C8F18	
	emissions	
AR6 climate diagnostics Infilled Emissions PEC C/2E8	Infilled (and harmonized)	
Arto ennate diagnostics/minicu/Ennssions/FTC/CC+F0	anthropogenic cC4F8	
	emissions	
AR6 climate diagnostics Infilled Emissions PEC/CE4	Infilled (and harmonized)	
ARO eninate diagnostics/inimed/Emissions/i PC/CP4	anthronogenic	
	tetrafluoromethane emissions	
AP6 alimete diagnosticalInfilledEmissions/SE6	Infilled (and harmonized)	
ARO chinate diagnostics/infined/Emissions/SFO	anthrono conio cultur	
	havefluorida amissions	
ADC -limete diama dia lufille dEmissional CO2E2		
AR6 climate diagnostics/infilied/Emissions/SO2F2	infilied (and narmonized)	
	anthropogenic suffuryi	
	fluoride emissions.	
AR6 climate diagnostics/Infilled/Emissions/Sulfur	Infilled (and harmonized)	
	anthropogenic sulfur	
	emissions.	
AR6 climate diagnostics Infilled Emissions VOC	Infilled (and harmonized)	
	anthropogenic volatile	
	organic compound emissions.	
AR6 climate diagnostics Native-with-	Total greenhouse gases	Based on IAM-reported emissions,
Infilled Emissions Kyoto Gases (AR5-GWP100)	falling under the Kyoto	i.e. "Emissions *" where reported,
	Protocol, here calculated as	supplemented with infilled emissions
	the sum of C2F6, C6F14,	(i.e. "AR6 climate
	CF4, CO2, CH4, HFC125,	diagnostics Infilled Emissions *")
	HFC134a, HFC143a,	where IAM-reported emissions are
	HFC227ea, HFC23, HFC32,	not available.
	HFC43-10, N2O, SF6.	
	Calculated using 100-year	
	global warming potential	
	from the IPCC Fifth	
	Assessment Report	
	rissessment report.	

AR6 climate diagnostics Native-with-	Total greenhouse gases	Based on IAM-reported emissions,
Infilled Emissions Kyoto Gases (AR6-GWP100)	falling under the Kyoto	i.e. "Emissions *" where reported,
	Protocol, here calculated as	supplemented with infilled emissions
	the sum of C2F6, C6F14,	(i.e. "AR6 climate
	CF4, CO2, CH4, HFC125,	diagnostics Infilled Emissions *")
	HFC134a, HFC143a,	where IAM-reported emissions are
	HFC227ea, HFC23, HFC32,	not available.
	HFC43-10, N2O, SF6.	
	Calculated using 100-year	
	global warming potential	
	from the IPCC Sixth	
	Assessment Report.	

Supplement Table S5: Global emissions variables added to the AR6 Scenarios Database hosted by IIASA (AR6DB) produced in the climate assessment process in IPCC AR6 WGIII.

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