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Report on the simplified review of the national inventory report of Portugal submitted in 2025

Summary

This report presents the results of the simplified review of the 2025 national inventory report of Portugal, conducted by the secretariat in accordance with the modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement.

Abbreviations and acronyms

CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CRT	common reporting table
GHG	greenhouse gas
HFC	hydrofluorocarbon
HWP	harvested wood products
IE	included elsewhere
IEF	implied emission factor
LULUCF	land use, land-use change and forestry
MPGs	modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement
N	nitrogen
N_2O	nitrous oxide
NA	not applicable
NE	not estimated
NF_3	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
PFC	perfluorocarbon
SF_6	sulfur hexafluoride

I. weIntroduction

1. This report covers the simplified review of the NIR of Portugal submitted in 2025. The review was conducted by the secretariat in accordance with the MPGs,[1] particularly chapter VII thereof, and the simplified review procedures.[2]

2. On 16 May 2025 a draft version of this report was transmitted to the Government of Portugal, which provided comments on individual findings on 13 June 2025 that were addressed by the secretariat and incorporated, as appropriate, in this final version of the report.[3] Portugal did not provide any general comments on the report.

3. The secretariat conducted the simplified review of Portugal's NIR, which involved an initial assessment of completeness and consistency with the MPGs.[4]

4. The findings of the initial assessment, presented in the annex, are the result of automated checks and do not necessarily indicate issues of completeness or consistency of the Party's reporting with the MPGs.

5. This report, including the findings listed in the annex and any comments provided by the Party (see para. 2 above), will be made available to and considered by the technical expert review team as part of the subsequent technical expert review of Portugal's NIR.[5]

II. Initial assessment of completeness and consistency with the modalities, procedures and guidelines

A. Summary of findings

6. The table below provides a summary of the findings of the initial assessment by the secretariat. Tables I.1–I.7 list the findings and include detailed information on each one.

Summary of the initial assessment

Area of review	*Description*	*Assessment*
Dates of submission	2025 submission: CRTs, 14 April 2025	
	2024 submission: CRTs, 12 December 2024	
Recalculations	Recalculations that have changed estimated total GHG emissions or removals (excluding LULUCF) by more than 2 per cent for categories or subcategories above the threshold of significance (**26.62 kt CO_2 eq** for 2023)[a]	
	Recalculations for 1990 (the reference year for the Party's nationally determined contribution) and 2022 since the previous submission	See table I.1
Completeness	Detection of notation key "NE", or of missing gases or sectors in CRT 10 emission trends summary	See table I.2
Notation keys	Changes in notation keys reported for 1990 and 2022 since the previous submission	See table I.3
Sectoral and reference approaches	Difference in estimated energy consumption or CO_2 emissions, by fuel type, of more than 5 per cent between the reference and sectoral approaches for the latest reported year (2023)	See table I.4
Time-series consistency	The time series of emissions is assessed by calculating inter-annual changes for each category and gas and converting them to CO_2 eq. Inter-annual changes exceeding the significance	See table I.5

[1] Decision 18/CMA.1, annex.
[2] Contained in paras. 15–19 of the conclusions and recommendations from the 2023 joint meeting of lead reviewers, available at https://unfccc.int/documents/627213.
[3] As per para. 163 of the MPGs.
[4] As per para. 155 of the MPGs.
[5] As per para. 155 of the MPGs.

Area of review	*Description*	*Assessment*
	threshold are evaluated using the z-score method,[b] where outliers are identified as values exceeding a z-score of 3, based on the statistical distribution of the full time series	
IEFs	Comparison of IEFs reported for any significant subcategories under key categories with the range of IEFs reported by developed country Parties for the latest inventory year (2023) in their 2025 submission[c]	See table I.6
Key categories	New key categories identified since the previous submission for level (latest year) and trend	See table I.7
Previous areas of improvement	Status of implementation of previous areas of improvement identified in the latest report on the technical expert review of the Party's biennial transparency report	NA[d]

[a] Threshold calculated by the secretariat as 0.05 per cent of the national total GHG emissions for 2023, excluding LULUCF, or 500 kt CO_2 eq, whichever is lower (see para. 32 of the MPGs).

[b] Statistical measure that indicates how many standard deviations a data point is from the mean.

[c] Range defined by the median plus or minus two times the standard deviation, calculated from all available data points per category.

[d] As at the time of publication of this report, information on status of implementation of previous areas of improvement was not yet available.

B. Comments of the Party on the initial assessment

7. The Party did not provide any general comments.

Annex

Findings of the initial assessment of Portugal's 2025 national inventory report

Tables I.1–I.7 detail the findings of the initial assessment by the secretariat of the Party's NIR.

Table I.1
Findings on recalculations

ID#	*Category*	*CRT*	*Gas*	*Inventory year*	*Estimate in latest submission (2025)*	*Estimate in previous submission (2024)*	*Difference*	*Unit*	*Difference (%)*	*Difference (kt CO_2 eq)*
I.1.1.	1.A.2.d. Pulp, paper and print	Table1	CO_2	2022	969.48	936.18	33.30	kt	3.6	33.30
I.1.2.	1.A.2.g. Other	Table1	CO_2	2022	1 331.72	1 372.24	–40.52	kt	–3.0	–40.52
I.1.3.	1.A.3.a. Domestic aviation	Table1	CO_2	2022	476.78	415.82	60.96	kt	14.7	60.96
I.1.4.	1.A.4.a. Commercial/institutional	Table1	CO_2	2022	982.54	1 017.92	–35.38	kt	–3.5	–35.38
I.1.5.	2.F.1. Refrigeration and air conditioning	Table2(I)	HFCs	2022	1 705.01	1 793.15	–88.15	kt CO_2 eq	–4.9	–88.15
I.1.6.	2.F.1. Refrigeration and air conditioning	Table2(II)	HFC-143a	2022	111.03	131.38	–20.35	t	–15.5	–97.66
I.1.7.	3.D.1.a. Inorganic N fertilizers	Table3	N_2O	2022	1.03	0.86	0.17	kt	19.5	44.52
I.1.8.	4.A.1. Forest land remaining forest land	Table4	Net CO_2 emissions/removals	1990	4 454.88	4 986.44	–531.55	kt CO_2 eq	–10.7	–531.55
I.1.9.	4.A.1. Forest land remaining forest land	Table4	CH_4	1990	10.96	18.11	–7.15	kt	–39.5	–200.26
I.1.10.	4.A.1. Forest land remaining forest land	Table4	N_2O	1990	0.39	0.58	–0.19	kt	–32.2	–49.06
I.1.11.	4.A.2. Land converted to forest land	Table4	Net CO_2 emissions/removals	1990	–1 197.12	–1 583.86	386.74	kt CO_2 eq	24.4	386.74
I.1.12.	4.B.1. Cropland remaining cropland	Table4	Net CO_2 emissions/removals	1990	384.89	951.69	–566.80	kt CO_2 eq	–59.6	–566.80
I.1.13.	4.B.1. Cropland remaining cropland	Table4	CH_4	1990	1.99	3.47	–1.48	kt	–42.6	–41.37
I.1.14.	4.B.2. Land converted to cropland	Table4	Net CO_2 emissions/removals	1990	465.60	372.19	93.41	kt CO_2 eq	25.1	93.41
I.1.15.	4.C.1. Grassland remaining grassland	Table4	Net CO_2 emissions/removals	1990	943.60	2 333.96	–1 390.35	kt CO_2 eq	–59.6	–1 390.35
I.1.16.	4.E.2. Land converted to settlements	Table4	Net CO_2 emissions/removals	1990	172.65	270.92	–98.27	kt CO_2 eq	–36.3	–98.27
I.1.17.	4.A.1. Forest land remaining forest land	Table4	Net CO_2 emissions/removals	2022	1 111.25	–824.83	1 936.09	kt CO_2 eq	234.7	1 936.09
I.1.18.	4.A.1. Forest land remaining forest land	Table4	CH_4	2022	3.77	7.39	–3.61	kt	–48.9	–101.16

ID#	Category	CRT	Gas	Inventory year	Estimate in latest submission (2025)	Estimate in previous submission (2024)	Difference	Unit	Difference (%)	Difference (kt CO_2 eq)
I.1.19.	4.A.2. Land converted to forest land	Table4	Net CO_2 emissions/removals	2022	–1 048.97	–1 473.68	424.71	kt CO_2 eq	28.8	424.71
I.1.20.	4.B.1. Cropland remaining cropland	Table4	Net CO_2 emissions/removals	2022	–456.18	–1 945.65	1 489.46	kt CO_2 eq	76.6	1 489.46
I.1.21.	4.B.2. Land converted to cropland	Table4	Net CO_2 emissions/removals	2022	845.83	214.23	631.60	kt CO_2 eq	294.8	631.60
I.1.22.	4.C.1. Grassland remaining grassland	Table4	Net CO_2 emissions/removals	2022	–1 066.18	–2 317.09	1 250.91	kt CO_2 eq	54.0	1 250.91
I.1.23.	4.C.2. Land converted to grassland	Table4	Net CO_2 emissions/removals	2022	–181.53	–610.43	428.90	kt CO_2 eq	70.3	428.90
I.1.24.	4.E.2. Land converted to settlements	Table4	Net CO_2 emissions/removals	2022	59.82	106.16	–46.35	kt CO_2 eq	–43.7	–46.35
I.1.25.	4.G. HWP	Table4	Net CO_2 emissions/removals	2022	–360.95	–270.14	–90.81	kt CO_2 eq	–33.6	–90.81
I.1.26.	5.D.2. Industrial wastewater	Table5	N_2O	1990	0.07	0.20	–0.14	kt	–66.6	–36.08
I.1.27.	5.A.1. Managed waste disposal sites	Table5	CH_4	2022	126.34	123.64	2.70	kt	2.2	75.66
I.1.28.	5.B.1. Composting	Table5	CH_4	2022	1.46	2.54	–1.08	kt	–42.6	–30.25

Table I.2
Findings on completeness

ID#	Sector, category or gas	CRT	Gas	Inventory year	Notation key	Finding type
I.2.1.	2.C.2. Ferroalloys production	Table2(I)	CO_2	1990	NE	Reporting of “NE” detected
I.2.2.	2.C.2. Ferroalloys production	Table2(I)	CH_4	1990	NE	Reporting of “NE” detected
I.2.3.	2.C.2. Ferroalloys production	Table2(I)	Total GHG emissions	1990	NE	Reporting of “NE” detected
I.2.4.	2.C.2. Ferroalloys production	Table2(I)	CO_2	2023	NE	Reporting of “NE” detected
I.2.5.	2.C.2. Ferroalloys production	Table2(I)	CH_4	2023	NE	Reporting of “NE” detected
I.2.6.	2.C.2. Ferroalloys production	Table2(I)	Total GHG emissions	2023	NE	Reporting of “NE” detected
I.2.7.	4.C.2. Land converted to grassland	Table4	N_2O	1990	NE, NO	Reporting of “NE” detected
I.2.8.	4.C.2. Land converted to grassland	Table4	Total GHG emissions/removals	1990	NE, NO	Reporting of “NE” detected
I.2.9.	4.D.1. Wetlands remaining wetlands	Table4	N_2O	1990	IE, NE, NO	Reporting of “NE” detected
I.2.10.	4.D.1. Wetlands remaining wetlands	Table4	Total GHG emissions/removals	1990	IE, NE, NO	Reporting of “NE” detected

ID#	Sector, category or gas	CRT	Gas	Inventory year	Notation key	Finding type
I.2.11.	4.E.1. Settlements remaining settlements	Table4	N_2O	1990	NE, NO	Reporting of “NE” detected
I.2.12.	4.E.1. Settlements remaining settlements	Table4	Total GHG emissions/removals	1990	NE, NO	Reporting of “NE” detected
I.2.13.	4.E.1. Settlements remaining settlements	Table4	N_2O	2023	NE, NO	Reporting of “NE” detected
I.2.14.	4.E.1. Settlements remaining settlements	Table4	Total GHG emissions/removals	2023	NE, NO	Reporting of “NE” detected
I.2.15.	5.F.1. Long-term storage of carbon in waste disposal sites	Table5	CO_2	1990	NE	Reporting of “NE” detected
I.2.16.	5.F.1. Long-term storage of carbon in waste disposal sites	Table5	Total GHG emissions	1990	NE	Reporting of “NE” detected
I.2.17.	5.F.2. Annual change in total carbon storage	Table5	CO_2	1990	NE	Reporting of “NE” detected
I.2.18.	5.F.2. Annual change in total carbon storage	Table5	Total GHG emissions	1990	NE	Reporting of “NE” detected
I.2.19.	5.F.3. Annual change in total carbon storage in HWP waste	Table5	CO_2	1990	NE	Reporting of “NE” detected
I.2.20.	5.F.3. Annual change in total carbon storage in HWP waste	Table5	Total GHG emissions	1990	NE	Reporting of “NE” detected
I.2.21.	5.F.1. Long-term storage of carbon in waste disposal sites	Table5	CO_2	2023	NE	Reporting of “NE” detected
I.2.22.	5.F.1. Long-term storage of carbon in waste disposal sites	Table5	Total GHG emissions	2023	NE	Reporting of “NE” detected
I.2.23.	5.F.2. Annual change in total carbon storage	Table5	CO_2	2023	NE	Reporting of “NE” detected
I.2.24.	5.F.2. Annual change in total carbon storage	Table5	Total GHG emissions	2023	NE	Reporting of “NE” detected
I.2.25.	5.F.3. Annual change in total carbon storage in HWP waste	Table5	CO_2	2023	NE	Reporting of “NE” detected
I.2.26.	5.F.3. Annual change in total carbon storage in HWP waste	Table5	Total GHG emissions	2023	NE	Reporting of “NE” detected
I.2.27.	HFCs	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.28.	PFCs	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.29.	Unspecified mix of HFCs and PFCs	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.30.	Unspecified mix of HFCs and PFCs	Table10s6	–	2023	NO	Gas or sector not reported
I.2.31.	SF_6	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.32.	NF_3	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.33.	NF_3	Table10s6	–	2023	NA, NO	Gas or sector not reported
I.2.34.	6. Other	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.35.	6. Other	Table10s6	–	2023	NA, NO	Gas or sector not reported

Table I.3
Changes in notation keys reported since the previous submission

ID#	*Category*	*CRT*	*Gas*	*Inventory year*	*Notation key reported in latest submission (2025)*	*Notation key reported in previous submission (2024)*
I.3.1.	4.C.2. Land converted to grassland	Table4	N_2O	1990	NE, NO	NO
I.3.2.	4.C.2. Land converted to grassland	Table4	Total GHG emissions/removals	1990	NE, NO	NO
I.3.3.	4.D.1. Wetlands remaining wetlands	Table4	N_2O	1990	IE, NE, NO	IE, NO
I.3.4.	4.D.1. Wetlands remaining wetlands	Table4	Total GHG emissions/removals	1990	IE, NE, NO	IE, NO
I.3.5.	4.E.1. Settlements remaining settlements	Table4	N_2O	1990	NE, NO	NO
I.3.6.	4.E.1. Settlements remaining settlements	Table4	Total GHG emissions/removals	1990	NE, NO	NO
I.3.7.	4.E.1. Settlements remaining settlements	Table4	N_2O	2022	NE, NO	NO
I.3.8.	4.E.1. Settlements remaining settlements	Table4	Total GHG emissions/removals	2022	NE, NO	NO
I.3.9.	5.B.2. Anaerobic digestion at biogas facilities	Table5	N_2O	2022	NO	0.00

Table I.4
Differences between the sectoral and reference approaches for the latest reported year

ID#	*CRT table*	*Fuel type*	*Description*	*Difference between reference and sectoral approaches (%)*
I.4.1.	Table1.A(c)	Solid fuels (excluding international bunkers)	Energy consumption	126.5
I.4.2.	Table1.A(c)	Solid fuels (excluding international bunkers)	CO_2 emissions	126.1
I.4.3.	Table1.A(c)	Other fossil fuels	Energy consumption	42.0
I.4.4.	Table1.A(c)	Other fossil fuels	CO_2 emissions	37.3

Table I.5
Findings on time-series consistency

ID#	*Category*	*CRT*	*Gas*	*Year 1*	*Year 2*	*Value 1*	*Value 2*	*Difference*	*Unit*	*Difference (CO_2 eq)*	*Difference (%)*	*Z-score*
I.5.1.	1.A.1.a. Public electricity and heat production	Table1	N_2O	1998	1999	0.22	0.43	0.21	kt	56.22	97.1	3.0
I.5.2.	1.A.2.a. Iron and steel	Table1	CO_2	2000	2001	573.72	164.13	–409.59	kt	–409.59	–71.4	–4.7
I.5.3.	1.A.3.a. Domestic aviation	Table1	CO_2	2019	2020	495.79	257.30	–238.49	kt	–238.49	–48.1	–4.4
I.5.4.	1.A.3.b. Road transportation	Table1	CO_2	2019	2020	16 766.67	14 195.28	–2 571.39	kt	–2 571.39	–15.3	–3.4
I.5.5.	1.A.3.b. Road transportation	Table1	N_2O	2001	2002	1.18	0.68	–0.50	kt	–133.13	–42.5	–4.7
I.5.6.	1.A.3.d. Domestic navigation	Table1	CO_2	2019	2020	269.73	201.86	–67.87	kt	–67.87	–25.2	–3.2
I.5.7.	1.A.3.d. Domestic navigation	Table1	CO_2	2021	2022	206.94	277.77	70.83	kt	70.83	34.2	3.2
I.5.8.	1.A.4.a. Commercial/institutional	Table1	CO_2	2005	2006	3 024.69	2 100.13	–924.55	kt	–924.55	–30.6	–3.9

ID#	Category	CRT	Gas	Year 1	Year 2	Value 1	Value 2	Difference	Unit	Difference (CO_2 eq)	Difference (%)	Z-score
I.5.9.	1.A.4.c. Agriculture/forestry/fishing	Table1	CO_2	1999	2000	1 065.63	1 259.16	193.53	kt	193.53	18.2	3.3
I.5.10.	1.B.1.a. Coal mining and handling	Table1	CH_4	1994	1995	3.63	1.08	–2.56	kt	–71.58	–70.3	–5.1
I.5.11.	1.B.2.a. Oil	Table1	CO_2	2012	2013	473.56	993.53	519.96	kt	519.96	109.8	4.0
I.5.12.	1.D.1.a. Aviation	Table1	CO_2	2019	2020	4 367.23	1 568.89	–2 798.34	kt	–2 798.34	–64.1	–4.5
I.5.13.	1.D.1.a. Aviation	Table1	CO_2	2021	2022	1 995.68	4 104.99	2 109.31	kt	2 109.31	105.7	3.1
I.5.14.	1.D.1.b. Navigation	Table1	CO_2	2019	2020	3 068.29	2 192.23	–876.06	kt	–876.06	–28.6	–3.4
I.5.15.	1.D.3. CO_2 emissions from biomass	Table1	CO_2	2010	2011	12 462.92	11 206.91	–1 256.01	kt	–1 256.01	–10.1	–3.6
I.5.16.	2.A.2. Lime production	Table2(I)	CO_2	1990	1991	206.16	24.23	–181.93	kt	–181.93	–88.2	–3.8
I.5.17.	2.A.2. Lime production	Table2(I)	CO_2	1991	1992	24.23	199.05	174.83	kt	174.83	721.6	3.4
I.5.18.	2.A.3. Glass production	Table2(I)	CO_2	2008	2009	168.58	139.62	–28.97	kt	–28.97	–17.2	–3.2
I.5.19.	2.A.4. Other process uses of carbonates	Table2(I)	CO_2	2022	2023	262.56	113.94	–148.62	kt	–148.62	–56.6	–3.2
I.5.20.	2.B.2. Nitric acid production	Table2(I)	N_2O	2010	2011	1.33	0.30	–1.03	kt	–273.34	–77.4	–4.0
I.5.21.	2.C.1. Iron and steel production	Table2(I)	CO_2	2000	2001	496.11	205.60	–290.51	kt	–290.51	–58.6	–4.1
I.5.22.	2.F.2. Foam blowing agents	Table2(I)	HFCs	2002	2003	18.64	49.75	31.11	kt CO_2 eq	31.11	167.0	4.9
I.5.23.	2.F.3. Fire protection	Table2(I)	HFCs	2021	2022	73.76	106.54	32.78	kt CO_2 eq	32.78	44.4	3.2
I.5.24.	2.F.3. Fire protection	Table2(II)	HFC-227ea	2021	2022	21.93	31.67	9.74	t	32.64	44.4	3.2
I.5.25.	3.A.1.b. Non-dairy cattle	Table3	CH_4	2022	2023	81.92	79.03	–2.89	kt	–80.93	–3.5	–3.3
I.5.26.	3.D.1.a. Inorganic N fertilizers	Table3	N_2O	2004	2005	2.78	1.58	–1.20	kt	–317.24	–43.1	–3.8
I.5.27.	3.D.2. Indirect N_2O Emissions from managed soils	Table3	N_2O	2004	2005	1.73	1.40	–0.33	kt	–86.57	–18.9	–3.7
I.5.28.	4.A.1. Forest land remaining forest land	Table4	Net CO_2 emissions/removals	2016	2017	1 957.88	14 938.69	12 980.82	kt CO_2 eq	12 980.82	663.0	3.2
I.5.29.	4.A.1. Forest land remaining forest land	Table4	Net CO_2 emissions/removals	2017	2018	14 938.69	185.02	–14 753.67	kt CO_2 eq	–14 753.67	–98.8	–3.5
I.5.30.	4.A.1. Forest land remaining forest land	Table4	CH_4	2017	2018	22.28	1.02	–21.26	kt	–595.22	–95.4	–3.2
I.5.31.	4.A.1. Forest land remaining forest land	Table4	N_2O	2017	2018	0.78	0.20	–0.58	kt	–152.76	–73.8	–3.3
I.5.32.	4.B.2. Land converted to cropland	Table4	Net CO_2 emissions/removals	2010	2011	620.97	750.39	129.43	kt CO_2 eq	129.43	20.8	3.8
I.5.33.	4.C.2. Land converted to grassland	Table4	Net CO_2 emissions/removals	1995	1996	1.57	982.08	980.51	kt CO_2 eq	980.51	62 351.0	3.6
I.5.34.	4.D.2. Land converted to wetlands	Table4	Net CO_2 emissions/removals	2007	2008	572.87	517.28	–55.59	kt CO_2 eq	–55.59	–9.7	–3.5
I.5.35.	4.E.2. Land converted to settlements	Table4	Net CO_2 emissions/removals	1995	1996	170.35	304.08	133.74	kt CO_2 eq	133.74	78.5	3.7
I.5.36.	4.E.2. Land converted to settlements	Table4	Net CO_2 emissions/removals	2010	2011	120.49	–10.94	–131.43	kt CO_2 eq	–131.43	–109.1	–3.5
I.5.37.	5.D.2. Industrial wastewater	Table5	CH_4	1992	1993	5.12	2.44	–2.68	kt	–75.02	–52.3	–4.1

Table I.6

Comparison between implied emission factors reported for key categories and the range of implied emission factors from the 2025 national inventory reports of developed country Parties

ID#	*Category*	*CRT*	*Gas*	*Unit*	*IEF reported*	*Comparison*
I.6.1.	1.A.1. Energy industries – other fossil fuels	Table1.A(a)s1	CO_2	t/TJ	148.377	Above range
I.6.2.	4(IV).B.1. Cropland remaining cropland	Table4(IV)	CH_4	t/activity data unit	0.030	Above range

Table I.7

Identification of new key categories

ID#	*New key category*	*Gas*	*Criteria*	*Inventory year*
I.7.1.	1.A.4. Other sectors – biomass	CH_4	Level	2023
I.7.2.	1.A.4. Other sectors – biomass	CH_4	Trend	2023
I.7.3.	2.B.8. Petrochemical and carbon black production	CO_2	Trend	2023
I.7.4.	4.B.2. Land converted to cropland	CO_2	Level	2023
I.7.5.	4.B.2. Land converted to cropland	CO_2	Trend	2023