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

Summary

This report presents the results of the simplified review of the 2025 national inventory report of Italy, 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

CF_4	tetrafluoromethane
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CRT	common reporting table
DC	degradable organic component
GHG	greenhouse gas
HFC	hydrofluorocarbon
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

I. Introduction

1. This report covers the simplified review of the NIR of Italy 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 15 May 2025 a draft version of this report was transmitted to the Government of Italy, which provided comments on individual findings on 11 June 2025 that were addressed by the secretariat and incorporated, as appropriate, in this final version of the report.[3] Italy did not provide any general comments on the report.

3. The secretariat conducted the simplified review of Italy'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 Italy'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, 4 April 2025	
	2024 submission: CRTs, 15 November 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 (**192.37 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	No findings for this area
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 Italy'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.3.d. Domestic navigation	Table1	CO_2	2022	4 959.15	5 717.53	–758.38	kt	–13.3	–758.38
I.1.2.	1.D.1.b. Navigation	Table1	CO_2	2022	4 988.14	4 229.76	758.38	kt	17.9	758.38
I.1.3.	2.F.1. Refrigeration and air conditioning	Table2(I)	HFCs	2022	7 131.47	6 867.52	263.95	kt CO_2 eq	3.8	263.95
I.1.4.	2.F.1. Refrigeration and air conditioning	Table2(II)	HFC-125	2022	1 027.57	953.42	74.15	t	7.8	235.06
I.1.5.	3.D.1.d. Crop residues	Table3	N_2O	1990	6.53	5.67	0.86	kt	15.3	229.18
I.1.6.	3.D.1.b. Organic N fertilizers	Table3	N_2O	2022	8.96	9.71	–0.75	kt	–7.7	–197.49
I.1.7.	3.D.1.c. Urine and dung deposited by grazing animals	Table3	N_2O	2022	3.61	2.43	1.18	kt	48.7	313.80
I.1.8.	4.A.1. Forest land remaining forest land	Table4	Net CO_2 emissions/removals	2022	–33 490.74	–22 333.43	–11 157.32	kt CO_2 eq	–50.0	–11 157.32
I.1.9.	4.A.2. Land converted to forest land	Table4	Net CO_2 emissions/removals	2022	–10 654.24	–4 041.76	–6 612.47	kt CO_2 eq	–163.6	–6 612.47
I.1.10.	4.B.2. Land converted to cropland	Table4	Net CO_2 emissions/removals	2022	1 642.14	1 083.12	559.02	kt CO_2 eq	51.6	559.02
I.1.11.	4.C.1. Grassland remaining grassland	Table4	Net CO_2 emissions/removals	2022	590.46	2 156.64	–1 566.18	kt CO_2 eq	–72.6	–1 566.18
I.1.12.	4.E.2. Land converted to settlements	Table4	Net CO_2 emissions/removals	2022	5 141.70	4 553.48	588.22	kt CO_2 eq	12.9	588.22

Table I.2
Findings on completeness

ID#	*Sector, category or gas*	*CRT*	*Gas*	*Inventory year*	*Notation key*	*Finding type*
I.2.1.	1.D.2. Multilateral operations	Table1	CO_2	1990	NE	Reporting of "NE" detected
I.2.2.	1.D.2. Multilateral operations	Table1	CH_4	1990	NE	Reporting of "NE" detected

ID#	*Sector, category or gas*	*CRT*	*Gas*	*Inventory year*	*Notation key*	*Finding type*
I.2.3.	1.D.2. Multilateral operations	Table1	N_2O	1990	NE	Reporting of “NE” detected
I.2.4.	1.D.2. Multilateral operations	Table1	Total GHG emissions	1990	NE	Reporting of “NE” detected
I.2.5.	1.D.2. Multilateral operations	Table1	CO_2	2023	NE	Reporting of “NE” detected
I.2.6.	1.D.2. Multilateral operations	Table1	CH_4	2023	NE	Reporting of “NE” detected
I.2.7.	1.D.2. Multilateral operations	Table1	N_2O	2023	NE	Reporting of “NE” detected
I.2.8.	1.D.2. Multilateral operations	Table1	Total GHG emissions	2023	NE	Reporting of “NE” detected
I.2.9.	4.D.1. Wetlands remaining wetlands	Table4	Net CO_2 emissions/removals	1990	NE, NO	Reporting of “NE” detected
I.2.10.	4.D.1. Wetlands remaining wetlands	Table4	Total GHG emissions/removals	1990	NE, NO	Reporting of “NE” detected
I.2.11.	4.E.1. Settlements remaining settlements	Table4	Net CO_2 emissions/removals	1990	NA, NE, NO	Reporting of “NE” detected
I.2.12.	4.E.1. Settlements remaining settlements	Table4	CH_4	1990	NE, NO	Reporting of “NE” detected
I.2.13.	4.E.1. Settlements remaining settlements	Table4	N_2O	1990	NE, NO	Reporting of “NE” detected
I.2.14.	4.E.1. Settlements remaining settlements	Table4	Total GHG emissions/removals	1990	NA, NE, NO	Reporting of “NE” detected
I.2.15.	4.D.1. Wetlands remaining wetlands	Table4	Net CO_2 emissions/removals	2023	NE, NO	Reporting of “NE” detected
I.2.16.	4.D.1. Wetlands remaining wetlands	Table4	Total GHG emissions/removals	2023	NE, NO	Reporting of “NE” detected
I.2.17.	4.E.1. Settlements remaining settlements	Table4	Net CO_2 emissions/removals	2023	NA, NE, NO	Reporting of “NE” detected
I.2.18.	4.E.1. Settlements remaining settlements	Table4	CH_4	2023	NE, NO	Reporting of “NE” detected
I.2.19.	4.E.1. Settlements remaining settlements	Table4	N_2O	2023	NE, NO	Reporting of “NE” detected
I.2.20.	4.E.1. Settlements remaining settlements	Table4	Total GHG emissions/removals	2023	NA, NE, NO	Reporting of “NE” detected
I.2.21.	Unspecified mix of HFCs and PFCs	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.22.	NF_3	Table10s6	–	1990	NA, NO	Gas or sector not reported
I.2.23.	6. Other	Table10s6	–	1990	NA	Gas or sector not reported
I.2.24.	6. Other	Table10s6	–	2023	NA	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)*
No findings for this area						

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)	Liquid fuels (excluding international bunkers)	Energy consumption	–14.7
I.4.2.	Table1.A(c)	Liquid fuels (excluding international bunkers)	CO_2 emissions	–7.8
I.4.3.	Table1.A(c)	Solid fuels (excluding international bunkers)	Energy consumption	–11.9
I.4.4.	Table1.A(c)	Solid fuels (excluding international bunkers)	CO_2 emissions	–5.9
I.4.5.	Table1.A(c)	Other fossil fuels	Energy consumption	–28.0
I.4.6.	Table1.A(c)	Other fossil fuels	CO_2 emissions	–11.6

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.2.a. Iron and steel	Table1	CO_2	2008	2009	17 786.60	11 200.13	–6 586.48	kt	–6 586.48	–37.0	–3.1
I.5.2.	1.A.2.f. Non-metallic minerals	Table1	CO_2	2008	2009	23 700.61	18 220.77	–5 479.84	kt	–5 479.84	–23.1	–3.0
I.5.3.	1.A.3.a. Domestic aviation	Table1	CO_2	2019	2020	2 378.76	1 194.76	–1 184.00	kt	–1 184.00	–49.8	–4.0
I.5.4.	1.A.3.b. Road transportation	Table1	CO_2	2019	2020	96 608.11	77 836.53	–18 771.58	kt	–18 771.58	–19.4	–3.6
I.5.5.	1.A.3.b. Road transportation	Table1	CO_2	2020	2021	77 836.53	94 634.47	16 797.94	kt	16 797.94	21.6	3.1
I.5.6.	1.A.3.b. Road transportation	Table1	N_2O	1999	2000	9.27	5.05	–4.23	kt	–1 120.10	–45.6	–4.7
I.5.7.	1.A.3.d. Domestic navigation	Table1	CO_2	2020	2021	5 797.54	4 539.88	–1 257.66	kt	–1 257.66	–21.7	–3.3
I.5.8.	1.D.1.a. Aviation	Table1	CO_2	2019	2020	12 402.55	3 787.96	–8 614.59	kt	–8 614.59	–69.5	–4.8
I.5.9.	2.A.2. Lime production	Table2(I)	CO_2	2008	2009	2 306.00	1 644.87	–661.13	kt	–661.13	–28.7	–3.8
I.5.10.	2.A.4. Other process uses of carbonates	Table2(I)	CO_2	2008	2009	2 356.21	1 653.58	–702.63	kt	–702.63	–29.8	–4.0
I.5.11.	2.B.1. Ammonia production	Table2(I)	CO_2	1992	1993	1 765.40	1 150.50	–614.90	kt	–614.90	–34.8	–3.4
I.5.12.	2.B.2. Nitric acid production	Table2(I)	N_2O	2003	2004	3.67	5.82	2.15	kt	569.54	58.5	3.2
I.5.13.	2.B.3. Adipic acid production	Table2(I)	N_2O	2005	2006	19.59	4.58	–15.01	kt	–3 976.33	–76.6	–5.2
I.5.14.	2.B.9. Fluorochemical production	Table2(I)	HFCs	1995	1996	471.50	96.72	–374.78	kt CO_2 eq	–374.78	–79.5	–4.9

ID#	*Category*	*CRT*	*Gas*	*Year 1*	*Year 2*	*Value 1*	*Value 2*	*Difference*	*Unit*	*Difference (CO_2 eq)*	*Difference (%)*	*Z-score*
I.5.15.	2.C.3. Aluminium production	Table2(I)	PFCs	1991	1992	1 401.42	759.13	–642.29	kt CO_2 eq	–642.29	–45.8	–3.4
I.5.16.	2.B.9. Fluorochemical production	Table2(II)	HFC-23	1995	1996	30.00	0.08	–29.92	t	–371.04	–99.7	–5.6
I.5.17.	2.B.9.a. By-product emissions	Table2(II)	HFC-23	1995	1996	30.00	0.08	–29.92	t	–371.04	–99.7	–5.6
I.5.18.	2.C.3. Aluminium production	Table2(II)	CF_4	1991	1992	154.95	85.65	–69.30	t	–459.46	–44.7	–3.3
I.5.19.	2.F.1. Refrigeration and air conditioning	Table2(II)	HFC-125	2014	2015	1 198.69	990.70	–208.00	t	–659.35	–17.4	–3.5
I.5.20.	3.A.1.b. Non-dairy cattle	Table3	CH_4	1990	1991	220.88	253.84	32.97	kt	923.09	14.9	4.1
I.5.21.	3.A.2. Sheep	Table3	CH_4	1993	1994	64.43	74.53	10.10	kt	282.78	15.7	3.5
I.5.22.	3.A.2. Sheep	Table3	CH_4	2000	2001	72.18	62.50	–9.68	kt	–271.09	–13.4	–3.1
I.5.23.	3.B.1. Cattle	Table3	CH_4	2010	2011	91.05	101.05	10.00	kt	279.99	11.0	3.4
I.5.24.	4.E.2. Land converted to settlements	Table4	Net CO_2 emissions/removals	2009	2010	6 341.77	4 402.19	–1 939.58	kt CO_2 eq	–1 939.58	–30.6	–3.1
I.5.25.	4.G. Harvested wood products	Table4	Net CO_2 emissions/removals	2018	2019	264.10	–1 439.19	–1 703.29	kt CO_2 eq	–1 703.29	–644.9	–4.1
I.5.26.	5.F.1. Long-term storage of carbon in waste disposal sites	Table5	CO_2	1990	1991	7 058.15	8 451.21	1 393.06	kt	1 393.06	19.7	3.0

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 – gaseous fuels	Table1.A(a)s1	CO_2	t/TJ	59.182	Above range
I.6.2.	1.A.2. Manufacturing industries and construction – gaseous fuels	Table1.A(a)s2	CO_2	t/TJ	59.182	Above range
I.6.3.	1.A.4. Other sectors – gaseous fuels	Table1.A(a)s4	CO_2	t/TJ	59.182	Above range
I.6.4.	2.A.1. Cement production	Table2(I).A-H	CO_2	t/t	0.449	Below range
I.6.5.	2.F.1.e. Mobile air conditioning – HFC-134a	Table2(II).B-Hs2	Product life factor	%	51.956	Above range
I.6.6.	2.F.3. Fire protection – HFC-23	Table2(II).B-Hs2	Product life factor	%	5.000	Above range
I.6.7.	2.F.3. Fire protection – HFC-125	Table2(II).B-Hs2	Product life factor	%	5.000	Above range
I.6.8.	3.A.4.a. Buffalo	Table3.A	CH_4	kg CH_4/head/year	76.325	Above range
I.6.9.	3.B.4.a. Buffalo	Table3.B(a)	CH_4	kg CH_4/head/year	15.718	Above range
I.6.10.	5.D.2. Industrial wastewater	Table5.D	CH_4	kg/kg DC	0.250	Above range

Table I.7
Identification of new key categories

ID#	*New key category*	*Gas*	*Criteria*	*Inventory year*
I.7.1.	3.C. Rice cultivation	CH_4	Level	2023
I.7.2.	3.D.1. Direct N_2O emissions from managed soils	N_2O	Trend	2023
I.7.3.	4.A.2. Land converted to forest land	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
I.7.6.	4.C.1. Grassland remaining grassland	CO_2	Level	2023
I.7.7.	4.C.1. Grassland remaining grassland	CO_2	Trend	2023
I.7.8.	4.E.2. Land converted to settlements	CO_2	Trend	2023