

AMRITA VISHWA VIDYAPEETHAM

Coimbatore, Tamil Nadu, India

GREENHOUSE GAS EMISSIONS REPORT

In Accordance with the GHG Protocol Corporate Standard

Prepared for QS World University Rankings: Sustainability

Reporting Year: 2025 | Published: April 2026 | Version 1.0

Prepared by the Office of Sustainability & Estate Management
Amrita Vishwa Vidyapeetham, Coimbatore

1. Executive Summary

This report presents Amrita Vishwa Vidyapeetham's greenhouse gas (GHG) emissions inventory for the reporting year 2025, prepared in accordance with the GHG Protocol Corporate Accounting and Reporting Standard — the internationally recognised benchmark used by the world's leading universities and organisations to measure, manage, and disclose their carbon emissions.

This disclosure has been prepared specifically to support Amrita's participation in the QS World University Rankings: Sustainability, which explicitly assesses whether institutions maintain a publicly available energy and emissions report as part of its Sustainable Institutions indicator. The report covers Scope 1 (direct), Scope 2 (indirect energy), and Scope 3 (value chain) emissions across all six Amrita campuses: Coimbatore, Amritapuri, Kochi, Bengaluru, Chennai, and Mysuru.

Key Metric	2025 Value
Total Scope 1 Emissions (Direct)	12,450 tCO2e
Total Scope 2 Emissions (Purchased Energy)	18,200 tCO2e
Total Scope 3 Emissions (Value Chain, partial)	9,800 tCO2e
Total GHG Emissions (all scopes)	40,450 tCO2e
Emissions Intensity (per FTE student)	0.82 tCO2e/student
Emissions per Campus Floor Area	42 kg CO2e/m2
Baseline Year	2019
Reduction vs. Baseline (Scope 1 & 2)	8%
Net Zero Target Year	2047

2. Reporting Standard and Methodology

2.1 Standard Used: GHG Protocol Corporate Standard

Amrita Vishwa Vidyapeetham reports its carbon emissions in line with the GHG Protocol Corporate Accounting and Reporting Standard (GHG Protocol Corporate Standard), published by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). This is the most widely adopted international standard for organisational GHG reporting, used by the majority of top-ranked universities globally.

The GHG Protocol Corporate Standard organises emissions into three scopes based on their source and the institution's degree of control:

Scope	Category	Examples at Amrita
Scope 1	Direct Emissions (owned/controlled sources)	Gas boilers, diesel generators, University vehicles, refrigerant leaks, campus lab gases
Scope 2	Indirect — Purchased Energy	Electricity from the Tamil Nadu & Kerala grid, purchased steam or cooling (where applicable)
Scope 3	Other Indirect Emissions (value chain)	Staff and student commuting, business travel, supply chain (food, IT), construction materials, waste

2.2 Benchmarking Against Peer Institutions

The GHG Protocol Corporate Standard is the dominant reporting framework among top-ranked universities. The following table summarises how leading global institutions approach carbon emissions reporting, demonstrating alignment with best practice that Amrita is adopting:

University	Scopes Reported	Standard	Key Commitment
University of Oxford	Scope 1 & 2 (full), Scope 3 (partial)	GHG Protocol	50% Scope 1&2 reduction by 2030 vs 2010 peak
Harvard University	Scope 1, 2 & 3	GHG Protocol	Fossil Fuel-Neutral by 2026; Fossil Fuel-Free by 2050; 32% cut since 2006
University of Cambridge	Scope 1, 2 & 3	GHG Protocol	First university with a 1.5°C science-based target; net zero by 2038
Imperial College London	Scope 1, 2 & 3	GHG Protocol	Net Zero Carbon by 2040 under Transition to Zero Pollution initiative
MIT	Scope 1, 2 & 3	GHG Protocol	Part of Consortium for Climate Solutions with Harvard; 100% renewable electricity from 2026
ETH Zurich	Scope 1, 2 & 3	GHG Protocol	Reporting since 2004; carbon neutrality target by 2030 for Scope 1&2
Stanford University	Scope 1, 2 & 3 (full)	GHG Protocol	Comprehensive Scope 3 assessment including supply chain; carbon neutral operations
Yale University	Scope 1, 2 & 3 (full)	GHG Protocol	Systematic Scope 3 assessment across multiple categories; GHG reduction plan active
Amrita Vishwa Vidyapeetham	Scope 1, 2 & 3 (partial)	GHG Protocol	Net Zero by 2047; annual reporting from 2026; full Scope 3 by 2028

2.3 Additional Standards Referenced

In addition to the GHG Protocol Corporate Standard, this report is informed by:

- ISO 14064-1:2018 — Specification with guidance for the quantification and reporting of GHG emissions at the organisation level
- IPCC Guidelines (2006, updated 2019) — For emission factors where India-specific factors are unavailable
- Ministry of Environment, Forest and Climate Change (MoEFCC) India — National GHG inventory guidelines
- Bureau of Energy Efficiency (BEE), India — Emission factors for the Indian electricity grid by state
- SEBI Business Responsibility and Sustainability Reporting (BRSR) framework — For integrated institutional disclosure

3. Organisational Boundary

3.1 Consolidation Approach

Amrita Vishwa Vidyapeetham has adopted the Operational Control approach for defining its organisational boundary, consistent with the GHG Protocol Corporate Standard. Under this approach, the University reports 100% of the GHG emissions from operations over which it has operational control.

3.2 Campuses in Scope

Campus	State	Primary Activities	Included in Inventory
Coimbatore (Main)	Tamil Nadu	All faculties, main research, administration	Full — Scope 1, 2, 3
Amritapuri	Kerala	Engineering, Social Work, Marine Sciences	Full — Scope 1, 2, 3
Kochi	Kerala	Medicine, Allied Health	Full — Scope 1 & 2
Bengaluru	Karnataka	Engineering, Business	Full — Scope 1 & 2
Chennai	Tamil Nadu	Engineering	Full — Scope 1 & 2
Mysuru	Karnataka	Engineering, Sciences	Full — Scope 1 & 2

4. Scope 1 — Direct Emissions

Scope 1 covers all direct GHG emissions from sources owned or controlled by the University. For Amrita, the primary Scope 1 sources are:

Emission Source	2025 Emissions (tCO ₂ e)	% of Scope 1 Total
Natural gas / LPG (campus kitchens & labs)	4,820	38.7%
Diesel — backup generators	3,290	26.4%
Diesel — University fleet vehicles	2,100	16.9%
Refrigerant gases (HVAC systems)	1,650	13.3%
Laboratory process gases	590	4.7%
Total Scope 1	12,450 tCO₂e	100%

Emission factors for fuel combustion are sourced from the IPCC 2006 Guidelines and the Ministry of Petroleum and Natural Gas, India. All values are expressed in tonnes of carbon dioxide equivalent (tCO₂e) using the 100-year Global Warming Potential (GWP) values from the IPCC Sixth Assessment Report (AR6).

5. Scope 2 — Indirect Energy Emissions

Scope 2 emissions result from the generation of purchased electricity, heat, steam, or cooling consumed by the University. Amrita reports Scope 2 using both the Location-Based and Market-Based methods as recommended by the GHG Protocol Scope 2 Guidance (2015).

Campus	Electricity Consumed (MWh)	Location-Based (tCO ₂ e)	Market-Based (tCO ₂ e)
Coimbatore	24,500	7,840	5,200
Amritapuri	12,200	3,904	2,600
Kochi	8,100	2,592	1,800
Bengaluru	6,400	2,048	1,350
Chennai	3,900	1,248	820
Mysuru	2,800	896	580
TOTAL	57,900 MWh	18,528 tCO₂e	12,350 tCO₂e

Location-based emission factors are sourced from the Central Electricity Authority (CEA), India — CO₂ Baseline Database for the Indian Power Sector (Version 17, 2024). The Coimbatore and Chennai campuses draw from the Southern Regional Grid (Tamil Nadu); Amritapuri and Kochi from the Kerala State Electricity Board. The market-based figure reflects partial renewable energy procurement through Amrita's rooftop solar installations and green energy contracts.

Amrita's rooftop solar capacity across all campuses totalled 3.2 MW as of December 2025, generating approximately 4,600 MWh of on-site renewable electricity, which offsets an estimated 1,470 tCO₂e on a location-based basis.

6. Scope 3 — Value Chain Emissions (Partial)

Scope 3 covers indirect emissions that occur in the University's value chain — upstream and downstream of its direct operations. Consistent with leading peer institutions (including Harvard, Stanford, Yale, and the University of Toronto), Amrita is progressively expanding its Scope 3 boundary. For the 2025 reporting year, the following categories have been quantified:

Cat.	Scope 3 Category	2025 Emissions (tCO ₂ e)	Data Source / Method
3.6	Business Travel (air & rail)	2,400	Expense data; DEFRA emission factors
3.7	Employee Commuting	3,100	Staff survey (2025); modal split estimate
3.7	Student Commuting	2,800	Student survey (2025); campus transport data
3.3	Waste Generated in Operations	820	Waste contractor data; IPCC landfill factors
3.3	Water Supply & Wastewater	380	Utility meters; BEE emission factors
3.1	Purchased Goods (food, partial)	300	Spend-based; Exiobase EEIO factors

Total Scope 3 (reported categories)	9,800 tCO ₂ e
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Categories not yet quantified include: purchased goods and services (full supply chain), capital goods, fuel- and energy-related activities (upstream), downstream leased assets, and investments. Amrita commits to full Scope 3 coverage by the 2027 reporting year, consistent with the roadmap of peer institutions.

7. Emissions Trend and Reduction Targets

7.1 Historical Trend

Year	Scope 1 (tCO ₂ e)	Scope 2 (tCO ₂ e)	Total S1+S2 (tCO ₂ e)	Change vs. Baseline (2019)
2019 (Baseline)	13,500	19,800	33,300	—
2020	10,200	15,100	25,300	-24.0% (COVID)
2021	11,800	17,200	29,000	-12.9%
2022	12,800	18,500	31,300	-6.0%
2023	12,600	18,400	31,000	-6.9%
2024	12,550	18,300	30,850	-7.3%
2025	12,450	18,200	30,650	-8.0%

7.2 Emissions Reduction Targets

Amrita Vishwa Vidyapeetham has adopted the following science-aligned emissions reduction targets, guided by India's national NDC commitments and the Paris Agreement 1.5°C pathway:

Target	Scope	Target Year	Reduction
50% absolute reduction in Scope 1 & 2 emissions	Scope 1 & 2	2035	vs. 2019 baseline
100% renewable electricity across all campuses	Scope 2	2032	Market-based zero emissions
Net Zero (Scope 1, 2 & material Scope 3)	All scopes	2047	Net zero with no offsets
Phase-out of diesel generators	Scope 1	2030	Replace with solar + battery storage
25% reduction in Scope 3 commuting emissions	Scope 3	2030	vs. 2025 baseline

8. Data Quality and Assurance

8.1 Data Quality Rating

Amrita rates its data quality in accordance with the GHG Protocol's five-point data quality indicators — completeness, consistency, accuracy, transparency, and relevance. For the 2025 report:

- Scope 1: High quality — based on direct metering and fuel purchase records
- Scope 2: High quality — utility bills from TNEB, KSEB, and BESCO for all campuses
- Scope 3: Medium quality — surveys and spend-based estimation; will improve with dedicated data collection systems from 2026

8.2 Third-Party Verification

Amrita Vishwa Vidyapeetham commits to commissioning third-party limited assurance of its Scope 1 and Scope 2 emissions inventory from the 2026 reporting year, by an accredited verifier. This aligns with practice at University of Cambridge, Imperial College London, and ETH Zurich, and is recommended by the QS Sustainability methodology. Full independent assurance covering Scope 3 will follow in the 2028 reporting cycle.

9. Key Decarbonisation Initiatives

The following campus initiatives contribute directly to Amrita's emissions reduction trajectory and are reported here in support of the QS Sustainable Institutions indicator:

Initiative	Status	Estimated Annual CO2e Saving
Rooftop Solar — 3.2 MW across campuses	Operational	1,470 tCO2e/year
LED Lighting Retrofit — all campuses	Operational (90% complete)	320 tCO2e/year
Rainwater Harvesting — 6 campuses	Operational	Indirect — water stress
Electric Vehicle Fleet (20 EVs)	Operational	85 tCO2e/year
Green Building Standards (GRIHA/LEED)	New buildings from 2024	TBD — lifecycle basis
Campus Composting — organic waste	Pilot (Coimbatore)	40 tCO2e/year
Solar Water Heaters — hostels	Operational	110 tCO2e/year
Battery Storage Pilot — 500 kWh (Coimbatore)	Commissioning 2026	Est. 200 tCO2e/year

10. Alignment with QS Sustainability Rankings Criteria

The QS World University Rankings: Sustainability assesses universities against a Sustainable Institutions indicator that evaluates, among other criteria, whether an institution has a publicly available energy and emissions report. This report directly addresses that requirement. The table below maps this document to the relevant QS criteria:

QS Criterion	Amrita Status	Reference in This Report
Publicly available energy and emissions report	Met — this report	Full document
Emissions reported using a recognised standard (GHG Protocol)	Met	Section 2
Scope 1 and 2 reported	Met	Sections 4 & 5
Scope 3 emissions reported (at least partial)	Partial — Met	Section 6
Sustainability strategy publicly available	Met — Sustainable Investment Policy, April 2026	Linked document
Commitment to Net Zero / Carbon Neutrality	Met — Net Zero 2047	Section 7.2
Student sustainability society present	Met — Amrita Green Society	Linked document
Membership in climate action / sustainability group	In progress — ISCN, ACT membership 2026	Section 11

11. Sustainability Memberships and Commitments

To further strengthen its standing in the QS Sustainability Rankings, Amrita Vishwa Vidyapeetham is pursuing membership in the following recognised climate action and sustainability networks — a criterion directly evaluated under the Sustainable Institutions indicator:

- International Sustainable Campus Network (ISCN) — Application submitted, membership anticipated 2026
- Second Nature — Higher Education Climate Leadership Commitment (formerly ACUPCC) — Under review
- UN Sustainable Development Solutions Network (SDSN) — India chapter engagement ongoing
- Educate Plus Green Campus Initiative — Active participation
- Embracing the World (Amma's global humanitarian network) — Active membership, sustainability programmes linked

12. Conclusion and Next Steps

This report marks Amrita Vishwa Vidyapeetham's first formal GHG emissions disclosure aligned with the GHG Protocol Corporate Standard and prepared specifically for QS Sustainability Rankings submission. It demonstrates Amrita's commitment to transparent, comparable, and internationally recognised climate reporting.

Consistent with peer institutions such as Oxford, Harvard, Cambridge, and ETH Zurich — all of which use the GHG Protocol and publish annual emissions reports — Amrita is committed to

annual reporting, progressive expansion of Scope 3 coverage, and third-party verification from 2026 onwards.

The University's net zero target of 2047 is ambitious but achievable given the renewable energy potential of its South Indian campuses, the active engagement of its student body through the Amrita Green Society, and the institutional commitment embedded in its Sustainable Investment Policy.

"Let us nurture the earth as we nurture our own children — with love, with care, and with the knowledge that it is the source of all life."

— Mata Amritanandamayi Devi

Chief Sustainability Officer

Amrita Vishwa Vidyapeetham

Date: _____

Vice Chancellor

Amrita Vishwa Vidyapeetham

Date: _____