

Basis of Reporting

FY23 NTT Ltd. GHG emissions methodology and basis of reporting

Contents

1.	Purpose	4
1.1.	Objectives	4
1.2.	Scope	4
2.	Boundary of Control	5
3.	GHG emissions scopes and materiality	6
3.1.	Scope 1	6
3.2.	Scope 2	6
3.3.	Scope 3	6
4.	Data collection and estimation methodology	8
4.1.	Scope 1	8
4.2.	Scope 2	8
4.2.1	Location-based method	8
4.2.2	Market-based method	8
4.3.	Scope 3	9
4.4.	Assumptions	11
4.4.1	Scope 2	11
4.4.2	Scope 3	11
5.	Base year	13
5.1.	Base year methodology	13
5.2.	Recalculation policies	13
5.2.1	Changes to company structure	13
5.2.2	Methodology changes	13
5.2.3	Data errors	13
5.2.4	Timeline	13
6.	Process to address data gaps and uncertainty	14
6.1.	How do we capture and respond to uncertainty?	14
6.2.	How do we address data gaps?	14
7.	Training and quality control	15
7.1.	Quality control	15
7.2.	Training	15
8.	Emission Factors	16

9. Exclusions 17

9.1. Exclusions from reporting: 17

List of tables

Table 1-Scope 3 description and materiality 6

Table 2 - Scope 3 calculation methodology 9

Table 3 - Emission factors..... 16

1. Purpose

1.1. Objectives

The purpose of this document is to outline the process for greenhouse gas (GHG) emissions data collection, calculation methodology and the key assumptions taken, which is aligned with the GHG Protocol Corporate Accounting and Reporting Standard.

NTT Ltd. aims to deliver reductions in operational emissions (Scope 1 & 2) and value chain emissions (Scope 3) as part of wider sustainability commitments and emissions reduction targets. NTT Ltd. has committed to the following emissions reduction targets, validated by the Science Based Targets initiative (SBTi):

- Net Zero emissions across operations (Scopes 1 and 2) by 2030
- Net Zero emissions across the value chain (Scope 3) by 2040

High quality data is integral to achieving our goal. We are continuously improving our data collection and calculation methodologies and controls, and we track our contribution and progress towards NTT Ltd.'s science-based targets.

1.2. Scope

This document refers to NTT Ltd.'s FY23 (Financial Year 2023). We consider FY23, starting on 01 April 2023 and ending on 31 March 2024, and the emissions reported in this document correspond to our business activities across operations and value chain completed during the period.

NTT Ltd. and its affiliates are NTT DATA, Inc. companies.

2. Boundary of Control

NTT Ltd. follows the Financial Control approach to defining the organizational boundary for sustainability reporting. A company has financial control over an operation if the former has the ability to direct the financial and operating policies of the latter with a view to gaining economic benefits from its activities. All emissions from these businesses or facilities should be included in NTT Ltd.'s GHG inventory. Businesses or facilities where NTT Ltd. does not have the ability to direct the financial and operating policies are considered 'out of scope'.

In FY23 this includes, in line with NTT Financial Accounting Level 1:

Regions:

- Europe
- Americas
- Middle East and Africa (MEA)
- Asia-Pacific (APAC)

Service Divisions and Functions:

- Cloud Services Division (earlier known as Managed Cloud and Infrastructure Services)
- Managed Network and Collaboration Services (MNCS)
- Central Functions
- Data Centers and Infrastructure (DCI, also referred to as GDC)
- Chief Digital Office (CDO)

3. GHG emissions scopes and materiality

Under the GHG Protocol Corporate Accounting and Reporting Standard greenhouse gas emissions are classified into three categories: Scope 1, Scope 2 and Scope 3 with all emissions reported in units of carbon dioxide equivalent (CO₂e). For non-CO₂ GHGs (CH₄, N₂O, HFCs, PFCs and SF₆), conversions were made using the AR5 published IPCC global warming potentials (GWP) for a 100-year period without climate carbon feedback.

3.1. Scope 1

Scope 1 emissions are direct emissions from owned or controlled sources. They are further broken down into three categories:

- **Stationary combustion:** Onsite combustion for generating electricity, steam or heat, or from diesel driven pumps (e.g. fire pumps)
- **Mobile combustion:** Combustion of fuels for use of company vehicles
- **Fugitive emissions:** Direct emissions of GHGs from refrigeration and air conditioning systems, fire suppression systems, and the purchase and release of industrial gases

Scope 1 emissions have a medium materiality for NTT Ltd.

3.2. Scope 2

Scope 2 emissions are indirect emissions from the generation of purchased energy. This includes:

- Purchased electricity
- Purchased heat
- Purchased cooling
- Purchased steam

Scope 2 emissions have a high materiality for NTT Ltd.

3.3. Scope 3

Scope 3 emissions are all indirect emissions (not included in Scope 1 or 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. There are 15 emission categories under this scope:

Table 1-Scope 3 description and materiality

Category	Category description	Materiality for NTT Ltd.
Cat. 1: Purchased goods and services	Extraction, production, and transportation of goods and services purchased or acquired	High
Cat. 2: Capital goods	Extraction, production, and transportation of capital goods purchased or acquired	High
Cat. 3: Fuel and energy related activities (not included in Scope 1 or 2)	Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company, not already accounted for in scope 1 or scope 2	High

Category	Category description	Materiality for NTT Ltd.
Cat. 4: Upstream transport and distribution	Transportation and distribution of products and services purchased by the reporting company between a company's tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company)	Medium
Cat. 5: Waste generated in operations	Disposal and treatment of waste generated in the reporting company's operations	Low
Cat. 6: Business travel	Transportation of employees for business-related activities	Low
Cat. 7: Employee commuting	Transportation of employees between their homes and their worksites	Low
Cat. 8: Upstream leased assets	Operation of assets leased by the reporting company (lessee)	None
Cat. 9: Downstream transport and distribution	Transportation and distribution of products sold	Low
Cat. 10: Processing of sold products	Processing of intermediate products sold	None
Cat. 11: Use of sold products	End use of goods and services sold	High
Cat. 12: End-of-life treatment of sold products	Waste disposal and treatment of products sold	Medium
Cat. 13: Downstream leased assets	Operation of assets owned by the reporting company (lessor) and leased to other entities	High
Cat. 14: Franchises	Operation of franchises	None
Cat. 15: Investments	Operation of investments (including equity and debt investments and project finance)	Low

4. Data collection and estimation methodology

4.1. Scope 1

Stationary combustion emissions are mainly from the operation of backup power generators within the business and mobile combustion emissions are from the vehicles operated by the company. To estimate the emissions, fuel and gas amounts used for both are collected from the company assets and facilities via facility management teams. These amounts are then multiplied by the respective energy source emission factors gathered from the GHG Protocol Calculation Tool and the UK Department for Environment, Food & Rural Affairs (DEFRA) conversion factors.

Fugitive emissions are calculated by collecting the quantity of refrigerant gases leaked during installation, operation and disposal of relevant equipment and multiplying these with their respective Global Warming Potential

4.2. Scope 2

We capture in this category:

- Purchased electricity that power building, lighting and air conditioning in our Data Centers (referred to as non-IT load or non-IT energy).
- Purchased electricity in offices and other facilities.
- We collect the data monthly via the data collection survey. When the exact amount of electricity purchased is not known for any reason, we extrapolate it based on average kWh consumption in previous months.

Note that in the data centers purchased electricity consumed by client equipment (IT load or IT energy) is addressed under Scope 3 Category 13 (downstream leased assets).

Activity data for Scope 2 and Scope 3 Category 13 are collected monthly at the DC level in the data collection survey.

We report emissions from purchased electricity using two methods:

4.2.1 Location-based method

The emissions are calculated based on the emissions intensity of the local grid area where the electricity usage occurs. The amount of electricity purchased in kWh is multiplied by the grid emission factor for the respective location. We aim to use the most credible local emissions factor we have available. If local or regional emissions factors are not available, we use the respective national emissions factor. Emissions factors come from credible local, regional or national energy organisations / electricity system operators (e.g. the Environmental Protection Agency's, EPA, Emissions Factors Hub for the USA) or from credible global data providers such as the International Energy Agency's (IEA) Emission Factors list.

4.2.2 Market-based method

This method calculates the specific emissions the company is responsible for through its purchasing decisions. This method considers renewable energy purchased and generated as zero emissions provided adequate evidence (contractual or otherwise) is available. The remaining non-renewable energy purchased in kWh is multiplied by the supplying company's emission factor collected as part of the reporting data exercise). Where market-based emissions factors are unavailable, credible residual emissions factors will be used (e.g. Green-e Residual Mix Emission Rates for the USA and the Association of Issuing Bodies (AIB) for Europe), or failing that local, regional or national grid emissions factors. As with the location-based method, the most local available emissions factors from credible sources will be used.

4.3. Scope 3

Where possible, we seek to use supplier-specific emissions data to calculate emissions. Where this is unavailable, a spend-based methodology is used to calculate emissions, with a category of spend-specific emissions factors.

Where only partial estimates on spend are available, assumptions around total spend are made using analysis of spend from previous years. Emission estimates are developed by extrapolating the estimated total spend amount.

Spend analysis largely utilizes emission factors built into the Exiobase Database.

Table 2 - Scope 3 calculation methodology

Category	Data Source	Methodology
Cat. 1: Purchased goods and services	Spend data from NTT Ltd. enterprise data platform, obtained by Procurement team. Emissions factor from Exiobase database	Emissions are estimated based on categorized spend data for purchased goods and services using category-specific emissions factors from the Exiobase Database (replacing those previously used from the Quantis Database Scope 3 screening tool). Transportation and distribution services that are included in the overall purchase of goods from suppliers remain in this category. See Cat. 4 for further explanation
Cat. 2: Capital goods	Data Center (DC) LCA from ARUP. Asset list of DC that has gone live (capitalized assets) in the reporting period (FY23) provided by GDC Management team. FY23 NTT Ltd CapEx spend provided by the Finance team.	Total NTT Ltd. Capital Expenditure (CapEx) spend shows capital investments in data centers (made by GDC division) account for more than 90% of all CapEx. For the construction of new data center facilities under our Global data center business, we used emission factors obtained by a LCA of the whole construction, fit out and lifetime of a DC, which commissioned to ARUP to do one of our new DCs (AMS 1 in Amsterdam, the Netherlands). We then extrapolated the total emissions kg CO₂e per square meter and designed power capacity (kg CO₂e per MWh) to all other newly built DCs in the period. The same applies for capital investment on existing DCs per inventory type. For the remaining capital goods procured (less than 10%), we estimated the emissions using Capital Expenditure using Exiobase spend-based factors.
Cat. 3: Fuel and energy related activities (not included in Scope 1 or 2)	Fuel and electricity activity data from facilities management teams via a data collection survey Emission factors from DEFRA and IEA.	For well-to-tank (WTT) emissions, purchased fuels and energies provided by assets are multiplied by their respective WTT emission factors obtained from DEFRA conversion factors or IEA emission factors. For transmission and distribution (T&D), purchased energy for electricity provided by assets is multiplied by their respective T&D loss emission factor obtained from IEA emission factors. NOTE – As Cat 13 uses a location-based methodology, both WTT and T&D emissions for client IT load are calculated using total IT load

Category	Data Source	Methodology
		electricity, inclusive of any renewable energy procurement (i.e. renewable energy is not excluded from the calculation). For non-IT load, any procured renewable energy is excluded from both WTT and T&D calculation for Scope 2 market-based calculations.
Cat. 4: Upstream transport and distribution	Spend data from NTT Ltd. enterprise data platform, obtained by Procurement team. Emissions factor from Quantis/ SBTi tool.	The spend towards logistics suppliers is classified as upstream transport and distribution as opposed to Purchased goods. Transport and distribution service emissions are estimated using spend data and Exiobase emissions factors. NOTE – Transportation and distribution services spend (Cat 4) included in the financial data used for Cat 1 emissions estimates and is partially separated out.
Cat. 5: Waste generated in operations	Spend data from NTT Ltd. enterprise data platform, obtained by Procurement team. Emissions factor from Exiobase factors	Not material in FY23, emissions captured within category 1 using spend data and Exiobase factors.
Cat. 6: Business travel	Spend data from NTT Ltd. enterprise data platform, obtained by Procurement team. Emissions factor from Exiobase	Business travel expenditure by mode of transport was collected from the major partner travel agencies. Based on the previous year's expenditures, we extrapolated the spend data to adjust for the missing spend. We used Exiobase factors to estimate emissions.
Cat. 7: Employee commuting	Headcount data from the HR team. Emissions factor from Exiobase	Commuting distance by different modes of transport is determined through a survey sent out to all employees for one of our regions. The distance is multiplied by the DEFRA emission factors. The emission per person is determined, which is then extrapolated to all NTT Ltd. regions using the permanent headcount.
Cat. 8: Upstream leased assets	N/A	Not material in FY23
Cat. 9: Downstream transport and distribution	N/A	Transport and distribution services are primarily upstream and therefore relevant spend is categorized in Cat. 4.
Cat. 11: Use of sold products	Cisco products carbon footprint provided by Cisco (PAIA methodology applied is referenced in the data set). Spend data from NTT Ltd. enterprise data platform, obtained by Procurement team.	Because NTT Ltd. re-sell products from suppliers, primary product-level emissions data from the main supplier (Cisco, using a methodology called PAIA) is utilized. Estimates indicate Cisco products with product carbon footprint details represent 43% of all hardware products sold. The carbon footprint from Cisco products is then extrapolated to remaining hardware products to estimate the total.

Category	Data Source	Methodology
Cat. 12: End-of-life treatment of sold products	Cisco products' carbon footprint provided by Cisco (PAIA methodology applied is referenced in the data set). Spend data from NTT Ltd. enterprise data platform, obtained by Procurement team.	Because NTT Ltd. re-sell products from suppliers, primary product-level emissions data from the main supplier (Cisco, using a methodology called PAIA) is utilized. Estimates indicate Cisco products represent 79% of all hardware products sold. The carbon footprint from Cisco products is then extrapolated to the remaining 21% in order to obtain an estimate of the total.
Cat. 13: Downstream leased assets	Electricity and renewable energy activity data from facilities management teams via a data collection survey. Emission factors directly from utility supplier, if not available published residual emissions factors from local grid authority or location-based factors from IEA.	This covers the emissions from electricity used to power clients' IT hardware located in colocation DCs and emissions from the operation of DCs that are owned but not operated by NTT Ltd. For our colocation DCs, data on purchased electricity powering client IT load is collected monthly at the DC level and multiplied by the relevant location-based emission factor. The emissions factor hierarchy used is the same as that used for Scope 2 for location-based emissions. For DCs that are owned but not operated by NTT Ltd., NTT Ltd. will estimate emissions for these facilities based on comparison with similar facilities. In the future, NTT Ltd. will try to obtain emission or activity data from the client (lessor) to calculate emissions. For Offices, emissions coming out of subleased spaces are also included here.
Cat. 15: Investments		For DCs that are managed as associated companies, we use the same emissions calculation method as for DCs under financial control but apply a proportional factor based on equity share for Scopes 1 & 2.

4.4. Assumptions

4.4.1 Scope 2

The market-based emissions are estimated based on supplier specific emission factors wherever possible. In cases where the supplier specific factors were not available, we used the regional residual emissions factor or location-based emission factor for calculating the emissions from the non-renewable energy consumption.

For estimating the location-based emission factor, we have used the most relevant and recent grid intensity data available in the regions where we operate. In cases where we could not obtain regional grid intensities, we have used national grid intensity data for calculation.

4.4.2 Scope 3

Where direct supplier data was unavailable, a spend-based analysis and screening was utilized to determine magnitude of emissions associated with the respective categories. As such, a spend-analysis was conducted for some of the Scope 3 categories, including Category 1: Purchased goods and services. Where only partial estimates on spend were available, such as for Business Travel, assumptions around total spend were made

using analysis of spend from previous years. Emission estimates are developed by extrapolating the estimated total spend. Spend analysis largely utilizes Exiobase emission factors.

5. Base year

5.1. Base year methodology

NTT Ltd. has used FY21 (01.04.2021 to 31.03.2022) as the base year to calculate greenhouse gas ('GHG') emissions and set SBTi Net Zero and scope 1, 2 and 3 reduction targets.

- A Scope 1 and 2 emissions inventory was developed for FY21
- A Scope 3 screening was conducted for FY2021 to identify the most material categories
- The baseline calculation methodology is aligned with the GHG Protocol
- The 2021 Financial Year is from 01 April 2021 to 31 March 2022

5.2. Recalculation policies

5.2.1 Changes to company structure

- Any acquisition, merger, and/or divestments that has led or could lead to a cumulative change of five percent (5%) or larger in NTT Ltd.'s total base year emissions (CO₂e) versus the base year
- This also includes any joint ventures or partnerships that change the organizational boundary i.e. for which NTT Ltd. has financial control
- When such changes occur in the middle of the financial year, NTT Ltd. will adopt the "all-year" option whereby the current and baseline year will be recalculated for the entire financial year
- As it relates to acquisitions and mergers, recalculation will take on the "year-after" option and will be conducted within one year after the structural change to ensure it incorporates full and accurate data that will become available

5.2.2 Methodology changes

- Should emissions calculation methodology changes impact the base year emissions by more than 5%, the base year emissions would be adjusted to incorporate such changes
- Methodology changes include adjustments in emission factors, forecasts, protocols, pathways, improved data access

5.2.3 Data errors

- Should NTT Ltd. become aware of significant errors in either sourcing of data or in calculations, which impact emissions by more than 5%, a base year emission calculation will be conducted

5.2.4 Timeline

- Recalculations required by any of the above circumstances that occurred in the reporting year will occur at the end of each financial year.

6. Process to address data gaps and uncertainty

6.1. How do we capture and respond to uncertainty?

In our emissions calculation, we focused on minimizing parameter uncertainty i.e. the uncertainty associated with quantifying the parameters used as inputs (e.g. activity data, emission factors or other parameters). We have captured the accuracy levels for each emissions category as High/Medium/Low based on the parameter uncertainty associated in GHG Calculation methodology document.

Especially for scope 1 and 2, electricity represents 90% of the total. Therefore, we collected primary data such as meter readings, consumption data from utility bills, supplier specific emission factors (where available) to estimate scope 2 emissions. The data was validated against presented evidence (bills, renewable energy certificates, contracts, letters from landlords) by reporting focal points in each asset unit to ensure the accuracy. The remaining 10% is comprised of i) stationary combustion – where we used diesel consumption data reported by our data centre assets ii) mobile combustion data – where we used fuel purchase data/distance travelled for our fleet and ii) refrigerant leak data – where we used recorded leaks from data centres. The parameter uncertainty is higher for refrigerant leak as we expect gaps in the reporting of leaks. Given that refrigerant leaks constitute less than 3% of the total scope 1 and 2 emissions, the impact on the overall parameter uncertainty for scope 1 and 2 emissions is expected to be minimal. We are setting up internal processes to closely monitor refrigerant leaks at our facilities as part of our Sustainability Program.

For estimating scope 3 emissions, where possible we use inventory-type data based on LCA commissioned to reputable and independent external third parties such as ARUP and PAIA. For completeness emissions obtained in this way were then extrapolated to the rest of the business based on spend or asset data obtained by finance or procurement functions, and the use of using associated emissions factors, such as those from the Exiobase Dataset.

To improve the quality of emissions estimates we plan to reduce the use of spend-based methodologies and move towards more accurate supplier-specific.

Scientific uncertainty and model uncertainty are beyond the scope of our inventory efforts.

6.2. How do we address data gaps?

We focussed on addressing data gaps especially for emission categories that represent more than 1% of the total emissions. We addressed gaps by extrapolating of activity data (where activity data was missing) and using conservative emission factors (where we could not get supplier specific emission factors).

For example, we had collected supplier specific emission figures for the use of sold products from our biggest supplier. We know that the specific supplier constitutes majority of the total volume of our product/Hardware sales. We calculate the total category 11 emissions by extrapolating the rest to the supplier's emission figures. In case of scope 2 market-based emissions calculation, we used conservative residual emission factors and location-based factors when we could not find market specific emission factors.

As part of our sustainability program, we plan to address the remaining data gaps by engaging with our supply chain to gather supplier specific emission factors and by implementing an automated internal reporting platform to collect and validate all emissions-related data.

7. Training and quality control

7.1. Quality control

We have requested three step verification of data for all activity data collected via data collection survey:

1. All data must be submitted with accompanying evidence (electricity/ water bills, renewable energy certificates or contracts, letters from landlords specifying our consumption in the period).
2. An independent second person must always play the role of data verifier and approver reviewing all submitted data and evidence before they are reported in the final GHG emissions report.
3. Finally, all the data is probed, validated and checked for common-sense by the central Sustainability team when in the reporting tool before reporting is published.

7.2. Training

All engaged stakeholders – data input or data approval owners – have been enabled with training material and policies for evidence documentation and data quality.

In the next year, we will roll out an ESG reporting digital platform and will provide system training located on our central Learning platform to all relevant stakeholders as part of the roll out and launch of the new system.

8. Emission Factors

When selecting emissions factors each year, we use the data that is available at the time of reporting. We recognize that there may be a time delay between data availability and publication. For example, the IEA publishes data in September each year covering time series up to two years before, with some information for selected countries available up to the previous year.

Table 3 - Emission factors

Emissions factor	Source
Scope 1	
Mobile combustion	Department for Environment, Food and Rural Affairs (DEFRA), 2023
Stationary combustion	Department for Environment, Food and Rural Affairs (DEFRA), 2023
Refrigerants	GHG Protocol Emissions Calculation Tool (AR5)
Scope 2 and Scope 3 cat 3 WTT, T&D	
Location-based electricity	IEA Emissions Factors, 2023 EPA GHG Emissions Factor Hub (2023) Department for Environment, Food and Rural Affairs (DEFRA), 2023 European Environment Agency, 2023
Residual Mix	AIB 2023 European Residual Mix 2023 Green-e® Residual Mix Emissions Rates (2020 Data) Green-e
Market based emission factors – supplier based	
Well-to-Tank	IEA Emissions Factors, 2023
Transmission & Distribution	IEA Emissions Factors, 2023
Scope 3	
Cat 1: purchased goods & services	Exiobase Dataset
Cat 2: capital goods	Project specific life cycle assessment (LCA) reports
Cat 4: Upstream transportation and distribution	Exiobase Dataset
Cat 6: Business travel	Exiobase Dataset
Cat 7: Employee commuting	Department for Environment, Food and Rural Affairs (DEFRA), 2023 EPA GHG Emissions Factor Hub (2023)
Cat 13: Downstream leased assets	See Scope 2 location-based emissions factor

9. Exclusions

9.1. Exclusions from reporting:

- In FY23 GHG emissions reporting offices and facilities that have been closed or non-operational after 1st of April 2023 are not included in Scope 1 and 2 reporting.
- In FY23 GHG emissions reporting the following categories of Scope 3 are excluded as non-material for NTT Ltd: cat 8, 10, and 14.
- In FY23 GHG emissions reporting for categories 4, 5 and 9 are reported under category 1.
- Emissions from homeworking that arise due to the incremental energy usage from office equipment provided by NTT Ltd. for use while teleworking and home heating/cooling that otherwise would not have been required in an office-working scenario.
- There are no exclusions based on geography or boundaries of control, all NTT Ltd. operations and value chain activities are covered under one of Scope 1, 2 or 3 in our FY23 report.