ICT emissions reporting

A short guide for CNGP agencies

Year 1 aims

Start with your cloud service providers

Find who has access to your data and can give you access or extract it.

- Assumption: your data is looked after either by the IT team within your organisation or by an intermediary such as a cloud solution provider who manages your cloud service providers on your behalf. For some Microsoft cloud offerings only the billing entity has access to the sustainability data.

- We have provided wording to help you explain the data that you are seeking (see Note to give to your IT team).

Regularly download your emissions data.

- This needs to be done monthly (see table 1) as, for example M365 only retains the data on a rolling 12-month basis. If you do not download and store a local copy, you lose it.

- Be aware that your provider may currently provide your data in tCO_2e or in $kgCO_2e$. Check and confirm the unit for each data source.

Take the emissions data at face value for your reporting.

Note the following limitations for your auditor:

- Location vs. market emission factors

    - Many cloud service providers only provide emissions data using market-based emission factors rather than location-based emission factors.

    - Location-based: the local electricity grid that is being used ie, the emissions factor for the grid that is powering the data centre in question. Market-based: contractual agreements (such as renewable energy certificates) to consume specific power that is generated in lower carbon ways.

- Offsetting and renewable energy certificates

    - Your provider may present your emissions data post-offsetting. However, you want to get your emissions data before they do any offsetting. The minimum action for you here is to ask your provider if they are using renewable energy certificates or offsetting, and then inform your auditor if so.

- Ask your cloud service providers which greenhouse gas reporting methodology they are using and note this for your auditor.

Find out if you are owning or leasing IT equipment in **data centres** outside of your use of cloud. If yes, capture the greenhouse emissions from the use of this equipment.

There are three parts to this:

- Part 1: Have your data centre provide you with individualised kWh data for your equipment. This may be in the form of power consumption per rack, or it could be just one number for all your equipment, or it might be broken down by piece of equipment.

- Part 2: Ask for the data centre's power usage effectiveness (PUE) figure. By accessing this figure, you can attribute to yourself an appropriate share of the energy that goes into running the facility – eg, to power cooling or security. (See the note below on understanding PUE].

- Part 3: Obtain electricity emissions factors for the location of the data centres and use them to calculate your CO_2e.

Identify your main software as a service providers

- Ask for your emissions data.

- Can you get emissions data from your software as a service (SaaS) providers? Asking the question in Year 1 prepares them to report the data in Year 2.

Note to give to your IT team or intermediary about locating your cloud emissions data

To help locate your emissions data from your organisation's use of the cloud, you will likely need to ask your IT team to give you access to the data. Be aware that your organisation may have many cloud services accounts. The terminology could include master subscriptions, tenancies, organisations, root accounts, management accounts, etc.

There may be multiple top-level arrangements with each cloud service provider, and we want to capture all of them.

For example, Microsoft emissions dashboards are via a Power BI dashboard which can be deployed in a SharePoint workspace. If you have multiple tenancies within M365 and/or Microsoft Azure, ask your IT team to deploy a dashboard for each tenancy of each product.

Ask your IT team if they have additional tenant IDs, master subscriptions, top-level arrangements for testing environments.

Outcome: You will have multiple dashboards or downloads that contain your emissions data.

Understanding power usage effectiveness

An expected power usage effectiveness (PUE) in Aotearoa New Zealand is between 1.4 and 1.7. The closer a PUE is to 1, the more efficient it is. It is currently impossible to have a PUE below 1.

PUE is calculated in the following fashion:

$$PUE = \frac{Total\ energy\ usage}{IT\ equipment\ energy\ usage} = 1 + \frac{Facility\ overhead\ energy\ usage}{IT\ equipment\ energy\ usage}$$

Therefore an organisation's share of the facility overhead energy usage can be calculated in the following fashion:

$$Organisation's\ Share\ of\ facility\ overhead\ energy\ usage = (PUE - 1) * Organisation's\ IT\ equipment\ energy\ usage$$

PUE figures are expected to change over time. Ideally, your data centre should regularly provide you with their PUE (eg, per day, month, quarter). We suggest asking for the PUE to be provided monthly but accept per quarter and ask your data centre to work towards monthly, or even daily, PUE.

Reporting notes by provider

Table 1:   Reporting notes by provider

Cloud Service Provider	Notes	Starting Link
AWS	- Emission reporting is available on the 1st of the month on US time (2nd of the month in NZ) with a 3-month lag. - Service usage reporting (see definition below this table) can be obtained but requires configuration. - Watch out for double counting – see note below this table.	- Customer carbon footprint tool - Data exports
MS Azure	- Emission reporting is available in the middle of the month, around the 15th of the month and covers the previous month. - The emission reporting contains usage data for each service in each service's native unit. - Note: Azure and M365 reporting are via two separate mechanisms.	Emission impact dashboard
M365	- Emission reporting is available in the middle of the month, around the 15th of the month and covers the previous month. - The emission reporting contains basic usage data in the sense of active users within each month. - Note: Azure and M365 reporting are via two separate mechanisms.	Emission impact dashboard

Cloud Service Provider	Notes	Starting Link

IBM Cloud	• Some emission reporting is available with caveats:
	  − only some services are covered
	  − the data is available across various categories (eg, service or location) but not across the categories combined (ie, service and location).	

Service usage reporting = the quantity of a service that has been used, presented in whatever native unit that service works in – for example, gigabytes of storage. You can work with your IT team to understand and configure this data. Once configured, it will help you understand the emissions intensity and efficiency metrics.

AWS potential for double-counting: Currently, when multiple AWS accounts are deployed, the emissions data in your management account includes emissions from all your multiple accounts without specifying each account individually. If a breakdown is wanted for each account, the data must be downloaded individually for each account and the management account. Then, the sum of all non-management accounts emissions must be subtracted from the management account's emission figures otherwise it could result in emissions being double counted. There can also be times where due to rounding (AWS rounds all emissions to the nearest one-tenth ton) this will result in a small negative emissions number for the management account, which we recommend is instead set to zero.

Year 2 and beyond

We will update this information as the working group starts to tackle the following aspects of ICT emissions reporting. You will need to engage with your IT team to bring them on this journey with you and build emissions reporting and emissions reduction into their strategy. Headline areas for Year 2 are:

- ICT equipment eg, in your data centres

- SaaS (software as a service) emissions

- end-user devices

  - whole of life emissions

  - responsible disposal.

Reporting emissions from ICT to the Carbon Neutral Government Programme

Emissions from ICT equipment are categorised as follows:

- **Onsite Electricity:** Emissions from electricity consumed on your premises are categorised in Scope 2 indirect emissions from use of electricity. These are mandatory to report.

- **Supply chain emissions:** Upstream and downstream emissions from ICT in the supply chain are categorised as Scope 3 (value chain) emissions and are not a mandatory Scope 3 emission source to report. Depending on the relative size of the emissions to the organisation's total, they may be 'other significant indirect' emissions and therefore 'material Scope 3 emissions' to report.

Note that the CNGP programme aims to make gross emissions reductions and requires location-based reporting of electricity.

The CNGP does not currently allow for zero-carbon certified products or services to be included as '0' in the inventory. For this reason, you must include them in your inventory in the usual way.

Overview of direction of travel for ICT emissions working group

This guide was prepared by a working group of CNGP agencies. The working group's other activities include:

- A cloud provider reporting requirements list has been created and submitted into MS contract negotiations and is now available for use in other negotiations.

- Input into AOG contract negotiations.

- Contact details of group members to help with questions: David.Forest001@msd.govt.nz

Te Kāwanatanga o Aotearoa
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