



Microsoft Cloud for Sustainability

Lab 04: Insights and reporting

Step-by-Step Lab

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Overview

Background

In the previous lab, the ingested Activity data was taken through calculation designs using calculation models and the output was reviewed in terms of CO₂E unit. In this lab, we will perform a set of activities to generate emissions reports, activity reports, and review Power BI dashboards.

Finally, this lab will help us gain insights into the emission activity trends and identify the opportunities to set scorecards and carbon reduction goals that are detailed in the next lab.

Learning Objectives

In this lab, you will do the following:

- Analyze various Sustainability Dashboards
- Generate Emissions Report
- Generate Activity Report
- Review Power BI Insights

Prerequisites

- Microsoft Sustainability manager environment is set up with sample data
- Lab 01 organization and reference data is entered
- Lab 02 activity data is ingested
- Lab 03 emissions are calculated

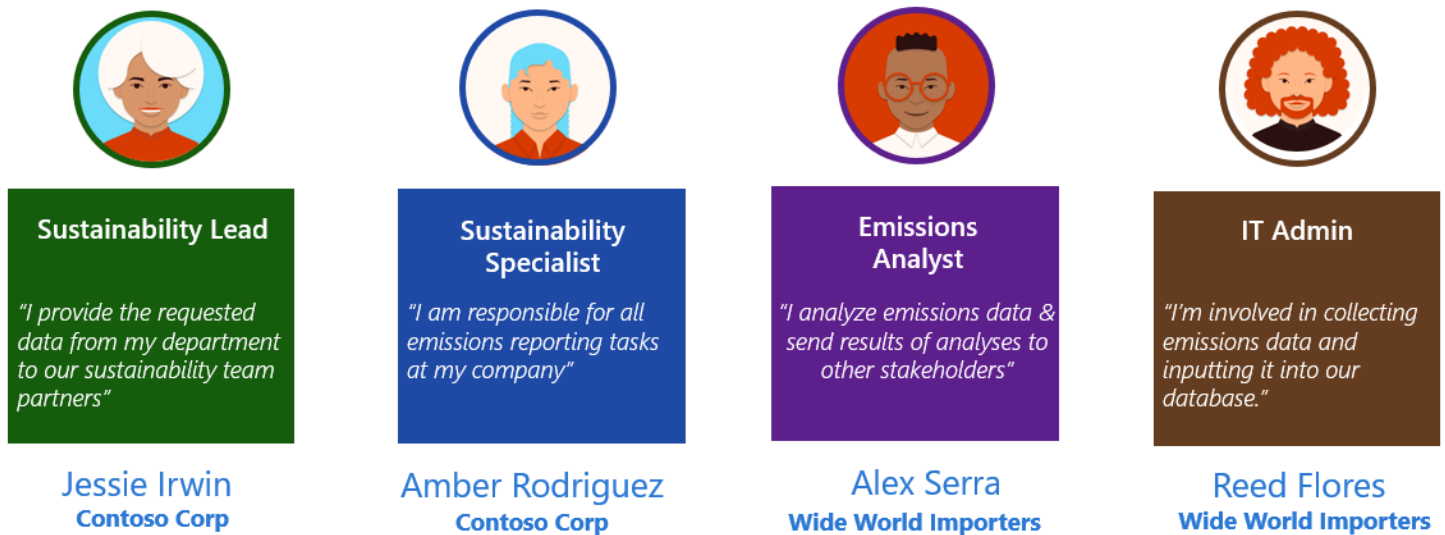
Solution Focus Area

Analytics reports present calculated emissions in an organized way to detect trends and perform further exploration of data. These reports are updated soon (within approximately 30 minutes) after the calculations are run and allow the users to review the outcome of calculations in an aggregated format. Data can also be exported in predefined report formats that include groupings for emissions and activity, and other dimensions. These formats can be used to do deeper analysis and prepare many different types of reports.

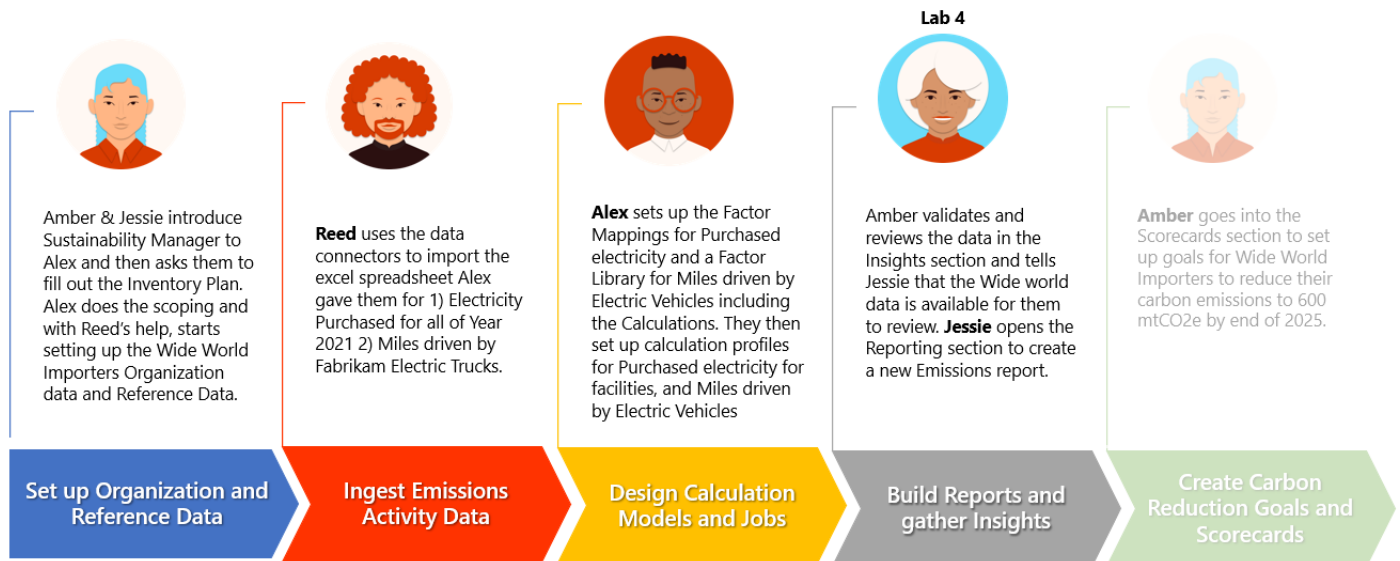


Personas and Scenarios

In this lab, Amber Rodriguez – Sustainability specialist for Contoso Corp reviews the data in the Insights section of Microsoft Sustainability Manager, noticing that Wide World Importers was a large contributor to Scope 2 emissions in 2022. Amber informs Jessie Irwin - Sustainability lead for Contoso Corp that the Activity and Emission Reports are available for review. Jessie opens the reporting section and creates a new Activity report and a new Emissions report. Jessie reviews the generated report and includes the report in the sustainability reporting procedures for Contoso Corp.



In this lab exercise, we will focus on the scenarios illustrated below:



Exercise 1: Sustainability Dashboards

In this exercise, you will take on the persona of Amber Rodriguez – Sustainability Specialist for Contoso Corp. utilizing the various Sustainability Dashboards to gain insights into the organization.

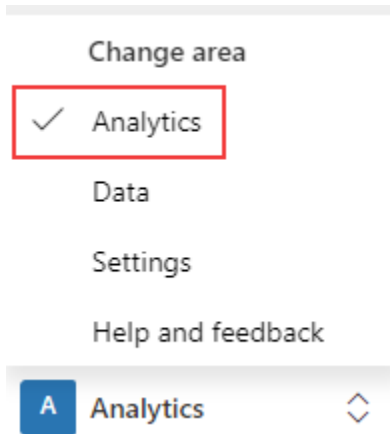
Important

Please make sure that you have completed the previous labs to ensure that the dashboards and reports show meaningful data.

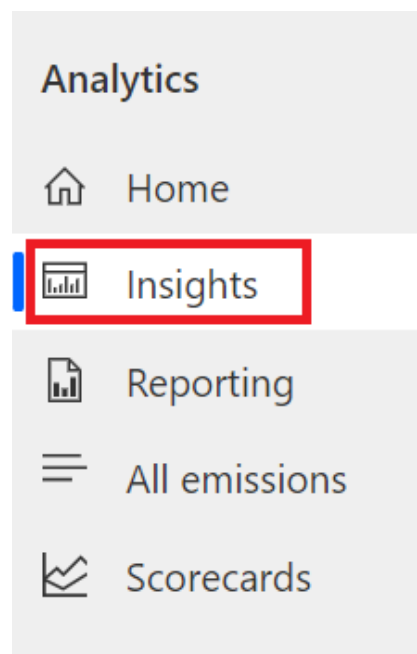
Task 1: Explore Sustainability Dashboards

In this task, Amber explores the various **Sustainability** dashboards which provide an overview of total emissions, revenue intensity, and renewable energy broken down by scope, geography, organizational unit, and facility.

1. In the bottom left corner, change the Area to **Analytics**.



2. Select **Insights** on the left pane.

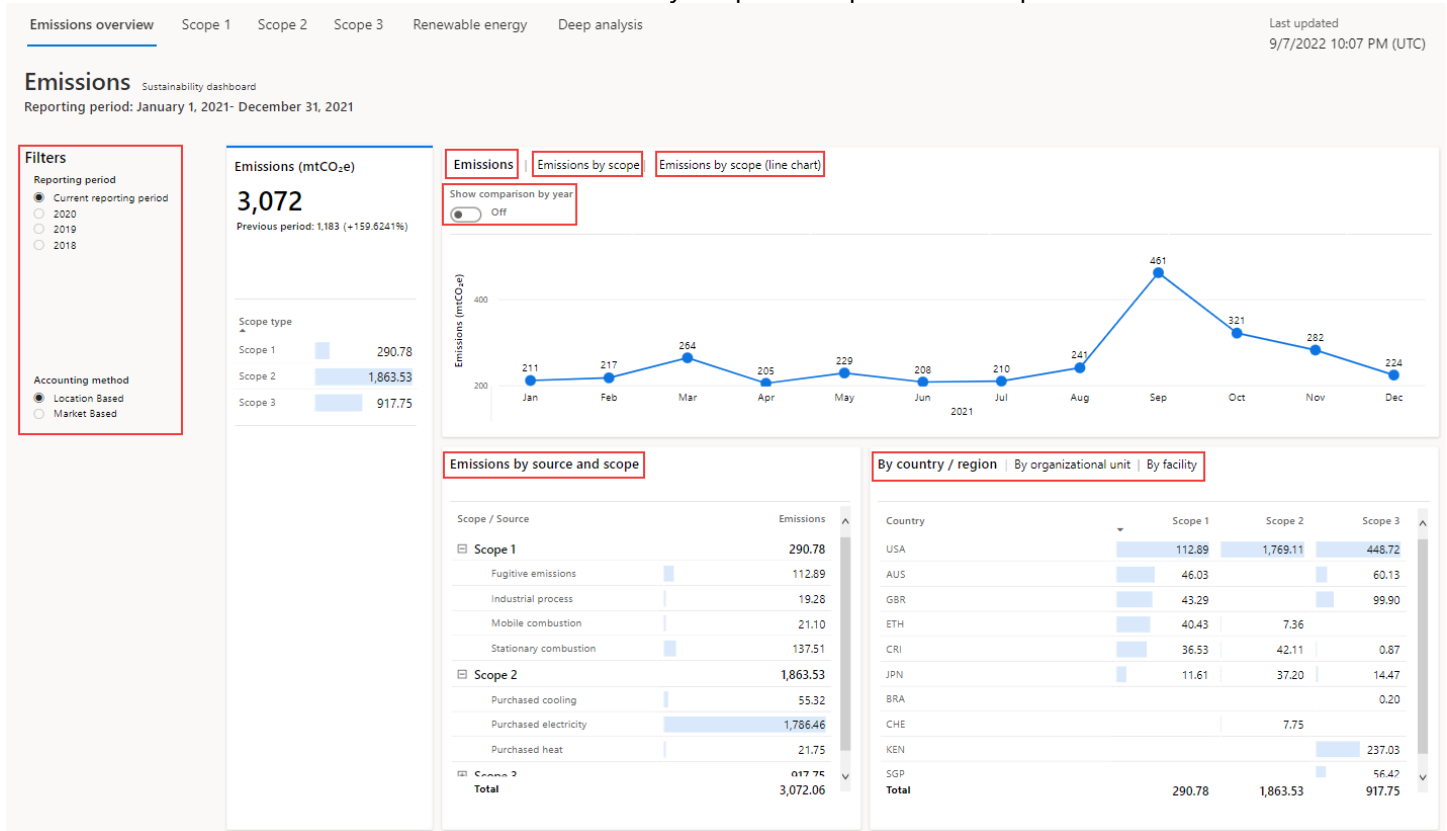


3. The page displays the **Emissions overview** dashboard, the dashboard is filtered by selecting a reporting period and accounting method. The top tile in the dashboard has three tabs: Emissions, Emissions by scope, and Emissions by scope (line chart). Each tab has a toggle that is used to **show a comparison by year**. When the toggle is off, data for the selected reporting period is shown in a monthly view. When the toggle is on, all available years are shown on a trend chart. The details around each of the tabs in the top tile are as follows:
 - Emissions – This tab shows total emissions over time.
 - Emissions by scope – This tab shows a breakdown of emissions by scope 1, scope 2, and scope 3. It includes a chart for each scope.

- Emissions by scope (line chart) – This tab shows each scope as a separate line on one chart. Therefore, you can easily compare emissions by scope over time.

The **Emissions by source and scope** tile at the bottom shows a further breakdown of data in each scope. It shows specific sources and their contribution to emissions overall.

The tile at the bottom right has three tabs: **By country/region**, **By organizational unit**, and **By facility**. Each tab shows a breakdown of emissions by scope 1, scope 2, and scope 3.



4. Select **Scope 1** on the top tab to view the Scope 1 emissions dashboard. Scope 1 emissions are emissions that are owned or directly controlled by the organization. Like the Emissions overview, the **Scope 1 emissions** dashboard lets users view scope 1 emissions by reporting period.

Summary statistics can be viewed in the left tile. These statistics include the total scope 1 emissions for the current reporting period compared to the previous period. They also include emissions by source type and emissions broken down by greenhouse emissions. Greenhouse emissions include the following gases:

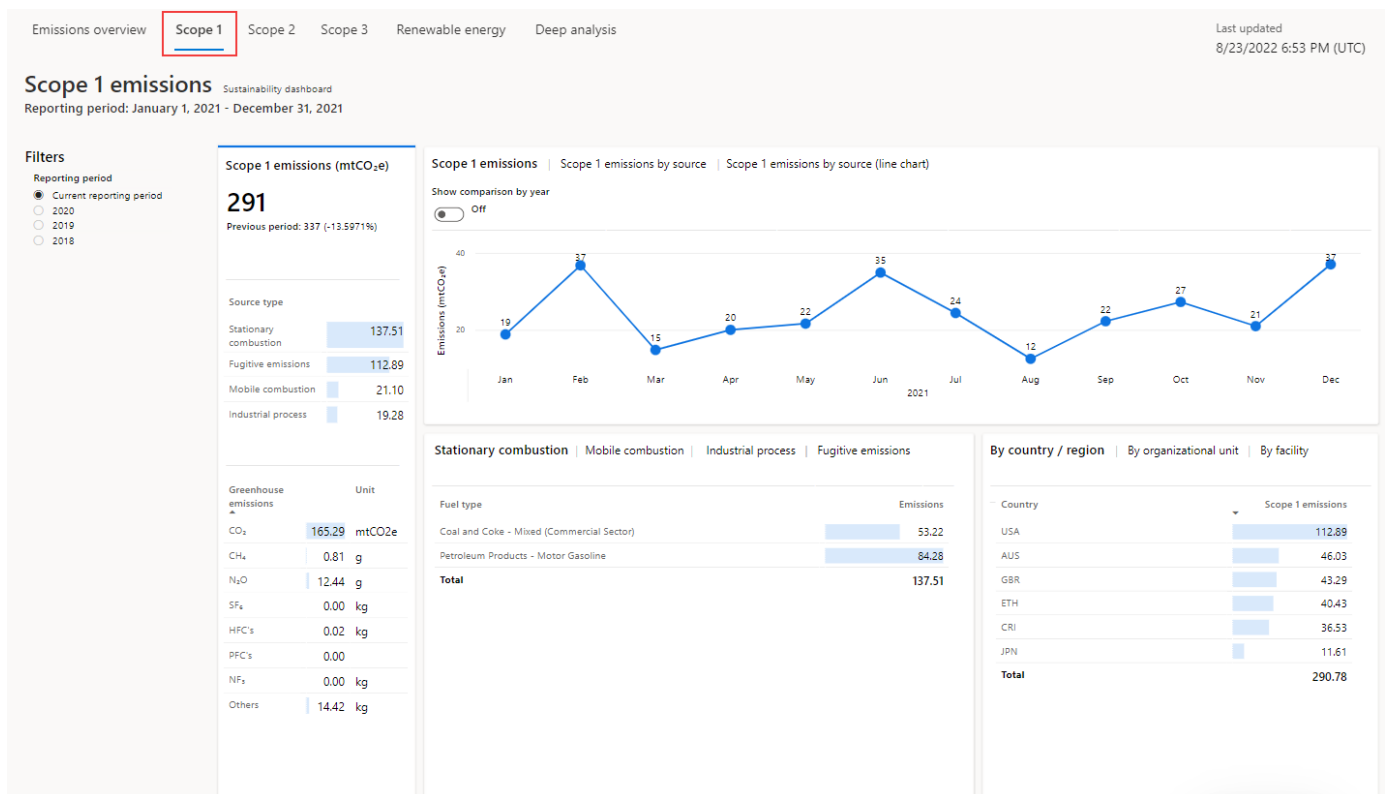
- **CO₂** – Carbon dioxide
- **CH₄** – Methane
- **N₂O** – Nitrous oxide
- **HFCs** – Hydrofluorocarbons (that is, manufactured compounds that contain hydrogen and fluorine atoms)
- **PFCs** – Perfluorocarbons (that is, manufactured compounds that contain carbon and fluorine atoms)
- **NF₃** – Nitrogen trifluoride
- **SF₆** – Sulfur hexafluoride

The top tile has three tabs: **Scope 1 emissions**, **Scope 1 emissions by source**, and **Scope 1 emissions by source (line chart)**. Each tab has a toggle that you can use to show a comparison by year. When the toggle is off, data for the selected reporting period is shown in a monthly view. When the toggle is on, data for all reporting periods is shown on a trend chart.

The bottom-left tile provides a deeper dive into the source of the scope 1 emissions by category. It has a tab for each category of scope 1 emissions:

- **Stationary combustion** – This category includes emissions from electricity, heat, steam, or energy to power industrial or commercial uses. The tab shows emissions by fuel type.
- **Mobile combustion** – This category includes emissions from cars, trucks, and other motor vehicles; boats and other water vessels; locomotives; and aircraft. The tab shows emissions by vehicle type.
- **Industrial processes** – This category includes emissions from various non-energy-related industrial events or manufacturing activities, or from consumers. The tab shows emissions by process type.
- **Fugitive emissions** – This category includes emissions that were accidentally released into the atmosphere. These emissions include gases and vapors. The tab shows emissions by activity type.

The bottom-right tile has three tabs: **By country/region**, **By organizational unit**, and **By facility**. Each tab shows scope 1 emissions for the corresponding delineation of data.



5. Select **Scope 2** on the top tab to view the Scope 2 emissions dashboard. Scope 2 are emissions that a company causes indirectly when the energy it purchases and uses. For example, for Wide World electric fleet vehicles the emissions from the generation of the electricity they're powered by would fall into this

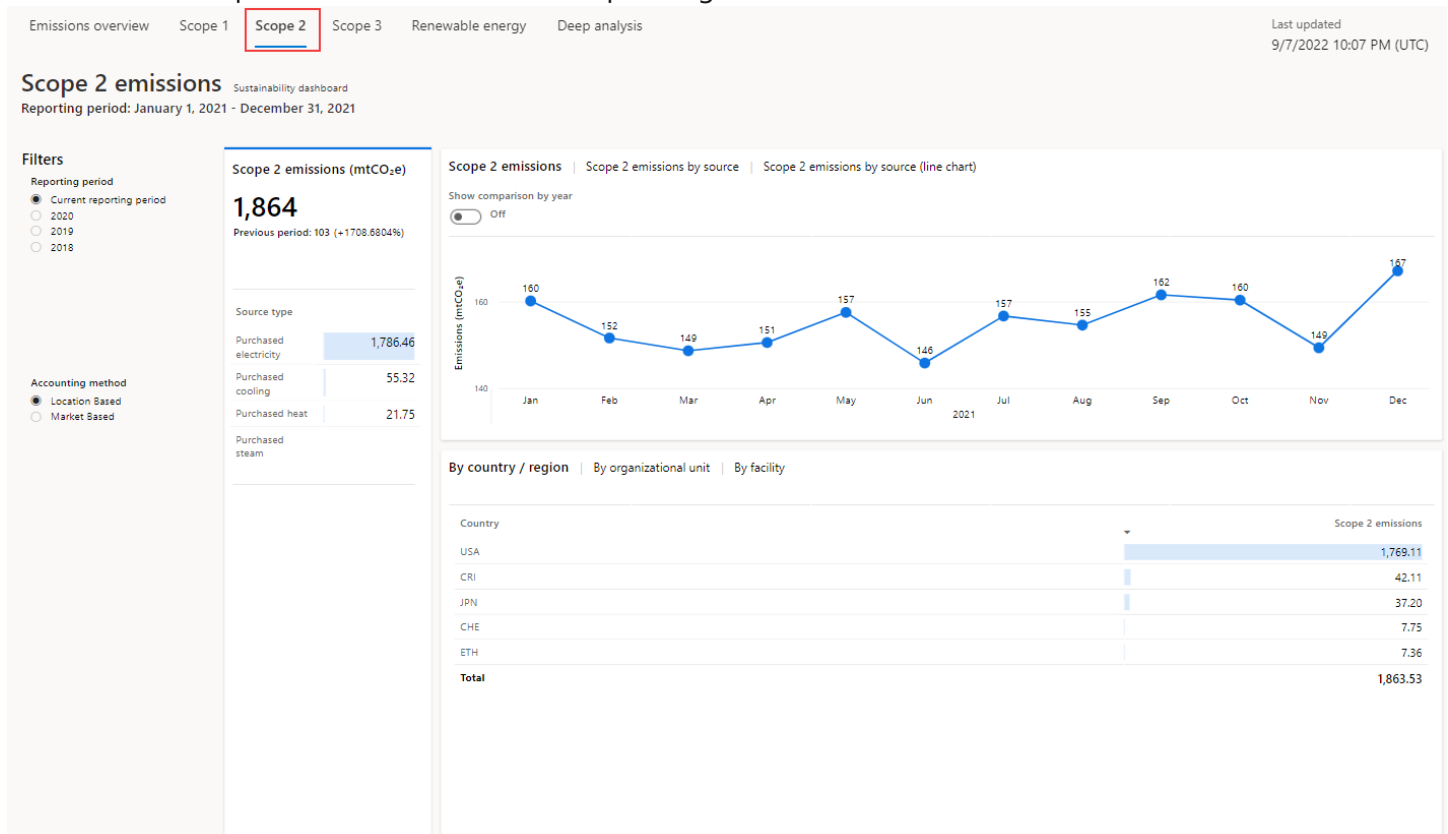
category. Just as with other dashboards, the **Scope 2 emissions** dashboard lets users view scope 2 emissions by reporting period and accounting method.

The summary statistics can be viewed in the left tile. These statistics include the total scope 2 emissions for the selected reporting period compared to the previous period. They also include scope 2 emissions by source. Scope 2 emissions have the following sources:

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

The top tile has three tabs: **Scope 2 emissions**, **Scope 2 emissions by source**, and **Scope 2 emissions by source (line chart)**. Each tab has a toggle that you can use to show a comparison by year. When the toggle is off, data for the reporting period is shown in a monthly view. When the toggle is on, data is shown for all available reporting periods.

The bottom tile has three tabs: **By country/region**, **By organizational unit**, and **By facility**. Each tab shows scope 2 emissions for the corresponding delineation of data.



6. Select **Scope 3** on the top tab to view the Scope 3 emissions dashboard. Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts its value chain. Scope 3 emissions include all sources not within an organization's scope 1 and 2 boundary. The **Scope 3 emissions** dashboard in Microsoft Sustainability Manager lets you view scope 3 emissions by reporting period.

Summary statistics can be viewed in the left tile. These statistics include the total scope 3 emissions for the reporting period compared to the previous period. The tile also shows all categories of scope 3 emissions classified as either upstream or downstream. Scope 3 emissions have the following fifteen categories.

Upstream

- Purchased Goods and Services
- Capital Goods
- Fuel and energy related activities
- Upstream transportation and distribution
- Waste generated in operations
- Business travel
- Employee commuting
- Upstream leased assets

Downstream

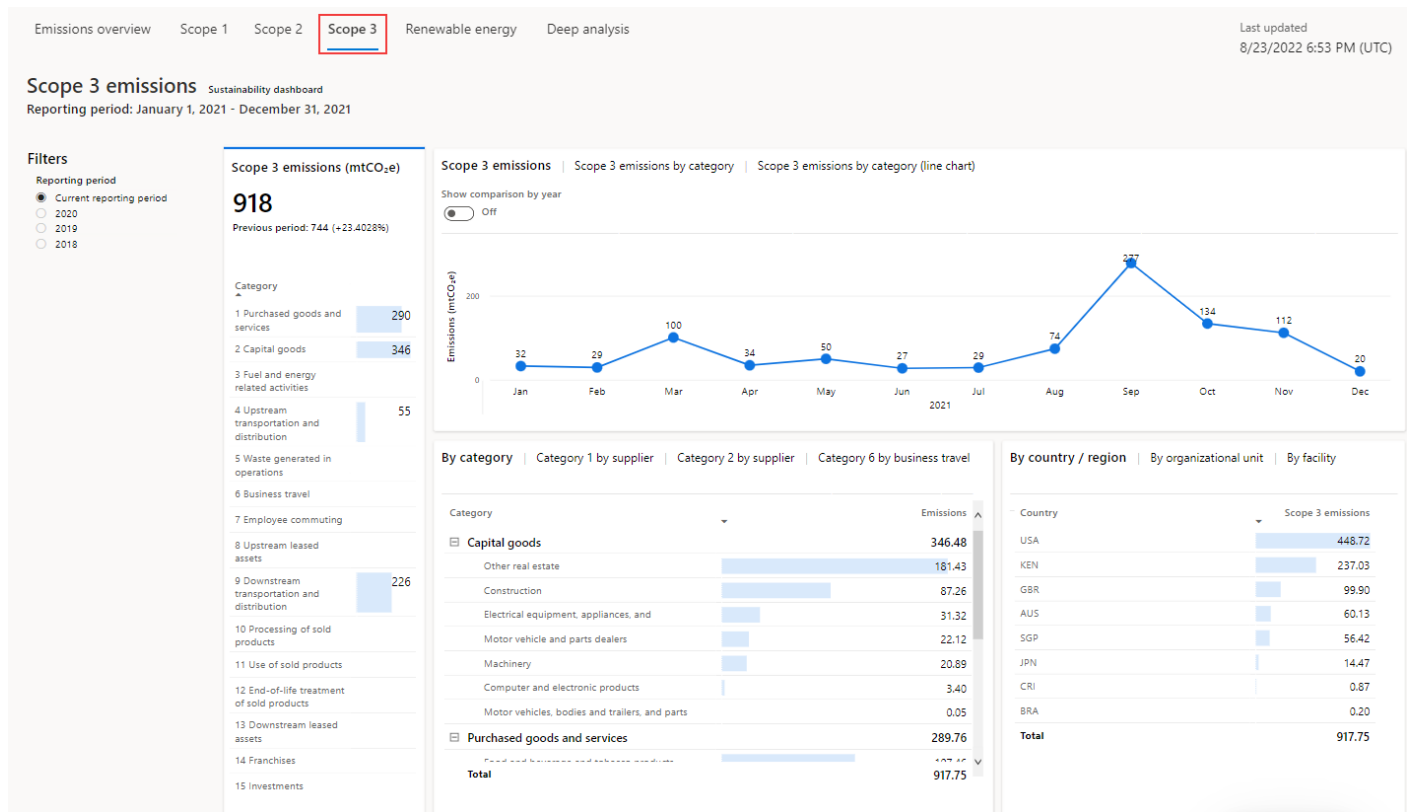
- Downstream transportation and distribution
- Processing of sold products
- Use of sold products
- End-of-life treatment of sold products
- Downstream leased assets
- Franchises
- Investments

The top tile has three tabs: **Scope 3 emissions**, **Scope 3 emissions by category**, and **Scope 3 emissions by category (line chart)**. Each tab has a toggle that you can use to show a comparison by year. When the toggle is off, data for the selected reporting period is shown in a monthly view. When the toggle is on, the data that is shown represents all available reporting periods.

The bottom-left tile has four tabs:

- **By category** – This tab shows scope 3 emissions by category and type.
- **Category 1 (Purchased Goods and Services) by supplier** – This tab shows the number of records and emissions by supplier.
- **Category 2 (Capital Goods) by supplier** – This tab shows the number of records and emissions by supplier.
- **Category 6 by business travel** – This tab shows the mode of business travel, frequency, and associated emissions.

The bottom-right tile has three tabs: **By country/region**, **By organizational unit**, and **By facility**. Each tab shows scope 3 emissions for the corresponding delineation of data.

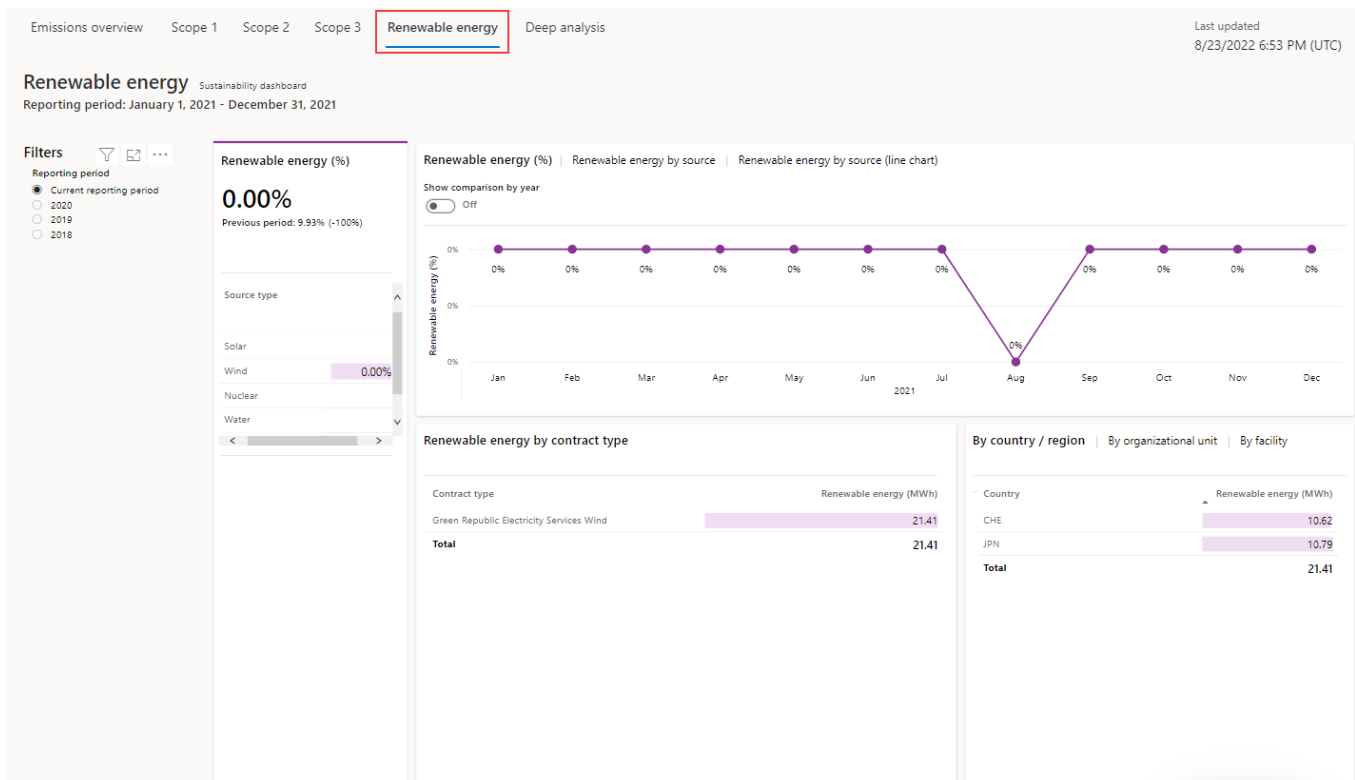


- Select **Renewable energy** on the top tab to view the summary view of renewable energy, its sources, and the contract type.

The summary statistics can be viewed in the left tile. These statistics include renewable energy as a total percentage of energy that was used for the selected reporting period compared to the previous period. The tile also shows the percentage of renewable energy by source type, such as solar, wind, and water. This tile has three tabs: **Renewable energy**, **Renewable energy by source**, and **Renewable energy by source (line chart)**. Each tab has a toggle that you can use to show a comparison by year. When the toggle is off, data for the selected reporting period is shown in a monthly view. When the toggle is on, data is shown for all reporting periods.

The bottom-left tile shows renewable energy by contract type. It indicates the renewable energy in the appropriate measure, such as kilowatt-hour (kWh), and the percentage of renewable energy.

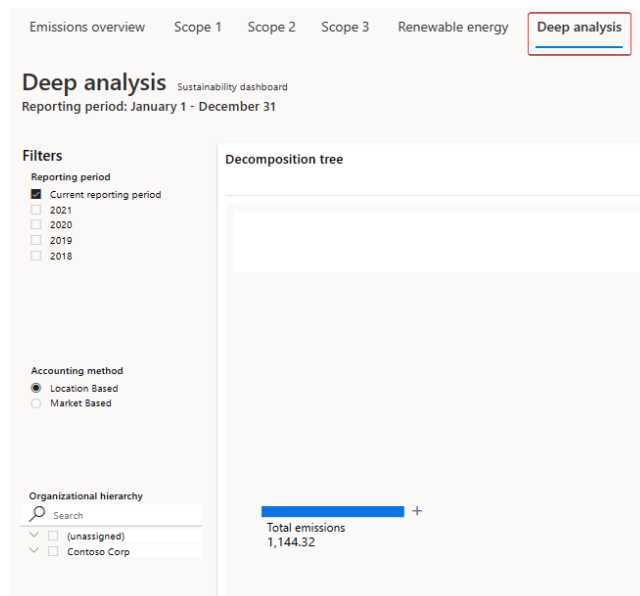
The bottom-right tile has three tabs: **By country/region**, **By organizational unit**, and **By facility**. Each tab shows renewable energy for the corresponding delineation of data.



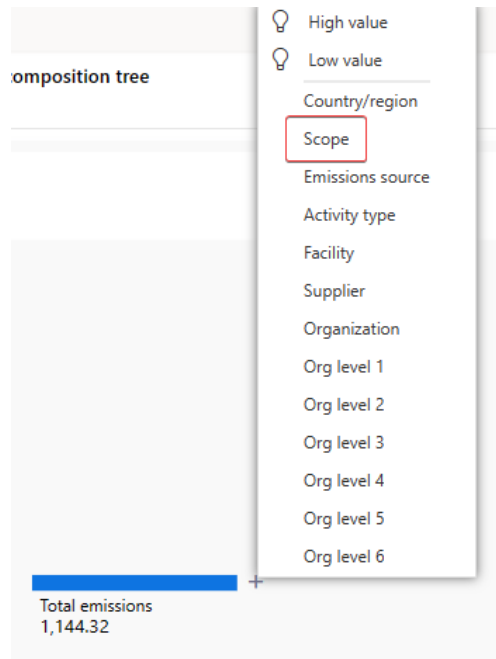
8. Select **Deep analysis** on the top tab to dive deeper into data and uncover insights that might not be available from other reports. The dashboard can be filtered by selecting a reporting period and accounting method.

The **Decomposition tree** can be used to drill down from the company-level to more granular levels of the organization, and to access

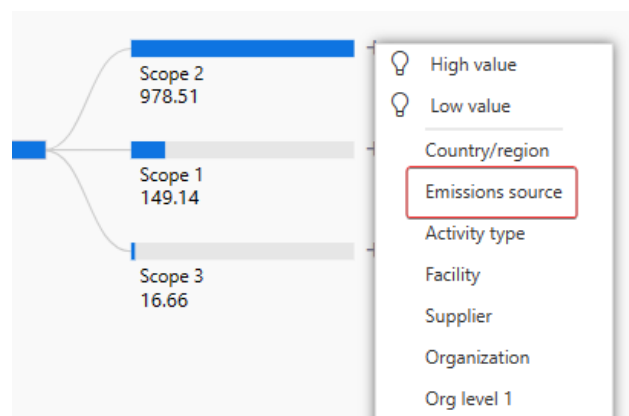
- High value
- Low value
- Emission source
- Country/region
- Organization
- Different levels of scope 1, scope 2, and scope 3 emissions.
- Facility



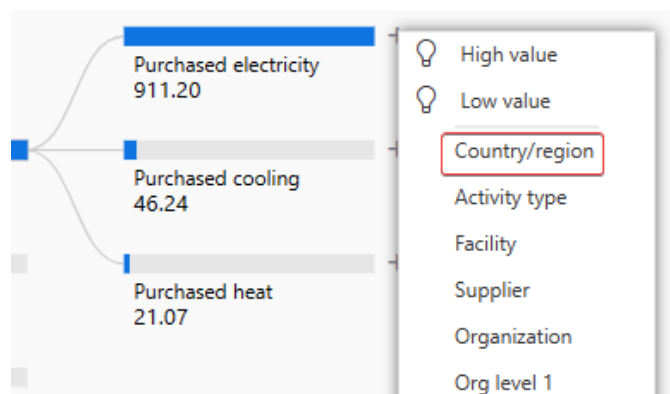
9. Amber drills into our decomposition tree to identify where our high sources of emissions are. Click the + next to Total emissions, and select Scope



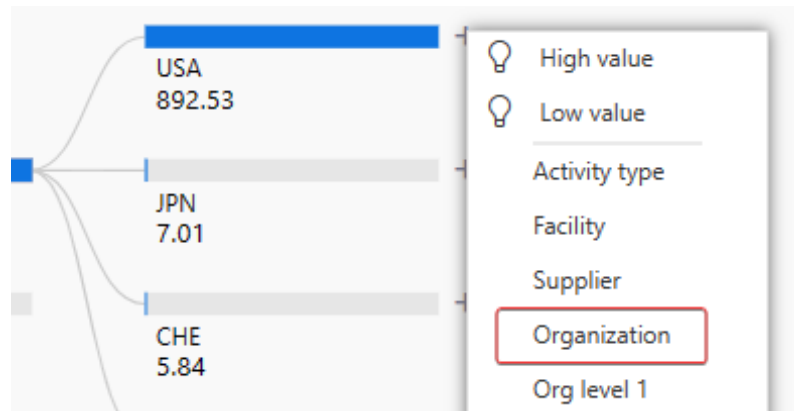
10. Amber can see that Scope 2 has the largest volume of emissions. Click the + next to Scope 2, and select Emission source to identify which Scope 2 emission source is biggest contributor



11. It seems that Purchased electricity was the biggest contributor of emissions. Click the + next to Purchased electricity and select Country/region to identify which regions were contributing to the large Purchased electricity emissions.

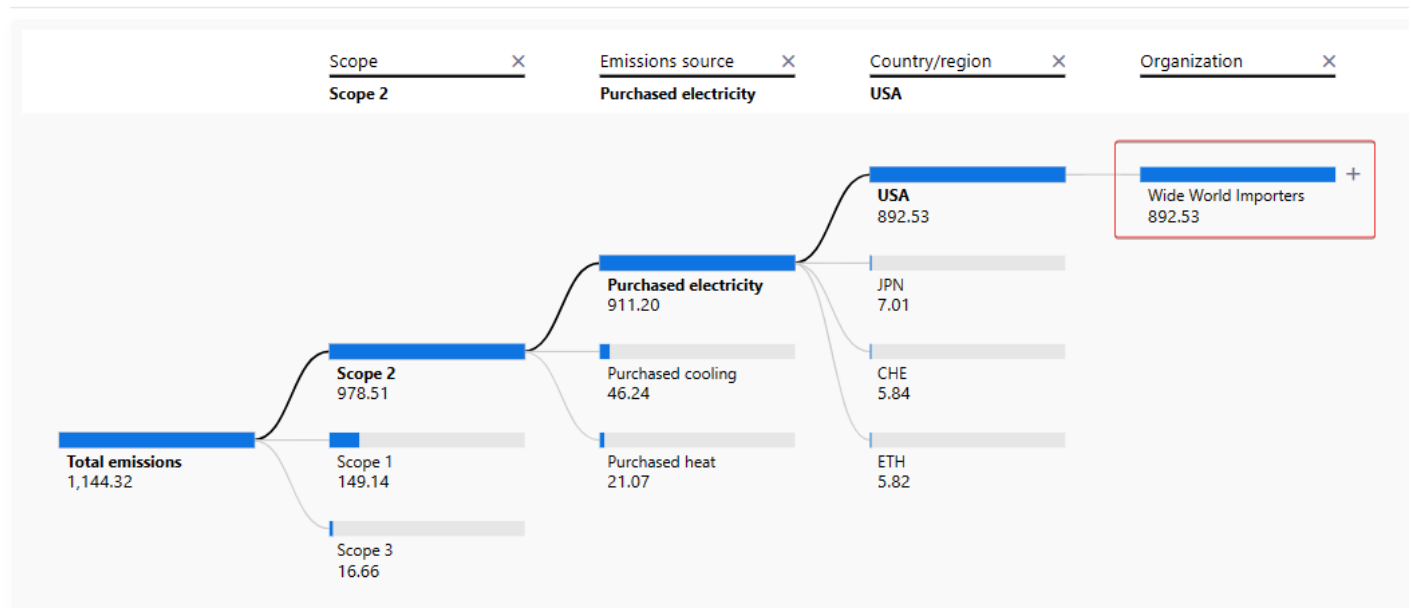


12. The USA contributed the most to the Purchased Electricity emissions. The Country/Region selection is driven by the country region mapping table found in the Settings area. Click the + next to USA and select Organization to see which organizations contributed to this.



13. Wide World Importers was the largest contributor to Contoso Corp's carbon emissions. Amber uses this information to create a goal for Wide World Importers to reduce their Purchased electricity emissions by 300 mtCO₂E (In the next Lab)

Decomposition tree



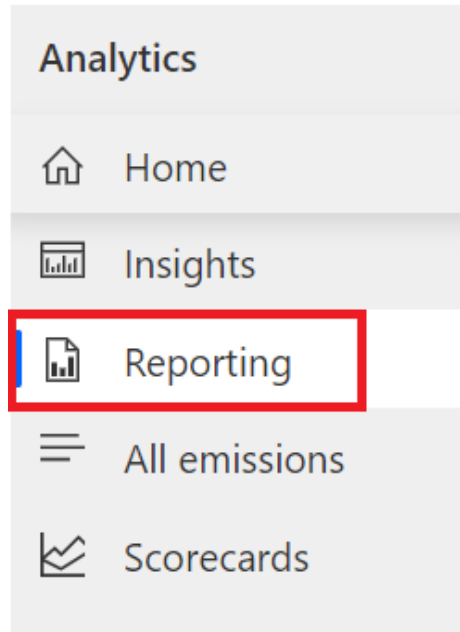
Great job, you have successfully explored various Sustainability dashboards. You can use these dashboards to gain insights into your emissions data. You can see as we drilled down from total emissions to the organization level, we were able to determine that Wide World Importers needs to reduce the carbon emissions from Purchased electricity. This could be achieved in a variety of ways such as switching to renewable energy sources or using more energy efficient devices and vehicles. You can use these insights to drive business decisions and use the information to create scorecards and goals to track your progress. **Please continue to the next task.**

Exercise 2: Generate Quantitative preparation report

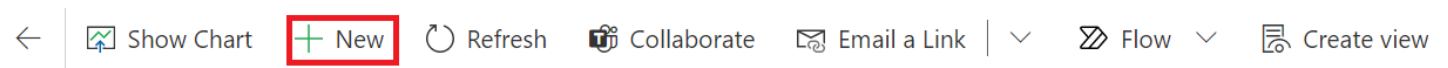
In this exercise, Amber Rodriguez informs Jessie Irwin - Sustainability lead for Contoso Corp that the Activity and Emission Reports are available for review. Jessie generates quantitative preparation reports that extract emission and activity data from Microsoft Sustainability Manager. The reports are in an Excel format that can be used to submit the data for public disclosure.

Task 1: Generate emissions report

1. In the left navigation pane, select **Reporting**.



2. Select **New**.



Active reports ▾

3. Set the following fields:
 - **Name** – Enter the name of the report. For example: MC4S Emissions report
 - **Report type** – Select **Emissions report**.
 - **Start date** – 01/01/2022
 - **End date** – 12/31/2022

Fields can be selected to group data by, or column headers for the report. The available fields for Emissions report are **Country, Region, Latitude/Longitude, Organization unit, Facility, Is market-based, Is biogenic, Scope, Emission source, Activity type**. (The **Organization hierarchy date** field appears only after the **Organization unit** field is selected.).

For this task, Jessie will just set **Country/Region**, **Regional group**, **Facility**, **Scope**, **Emissions source**, and **Activity type** for use in Contoso Corp's carbon emissions reporting for public disclosure.

Once these are selected. Select **Save** on the top command bar.

← ↻ Save Save & Close Flow ▾

New Report - Unsaved

Report settings

Name	* MC4S Emissions Report
Report type	* Emissions report
Start date	* 1/1/2022
End date	* 12/31/2022

Report by

Country/Region	<input checked="" type="checkbox"/> Yes
Regional group	<input checked="" type="checkbox"/> Yes
Latitude/Longitude	<input type="checkbox"/> No
Organizational unit	<input type="checkbox"/> No
Facility	<input checked="" type="checkbox"/> Yes
Is market based	<input type="checkbox"/> No
Is biogenic	<input type="checkbox"/> No
Scope	<input checked="" type="checkbox"/> Yes
Emissions source	<input checked="" type="checkbox"/> Yes
Activity type	<input checked="" type="checkbox"/> Yes

4. Once the report is saved, the **Generate report** button will be visible on the command bar. Select **Generate report** and then the report is queued to be generated.

← ↻ Save Save & Close Generate report Deactivate

MC4S Emissions Report - Saved

5. Select **Refresh** button on the command bar until the **Report generation status** is changed from **Pending** to **Ready for download**. This may take a few minutes to generate.

← Save Save & Close Generate report Deactivate Delete Refresh Check Access Assign Flow Word Templates Share

MC4S Emissions Report - Saved Report

Report settings Related

Name * MC4S Emissions Report

Report type * Emissions report

Start date * 1/1/2022

End date * 12/31/2022

Pending Report generation status

6. Once the status is changed, a button **Download report** is visible in the command bar. Select that button to download the generated report. An Excel report begins to be downloaded. Open the report.

← Save Save & Close Download report Generate report Deactivate Delete Refresh Check Access Assign Flow Word Templates Share

MC4S Emissions Report - Saved Report

1/9/2023 12:30 AM Last report generation time Ready for download Report generation status

Report settings Related

Report details

Name * MC4S Emissions Report

Report type * Emissions report

Start date * 1/1/2022

End date * 12/31/2022

7. The reports contain the following information:

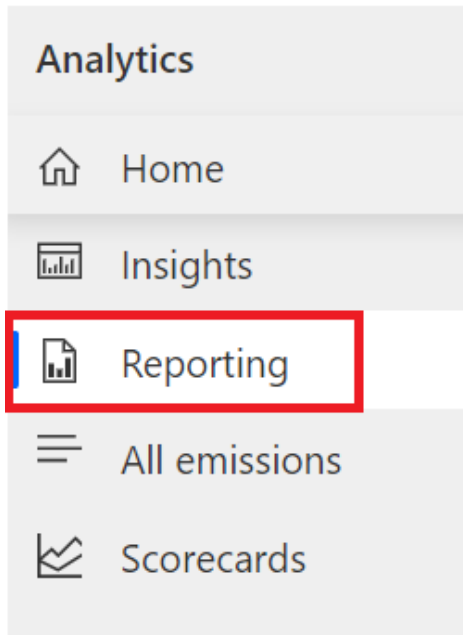
- The **Group by** column headers that were selected. In this case, it is grouped by Country/Region, Regional group, Facility, Scope, Emissions source, and Activity type
- The following emission metrics: **CO2, CH4, N2O, SF6, NF3, CO2E, HFCs, PFCs, and Other GHGs.**

Facility	Country/Region	Group	Scope	Emissions Source (Internal)	Activity type	CO ₂ (mtCO ₂ e)	CH ₄ (mtCO ₂ e)	N ₂ O (mtCO ₂ e)
Contoso Farms Brazil	BRA		Scope 3	Upstream transportation and distribution	Medium- and Heavy-Duty Truck - Shared Load	0.117498039	1.11373E-06	2.72863E-06
Contoso Farms Costa Rica	CRI		Scope 2	Purchased heat	Heating	29.15458975	0.000549423	5.49423E-05
Contoso Africa HQ Nairobi	KEN	AFRICA	Scope 3	Business travel	Hotel	51.41627474	0.003157667	0.000426131
Contoso EUR HQ Bern	CHE		Scope 3	Business travel	Transit rail	0.81774	0.000069384	0.000009912
Contoso Farms Ethiopia	ETH		Scope 1	Stationary combustion	Petroleum Products - Motor Gasoline	161.6743324	0.006907192	0.001381438
Contoso APAC Japan			Scope 1		Chemical Process	7.0786	0.0176965	0.035393
Contoso Pod Factory 2	AUS		Scope 1	Mobile combustion	Gasoline heavy-duty vehicles 2018	48.92458998	0.000216451	5.44447E-05
Contoso APAC Japan	JPN		Scope 2	Purchased cooling	Cooling	27.47929294	0.077630406	0.176772851
Contoso Pod Factory 1	GBR	EMEA	Scope 3	Business travel	Bus	25.03704	0.00938889	0.000402381
Contoso EUR HQ Bern	CHE		Scope 2	Purchased electricity	Electricity	18.31866544	0.045829399	0.094932326
Contoso Pod Factory 2	AUS		Scope 1	Mobile combustion	Light-Duty Trucks-Ethanol	11.84741713	4.25227E-05	3.1892E-05
Contoso Pod Factory 2	AUS		Scope 3	Purchased goods and services	Miscellaneous manufacturing	107.1920412	0.87148001	0
Contoso Pod Factory 1	GBR	EMEA	Scope 1	Mobile combustion	Gasoline heavy-duty vehicles 2018	51.17259758	0.000216451	5.44447E-05
Contoso Africa HQ Nairobi	KEN	AFRICA	Scope 3	Upstream transportation and distribution	Rail	48.7307312	0.003765557	0.00132902
Contoso EUR HQ Bern	CHE		Scope 3	Business travel	Intercity rail - national average	5.62288	0.000457792	0.000129376
Contoso HQ	USA	AMERICAS	Scope 2	Purchased heat	Heating	28.90773494	0.000544771	5.44771E-05
Contoso Farms Costa Rica	CRI		Scope 3	Purchased goods and services	Other retail	0.584430117	0.004144894	0
Contoso Farms Costa Rica	CRI		Scope 2	Purchased cooling	Cooling	46.81326523	0.101563532	0.300928985
Atlantic Yards	USA	AMERICAS	Scope 3	Purchased goods and services	General merchandise stores	4.967495702	0.028064947	0
Contoso Pod Factory 1	GBR	EMEA	Scope 3	Business travel	Motorcycle	54.50655	0.0208495	0.00208495
Contoso Farms Ethiopia	ETH		Scope 2	Purchased electricity	Electricity	12.02432947	0.030082311	0.062313359
Contoso Pod Factory 4	SGP	APAC	Scope 3	Purchased goods and services	Miscellaneous professional, scientific, and technical services	54.88782721	0.469126728	0
Wide World Importers - Miami Office	USA	AMERICAS	Scope 2	Purchased electricity	Electricity	422.26611	0.033354038	0.004609621
Wide World Importers - Tampa Office	USA	AMERICAS	Scope 2	Purchased electricity	Electricity	466.3647564	0.036850391	0.005093431
Contoso Pod Factory 1	GBR	EMEA	Scope 3	Business travel	Passenger car	95.53632	0.00201432	0.00201432
Atlantic Yards	USA	AMERICAS	Scope 3	Downstream transportation and distribution	Light-Duty Truck	6.427777784	0.000169897	0.000127423

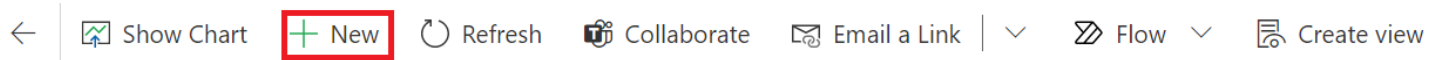
Great job, you have successfully generated an emissions report. Emissions reports are useful for providing information in public disclosures. Microsoft Sustainability provides this information in a tabular format to allow you to adapt it to meet the rapidly changing regulatory requirements. There is a great opportunity for **partners** to assist in the generation of the disclosure documents by configuring an emissions report to export data in a consistent and familiar format for ingestion into a **partner** solution. **Please continue to the next task.**

Task 2: Generate activity report

1. In the left navigation pane, select **Reporting**.



2. Select **New**.



Active reports ▾

3. Set the following fields:

- **Name** – Enter the name of the report. For example: MC4S Activities report
- **Report type** – Select **Activities report**.
- **Target Activity** – Select **Purchased energy**.
- **Start date** – 01/01/2022
- **End date** – 12/31/2022

Fields can be selected to group data by, or column headers for the report. The available fields for Emissions report are **Country**, **Region**, **Latitude/Longitude**, **Organization unit** and **Facility** (The **Organization hierarchy date** field appears only after the **Organization unit** field is selected.).

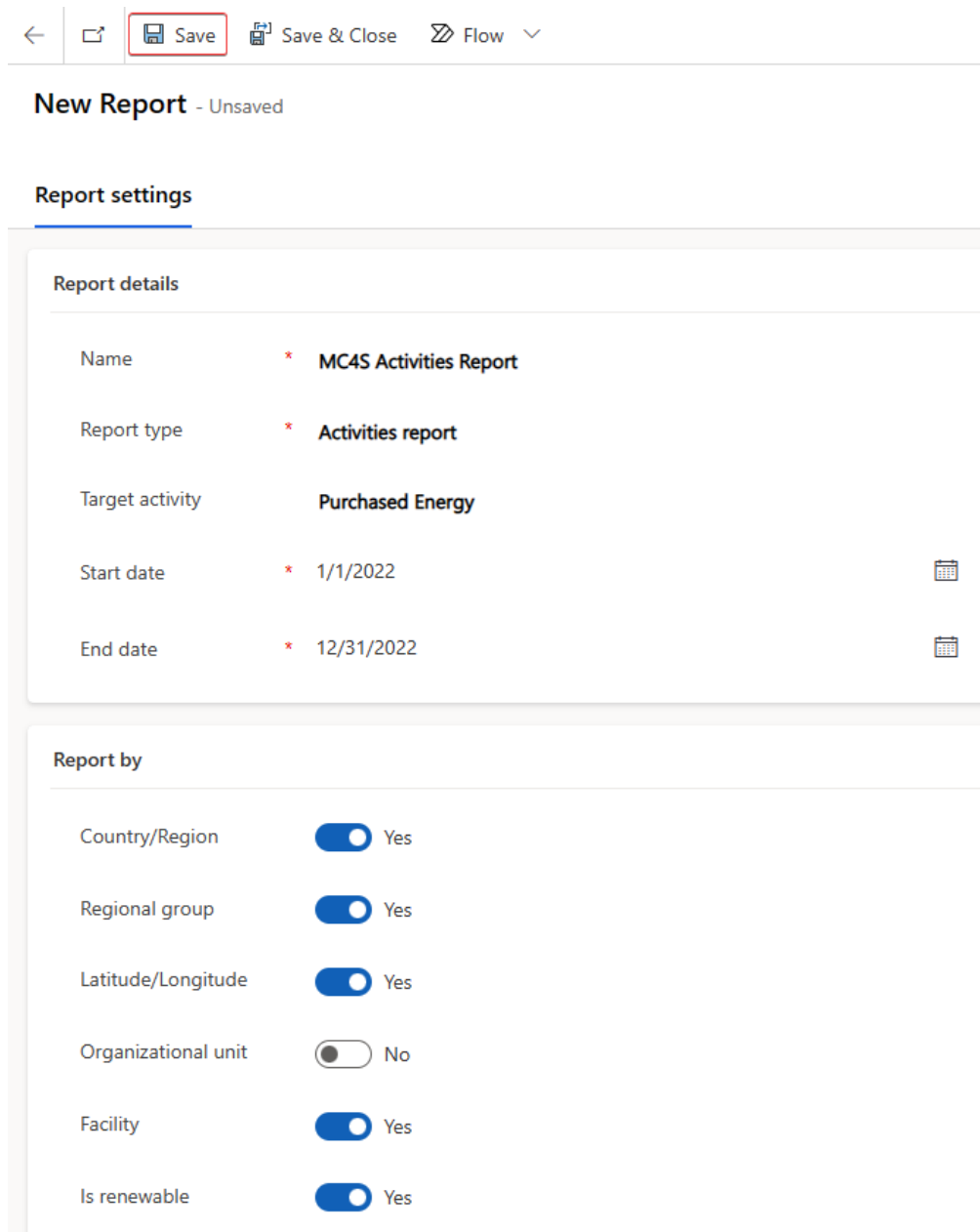
There are also a few additional fields which depend on the target activity that you selected.

Target activity	Available fields
Purchased energy	<ul style="list-style-type: none">○ Is renewable
Stationary combustion	<ul style="list-style-type: none">○ Fuel type○ Industrial process type
Mobile combustion	<ul style="list-style-type: none">○ Fuel type○ Vehicle type○ Industrial process type
Industrial processes	<ul style="list-style-type: none">○ Facility

Target activity	Available fields
	<ul style="list-style-type: none"> Industrial process type

For this task, Jessie will just set Country/Region, Regional group, Facility, and Is Renewable for use in Contoso Corp's carbon emissions reporting to organizations like the Carbon Disclosure Project and the Task Force on Climate-Related Financial Disclosures

Once these are selected. Select **Save** on the top command bar.



← □ **Save** 📄 Save & Close ⌂ Flow ▾

New Report - Unsaved

Report settings

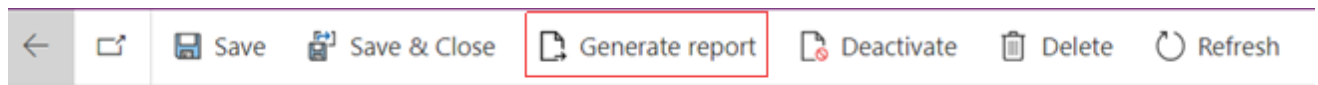
Report details

Name	*	MC4S Activities Report	
Report type	*	Activities report	
Target activity		Purchased Energy	
Start date	*	1/1/2022	📅
End date	*	12/31/2022	📅

Report by

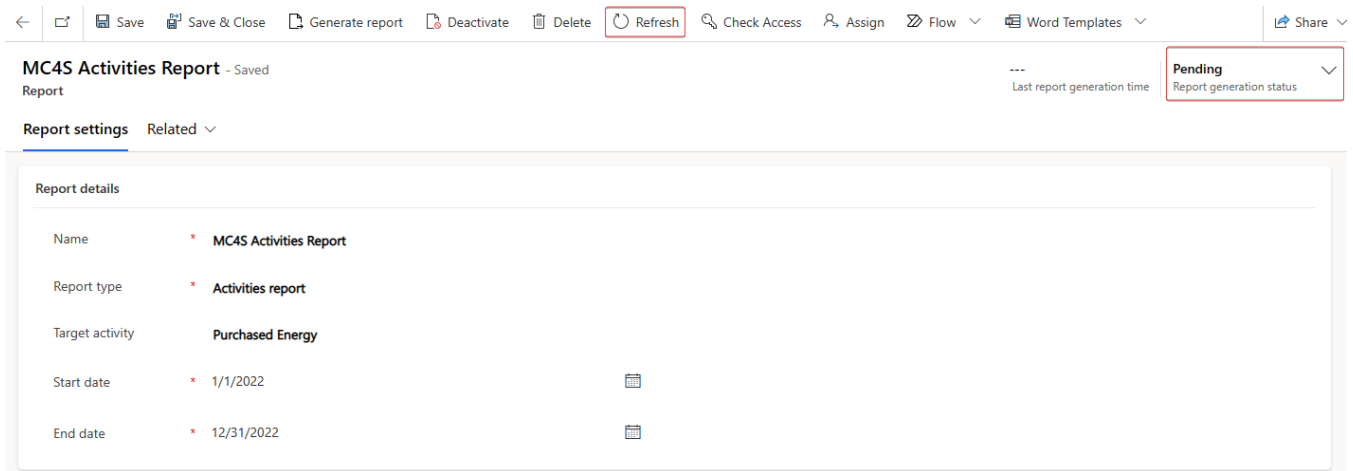
Country/Region	<input checked="" type="checkbox"/> Yes
Regional group	<input checked="" type="checkbox"/> Yes
Latitude/Longitude	<input checked="" type="checkbox"/> Yes
Organizational unit	<input type="checkbox"/> No
Facility	<input checked="" type="checkbox"/> Yes
Is renewable	<input checked="" type="checkbox"/> Yes

- Once the report is saved, the **Generate report** button will be visible on the command bar. Select **Generate report** and then the report is queued to be generated.

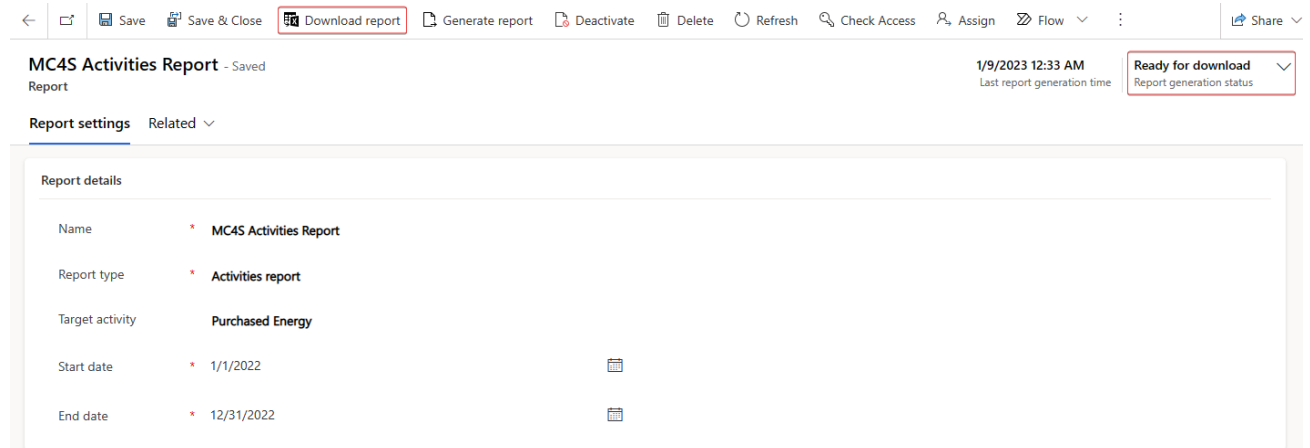


MC4S Activities Report - Saved Report

- Select **Refresh** button on the command bar until the **Report generation status** is changed from **Pending** to **Ready for download**. This may take a few minutes.



- Once the status is changed, a button **Download report** is visible in the command bar. Select that button to download the generated report. An Excel report begins to be downloaded. Open the report.



- The reports contain the following information:
 - The **Group by** column headers that were selected in the earlier steps.
 - Quantity** and **Unit** fields

Facility	Country/Region	Group	Latitude	Longitude	Is Renewable	Quantity	Quantity unit
Contoso APAC Japan	JPN		35.604477	139.74858	False	265.010438	MWh
Contoso Farms Costa Rica	CRI		9.909576	-84.05406	False	316.896639	MWh
Wide World Importers - Tampa Office	USA	AMERICAS	27.94483	-82.51405	False	31.994582	MWh
Wide World Importers - Tampa Office	USA	AMERICAS	27.94483	-82.51405	False	4016130718	m
Wide World Importers - Miami Office	USA	AMERICAS	25.75572	-80.19621	False	3629634540	m
Contoso EUR HQ Bern	CHE		46.947445	7.448108	True	43.6470465	MWh
Contoso Farms Ethiopia	ETH		9.033138	38.750076	False	42.97473	MWh
Contoso APAC Japan	JPN		35.604477	139.74858	True	43.429686	MWh
Contoso EUR HQ Bern	CHE		46.947445	7.448108	False	43.6470465	MWh
Contoso HQ	USA	AMERICAS	38.88	-89.75	False	127.725325	MWh
Wide World Importers - Miami Office	USA	AMERICAS	25.75572	-80.19621	False	30.9189574	MWh

Congratulations! You have successfully generated an activity report. Activity reports are useful for providing information in public disclosures. Microsoft Sustainability provides this information in a tabular format to allow you to adapt it to meet the rapidly changing regulatory requirements. There is a great opportunity for **partners** to assist in the generation of the disclosure documents by configuring an activity report to export data in a consistent and familiar format for ingestion into a **partner** solution.