



Microsoft Cloud for Sustainability **in a Day**

Lab 02: Data ingestion

Step-by-Step Lab

30 minutes

March 2023

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Overview

Background

In the previous lab, Wide World Importers' company profile, facilities, and reference data such as Contractual instrument types were created to lay the Master data foundation for Emissions calculations and Reporting. In this lab - we will perform the Activity data ingestion for the Purchased Electricity of the two newly acquired Florida facilities. In addition, we will also ingest emission data related to the charging of the fleet of 50 Fabrikam Electric trucks. The built-in connectors in the Microsoft Sustainability Manager will be used to ingest the Activity data into the application.

Learning Objectives

In this lab, you will do the following:

- Use Microsoft Sustainability Manager connectors to ingest data
- Use Power Query to transform the data before ingestion
- Review the ingested data in the "Purchase Electricity Activity Data" Dataverse Table
- The newly ingested activity data during this lab exercise will be utilized in the remaining scenarios (calculations and reporting) in the upcoming lab exercises.

Prerequisites

- Microsoft Sustainability manager environment is set up with sample data
- Lab 01 organization and reference data is entered.

Solution Focus Area

In this lab, the focus is on the "Data Ingestion" aspect of the Solution Focus Area. It follows the "Organization and Reference data Set up" and forms the basis for the emission calculations and the reporting thereafter. The Microsoft Sustainability Manager is flexible with multiple automated options to ingest data – such as the connectors as well as manual inputs. For scenarios that may require complex data transformation and/or ETL, tools like Azure Data Factory are recommended. You can explore this functionality in deeper detail on Microsoft Docs, please visit [Overview of Microsoft Cloud for Sustainability Data Import](#)



Personas and Scenarios

In this lab, Reed Flores – IT Admin for Wide World Importers utilizes the activity data Excel spreadsheets sourced by Alex Serra – Emissions Analyst. The Activity data spreadsheets contain Electricity Purchased for the year 2022 and Miles driven by the fleet of Fabrikam Electric Trucks for the calendar year 2022. Reed utilizes Microsoft Sustainability Manger's connector functionality to import from the Excel spreadsheets, and reviews other connectors available for future purposes. Reed uses the built-in Power Query functionality to transform the data to match Microsoft Sustainability Manager's data schema and looks for other potential issues such as case-sensitive d data fields.



Sustainability Lead

"I provide the requested data from my department to our sustainability team partners"

Jessie Irwin
Contoso Corp



Sustainability Specialist

"I am responsible for all emissions reporting tasks at my company"

Amber Rodriguez
Contoso Corp



Emissions Analyst

"I analyze emissions data & send results of analyses to other stakeholders"

Alex Serra
Wide World Importers



IT Admin

"I'm involved in collecting emissions data and inputting it into our database."

Reed Flores
Wide World Importers

In this lab exercise, we will focus on the Lab 2 scenario illustrated below:

Lab 2



Amber & Jessie introduce Sustainability Manager to Alex and then asks them to fill out the Inventory Plan. Alex does the scoping and with Reed's help, starts setting up the Wide World Importers Organization data and Reference Data.



Reed uses the data connectors to import the excel spreadsheet Alex gave them for 1) Electricity Purchased for all of Year 2021 2) Miles driven by Fabrikam Electric Trucks.



Alex sets up the Factor Mappings for Purchased electricity and a Factor Library for Miles driven by Electric Vehicles including the Calculations. They then set up calculation profiles for Purchased electricity for facilities, and Miles driven by Electric Vehicles



Amber validates and reviews the data in the Insights section and tells Jessie that the Wide world data is available for them to review. **Jessie** opens the Reporting section to create a new Emissions report.



Amber goes into the Scorecards section to set up goals for Wide World Importers to reduce their carbon emissions to 600 mtCO2e by end of 2025.

Set up Organization and Reference Data

Ingest Emissions Activity Data

Design Calculation Models and Jobs

Build Reports and gather Insights

Create Carbon Reduction Goals and Scorecards

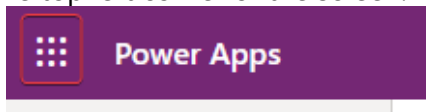
Exercise 1: Import Data

In this exercise, you will learn about the steps that Reed takes to ingest the spreadsheets given by Alex. Data import is a vital task to bringing large volumes of data into Microsoft Sustainability Manager. Excel is utilized in this lab; however, many pre-built connectors are available, and Partners can build custom connectors to integrate with additional data sources. You can explore this functionality in deeper detail on Microsoft Docs, please visit [Overview of data connectors](#).

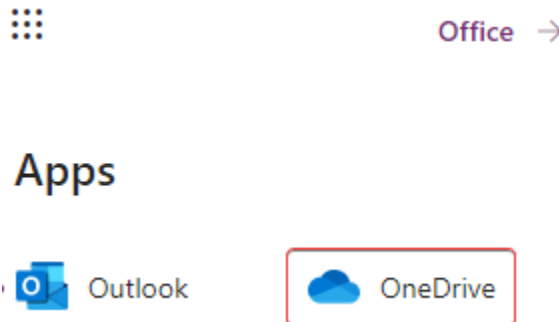
Important

Please ensure you have completed the previous lab to create Reference Data. The data import process requires all Reference Data to exist, and the process is case sensitive, so please ensure the Reference data that was added has the exact same case formatting as what is found in the lab. Failure to do so will result in errors during the data import process

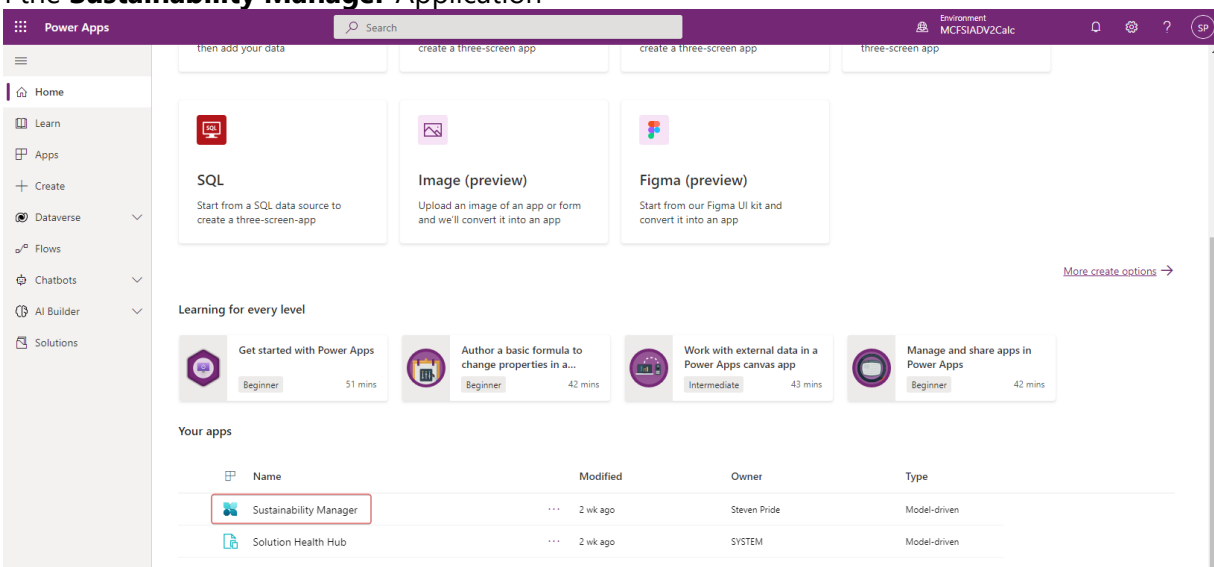
- For this lab, you will be utilizing OneDrive. Please ensure that your personal one drive has been initialized by clicking the app selector button in the top left corner of the screen.



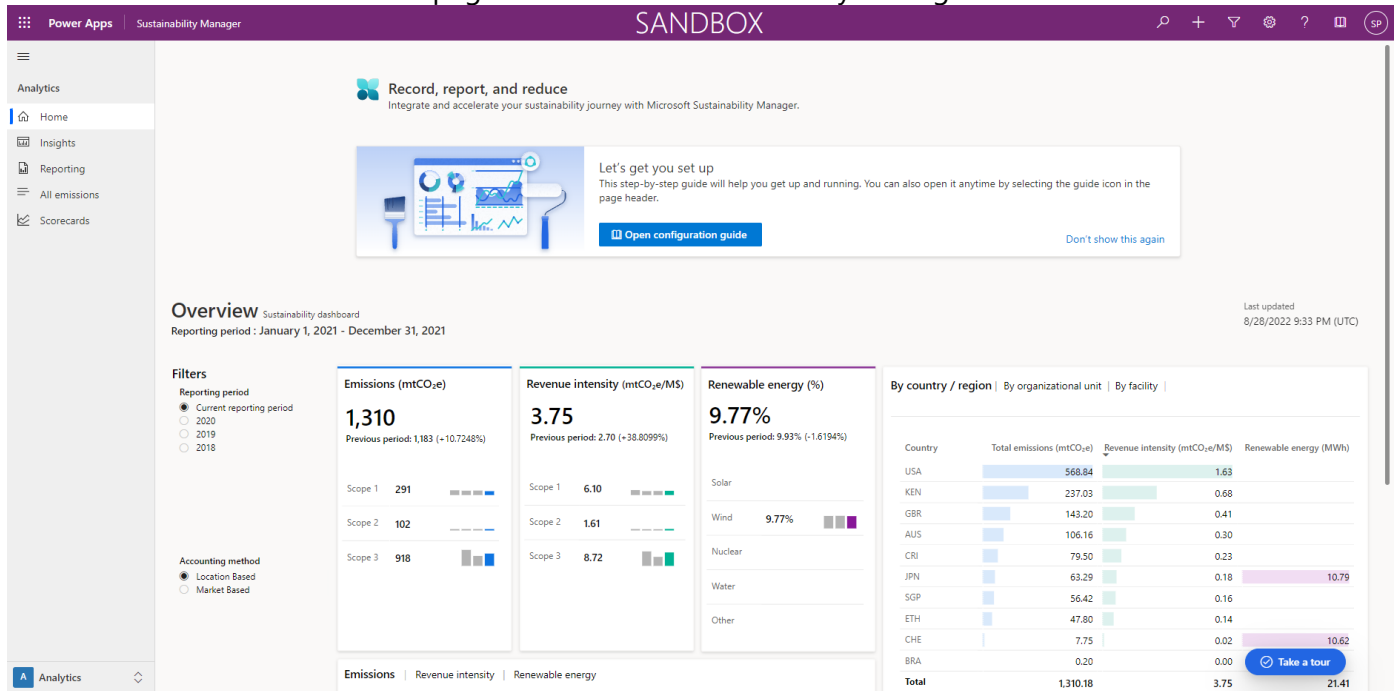
- Select OneDrive from the Apps list, this will open a new tab with your new OneDrive. You can close this tab and return to the Power Apps maker portal.



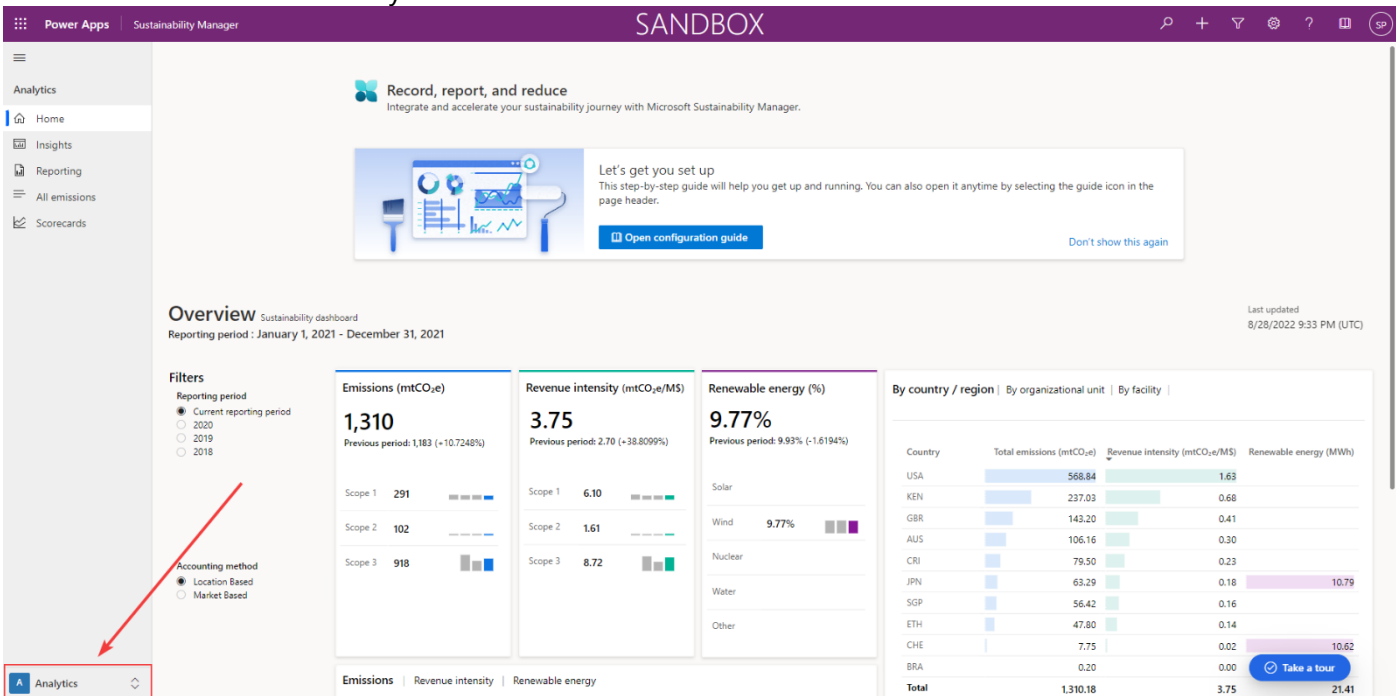
- Open the **Sustainability Manager** Application



- You will land on the **Home** page for Microsoft Sustainability Manager



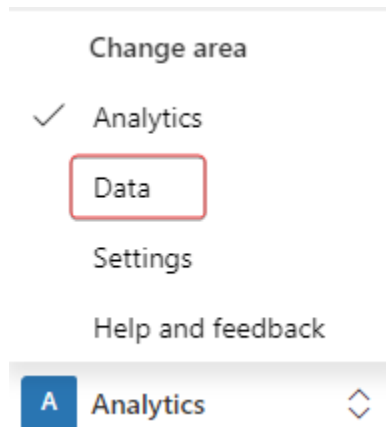
- Area navigation is a common first step in each lab and exercise. You can find the area navigation menu in the bottom corner of your screen.



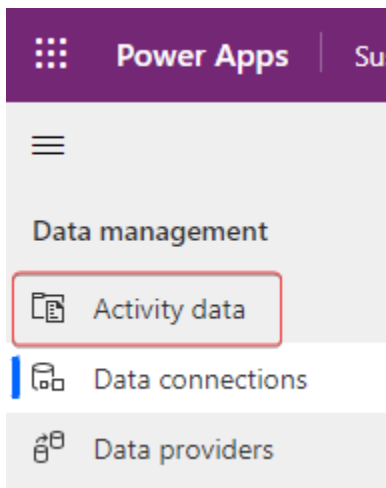
Task 1: Import 2022 data for “Purchased Electricity” for Facilities

In this task, Reed imports the first excel spreadsheet provided by Alex, Purchased electricity Wide World Importers 2022.xlsx. This brings in the Electricity Purchased by Wide World Importers facilities for the year 2022 into the Purchased electricity activity data.

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



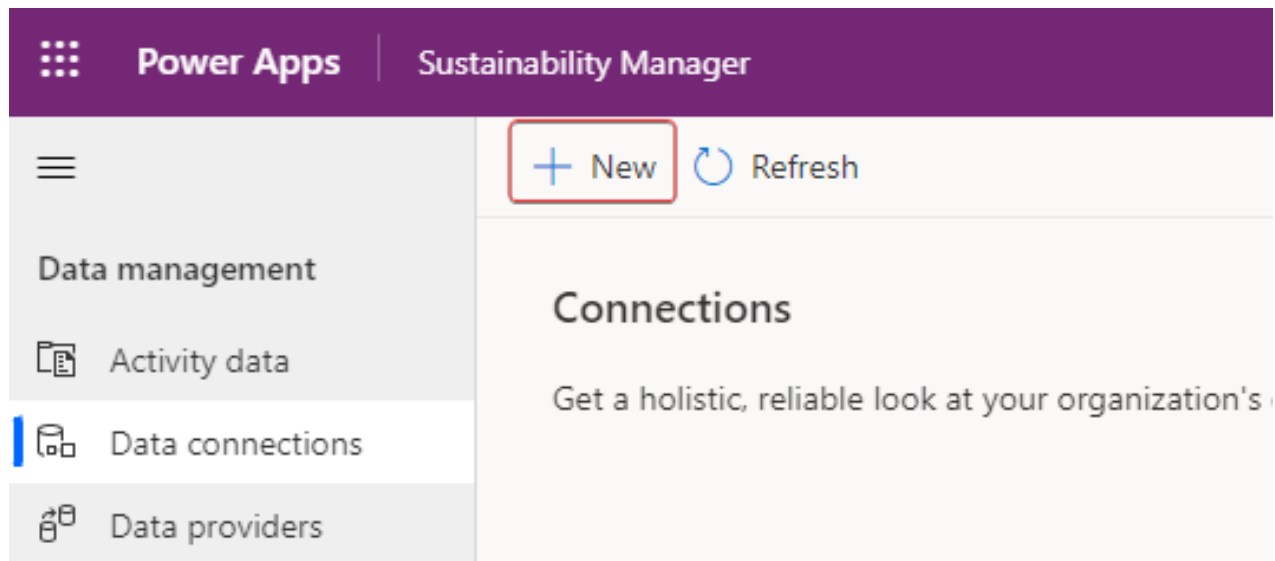
2. Navigate to “**Activity data**” on the left side of the page.



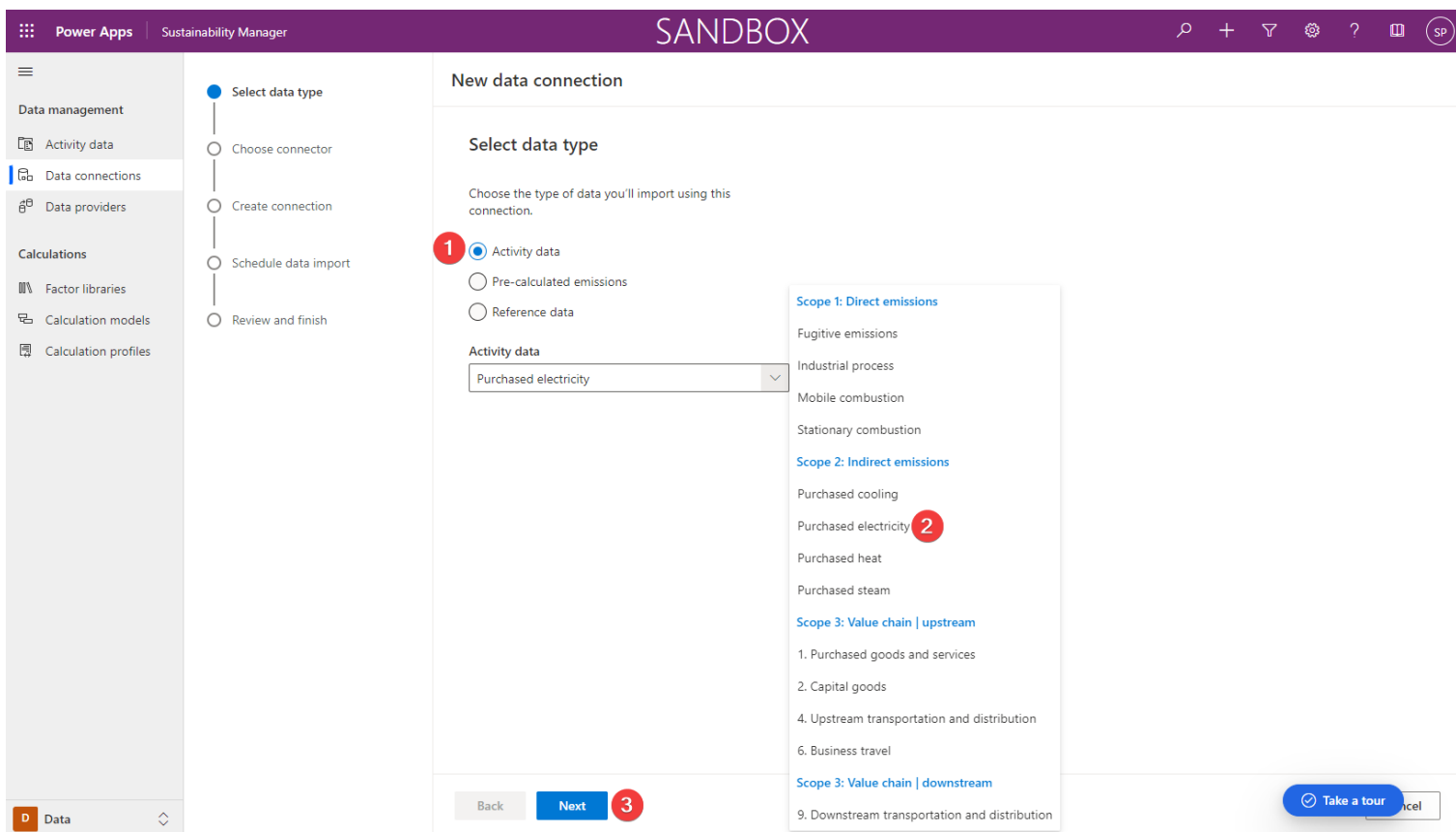
3. Find Purchased electricity in the **Scope 2: Indirect emissions** section, and click **Manage**

Scope 2: Indirect emissions				
Source	Data	Connections	Number of connections	
Purchased cooling	View	Manage	0	
Purchased electricity	View	Manage	0	
Purchased heat	View	Manage	0	
Purchased steam	View	Manage	0	

4. On the "Connections" view, click **+New**



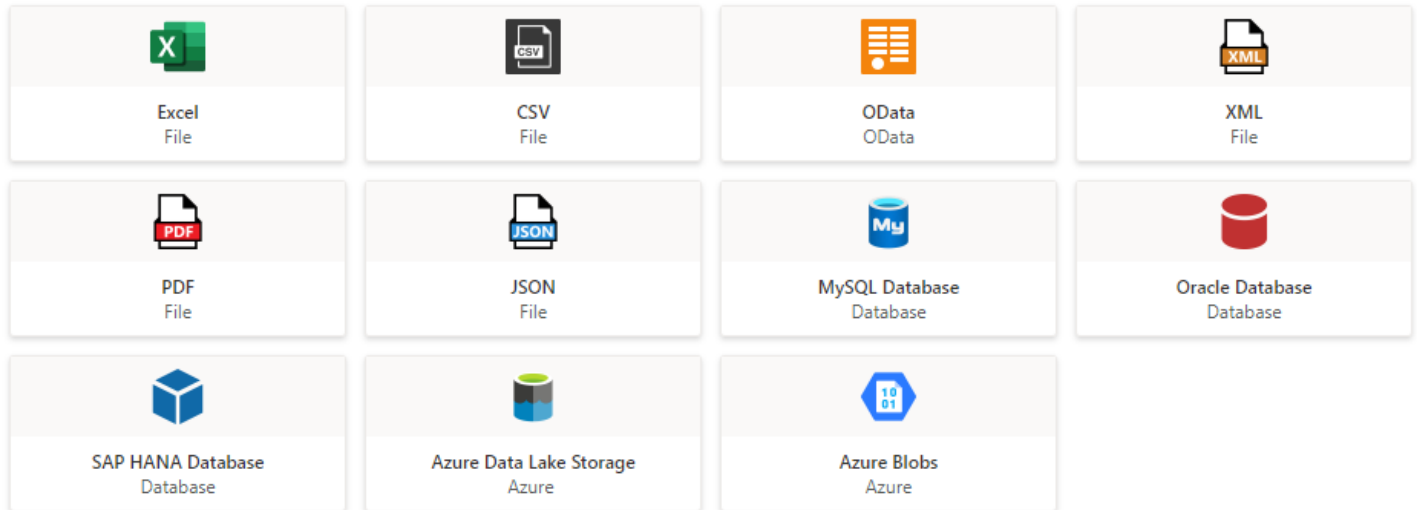
5. On the "New data connection" wizard:
- 1) Select **Activity data** from data type screen
 - 2) Choose **Purchased electricity** from the Activity data drop down list
 - 3) Click **Next** when finished



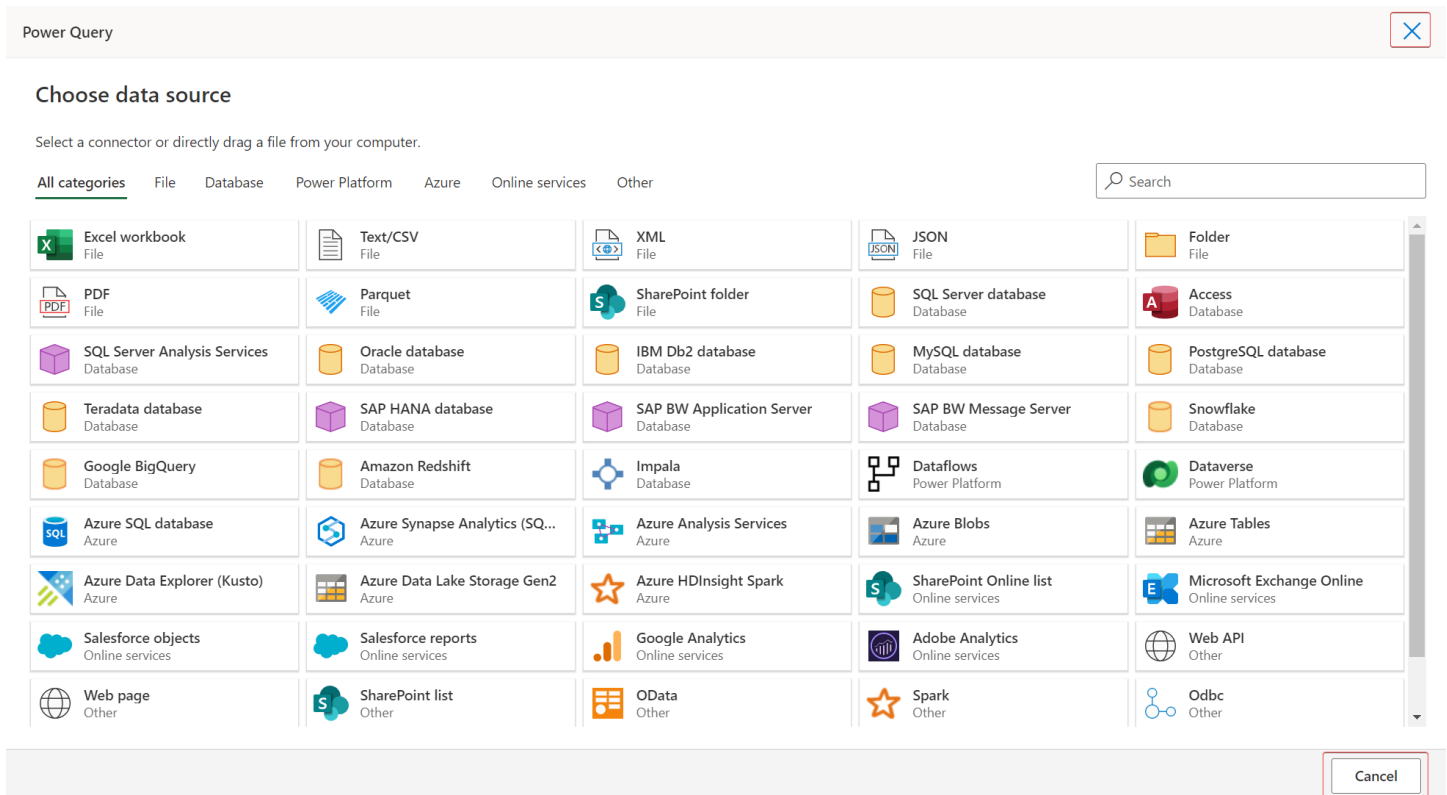
6. Take a moment to review the large list of connectors by clicking the “See all Power Query connectors” link

Choose connector

Power Query

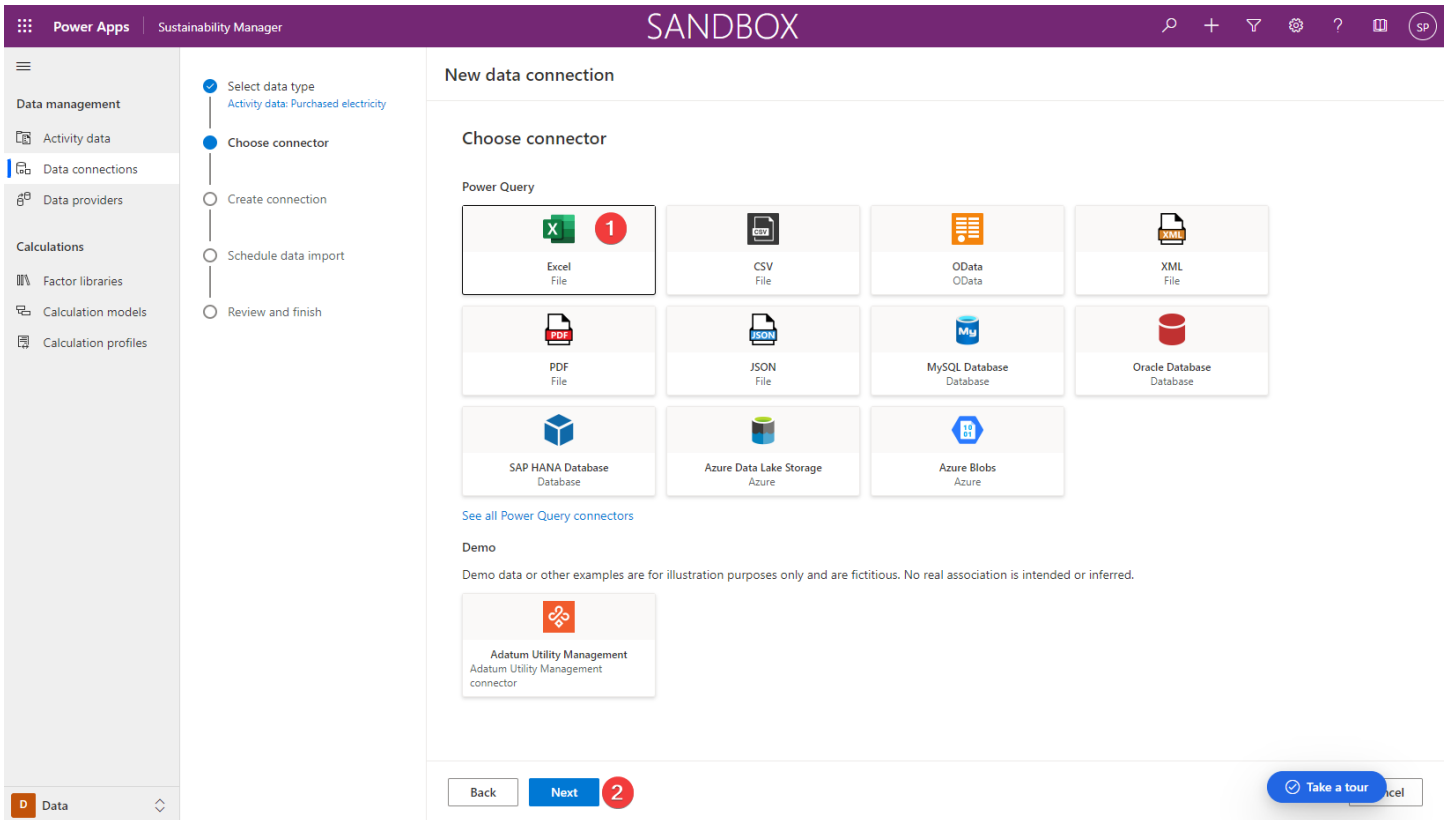


7. Microsoft Sustainability Manager utilizes Power Query for its data ingestion connectors, there is a broad list of connectors available in Power Query. Click Cancel or the X in the top right corner to close the Power Query dialog.



8. On the “Choose connector” page:

- 1) Select **Excel**
- 2) Click **Next**



Note: Notice the Adatum Utility Management connector at the bottom. Data providers and Partners can create their own connectors to be available in Microsoft Sustainability Manager

9. A new dialog will open for Power Query. On the Power Query dialog:
 - 1) Click **Upload file**
 - 2) Click **Browse**

Power Query

Connect to data source

Excel workbook
File
[Learn more](#)

Connection settings

☐ Link to file ☒ Upload file (Preview) 1

Drag a file here to upload
or
[Browse...](#) 2

Connection credentials

Connection
Create new connection

Connection name
Connection

Data gateway
(none)

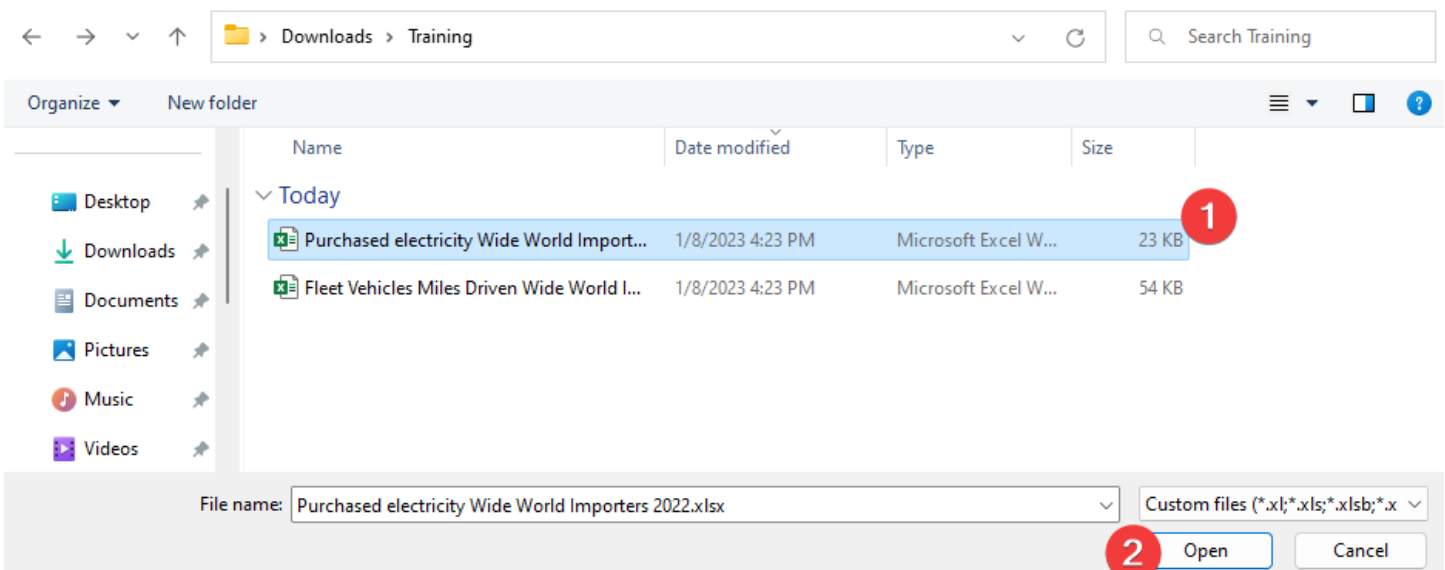
Authentication kind
Anonymous

Back Cancel Next

Note: You can also choose to import an existing file located in OneDrive. For simplicity of this lab, we are using the Upload file functionality.

10. On the file selection window, browse to the location of the excel files that were downloaded.


- 1) Select the **Purchased electricity Wide World Importers 2022.xlsx** file
- 2) Click **Open**



11. Once the file is successfully uploaded, it may be required to click the sign in button below to create a new Connection credential, this is done by clicking **Sign in**.


Power Query

Connect to data source

 Excel workbook
File
[Learn more](#)

Connection settings

☐ Link to file ☒ Upload file (Preview) ⓘ

 Purchased electricity Wide World Importers 2022.xlsx
Upload successful (22.7 KB)

Connection credentials

Connection
Create new connection

Connection name
Connection


Data gateway
(none)

Authentication kind
Organizational account


You are not signed in. Please sign in.


Sign in

12. An Office 365 Sign in dialog will appear. Reed selects their user from the list. (For the purposes of this lab, select your "In a Day" user account from the list).

 Microsoft

Pick an account

 @PowerPlatformOpenHacks.onmicrosoft.com
Signed in

 Use another account

[Terms of use](#) [Privacy & cookies](#) ...

13. Once the sign in process is completed, the new connection is automatically selected. Click **Next**.

Power Query

Connect to data source

Excel workbook

File

Learn more

Connection settings

Link to file

Upload file (Preview)

Purchased electricity Wide World Importers 2022.xlsx

Upload successful (22.7 KB)

Connection credentials

Connection

https://powerplatformopenhacks-my.sharep...

Authentication kind: Organizational account

Edit connection

Back

Cancel

Next

14. On the "Choose data" page of the Power Query wizard:

- 1) Select the **"Purchased electricity"** sheet
- 2) Click **Transform data**

Power Query

Choose data

Search

Display options

Excel workbook

Table1

Purchased electricity

Purchased electricity

Name	Contracted firm	Connection	Description	Provider	Evidence	Organizational Unit	Facility	Is Renewable
PurchasedElectricity	VanArsdel Ltd	null	January activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	February activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	March activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	April activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	May activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	June activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	July activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	August activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	September activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	October activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	November activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	VanArsdel Ltd	null	December activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Miami Office	No
PurchasedElectricity	Adatum Corp	null	January activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	February activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	March activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	April activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	May activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	June activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	July activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	August activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	September activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	October activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	November activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No
PurchasedElectricity	Adatum Corp	null	December activity data from purchased electricity	Electric Company	null	Wide World Importers	Wide World Importers - Tampa Office	No

Back

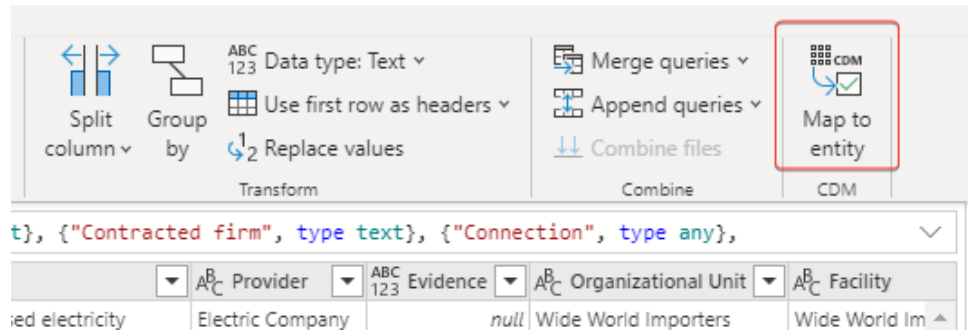
Cancel

Transform data

13

On the "Transform data" page of the Power Query wizard, various data and column transformations can be performed. This will allow for the adjusting of data types, update column mappings, and even perform advanced transformations familiar with in Power Platform Dataflows or Power BI Datasets.

15. In this scenario, Reed will need to map the columns from the spreadsheet to the columns in Microsoft Sustainability Manager. To do this click on Map to entity in the upper right corner of the dialog window.



16. On the "Map to CDM entity" of the dialog window we need to:
 1. Select the table name, "**Purchased energy**"
 2. Select "**Auto map**" to allow any automatic mappings to occur
 3. Contractual Instrument Type was "Not mapped", hence Reed selects "**Contracted firm**" from the list of options in the "Query output column"
 4. Energy Provider name was "Not mapped", select "**Provider**" from the list of options in the "Query output column"
 5. When finished, click "**OK**"

Map to CDM entity

Map the columns from your query output to attributes of a standard Common Data Model (CDM) entity.

[Learn more](#)

2

☒ Auto map

1

Purchased energy

Query output column	Entity attribute ↑	Mapping type
Consumption End Date	Consumption End Date	Auto mapped
Consumption Start Date	Consumption Start Date	Auto mapped
3 Contracted firm	Contractual Instrument Type	Mapped
Cost	Cost	Auto mapped
Cost unit	Cost unit	Auto mapped
Data Quality Type	Data Quality Type	Auto mapped
Description	Description	Auto mapped
4 Provider	Energy Provider Name	Mapped
Evidence	Evidence	Auto mapped
Facility	Facility	Auto mapped
Is Renewable	Is Renewable	Auto mapped
(none)	Meter number	Not mapped

Entity description

Electric energy, measured in MWh, delivered by the utility to a customer in accordance with the signed agreement.

5

OK

Cancel

Note: Observe that the column names have changed to Contractual Instrument Type and Energy Provider Name.

18. Click **Create** to start the data import process:

15

19. The “New data connection” wizard will now be on the Schedule data import page, click “**Next**” when finished reviewing the options below.
- Turning on “Import data automatically” will give the option to set a schedule to have the data imported automatically, this may be a good option if the connector will be used in a scenario where the data will change frequently such as a web API or FTP server.
 - Turning on “Replace previously imported data” will remove all previously imported data and bring in the full data set that was retrieved, this may be a good option if the data source is not only providing data from the last import or always includes a full set of data. For this scenario of importing historical data, leave both options turned off.

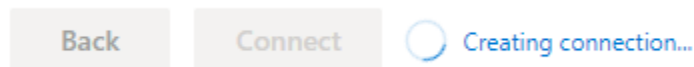
The screenshot shows the 'New data connection' wizard in the Power Apps Sustainability Manager interface. The interface has a purple header bar with 'Power Apps | Sustainability Manager' on the left and 'SANDBOX' in the center. On the far right of the header are icons for search, add, filter, settings, help, and a user profile icon labeled 'SP'. A left-hand navigation pane contains a menu with 'Data management' (sub-items: Activity data, Data connections, Data providers) and 'Calculations' (sub-items: Factor libraries, Calculation models, Calculation profiles). The 'Data connections' item is selected. A vertical progress bar in the center of the screen shows five steps: 'Select data type' (with a sub-link 'Activity data: Purchased electricity'), 'Choose connector' (with a sub-link 'Excel'), 'Create connection', 'Schedule data import' (the current step, highlighted with a blue dot), and 'Review and finish'. The main content area is titled 'New data connection' and 'Schedule data import'. It contains two toggle switches, both currently set to 'Off': 'Import data automatically' (with a sub-link 'This refreshes your data regularly on a schedule that works for you.') and 'Replace previously imported data' (with a sub-link 'This will delete and replace the previous data that you've imported using this connection.'). At the bottom of the wizard are three buttons: 'Back', 'Next' (which is highlighted with a red rectangle), and 'Take a tour' (with a sub-link 'Cancel').

20. On the "Review and finish" page:

1. Enter a name for the new connection, such as **"Wide World Importers Purchased Electricity 2022"** then click **"Connect"**

The screenshot shows the 'Review and finish' page in the Sustainability Manager interface. The left sidebar contains a navigation menu with sections: 'Data management' (Activity data, Data connections, Data providers), 'Calculations' (Factor libraries, Calculation models, Calculation profiles), and a 'Data' tab at the bottom. The main content area is titled 'New data connection' and includes a sub-section 'Review and finish'. It displays the connection details: 'Excel File', 'Connection type: Activity data', 'Ingestion source: Purchased electricity', and 'Owner'. A text input field for 'Name' contains 'Wide World Importers Purchased Electricity 2022' and is marked with a red circle containing the number '1'. Below the input field is a '47/100' character count. At the bottom, there are 'Back' and 'Connect' buttons, with the 'Connect' button marked with a red circle containing the number '2'.

21. At the bottom of the window, there will be a message, "Creating connection..."



22. Once the connection is created, click **"Done"**

✔ Select data type
Activity data: Purchased electricity

✔ Choose connector
Excel

✔ Create connection

✔ Schedule data import

✔ Review and finish

New data connection

Improve the quality of your data import by checking the quality of your data source. Remove records you've already imported. Provide required data. Make sure data your file refers to (for instance, a fuel source) can be found in your reference data.

Good job!

You've set up the following data connection:

Excel
File

Connection type

Activity data

Ingestion source

Purchased electricity

Owner

Name *

Wide World Importers Purchased Electricity 2022

47/100

Back

Done

23. The **"Connections"** view will now be visible, along with the status of the recently created connection. It should say **"Processing"**

Connections							
Get a holistic, reliable look at your organization's emissions by using data connections to import activity and reference data. Learn more about data connections							
Name	Connection type	Ingestion source	Owner	Last refresh	Next refresh	Inserted records	Status
Wide World Importers - Purc...	Activity data	Purchased electricity		8/11/2022 1:43 PM	—	24	Processing

24. After a minute or two click the **"Refresh"** button above the list to see the updated status, which should be **"Completed"**

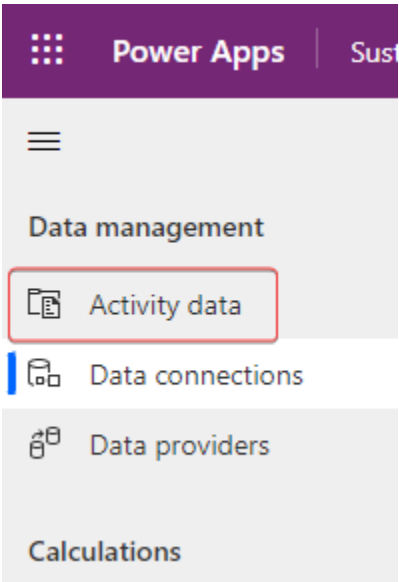
+ New Refresh

Connections

Get a holistic, reliable look at your organization's emissions by using data connections to import activity and reference data. [Learn more about data connections](#)

Name	Connection type	Ingestion source	Owner	Last refresh	Next refresh	Inserted records	Status
Wide World Importers - Purc...	Activity data	Purchased electricity		8/11/2022 1:43 PM	—	24	Complete

25. Navigate to “**Activity data**” on the left side of the page.



26. Find Purchased electricity in the Scope 2: Indirect emissions section, and click **View**

Scope 2: Indirect emissions				
Source	Data	Connections	Number of connections	
Purchased cooling	View	Manage	0	
Purchased electricity	View	Manage	2	
Purchased heat	View	Manage	0	
Purchased steam	View	Manage	0	
Scope 3: Value chain upstream				

27. The Purchased electricity view shows all purchased electricity activity data that has been imported

Power Apps | Sustainability Manager

SANDBOX

SP

Show Chart

New

Refresh

Visualize this view

Email a Link

Flow

Run Report

Excel Templates

Export to Excel

Data management

Activity data

Data connections

Data providers

Calculations

Factor libraries

Calculation models

Calculation profiles

Purchased electricity

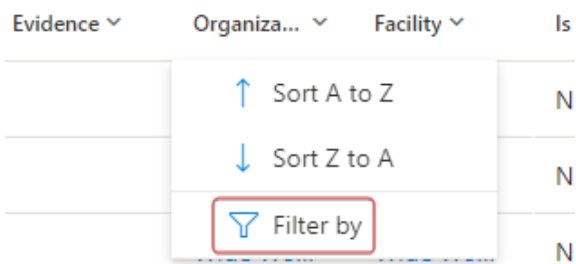
Edit columns

Edit filters

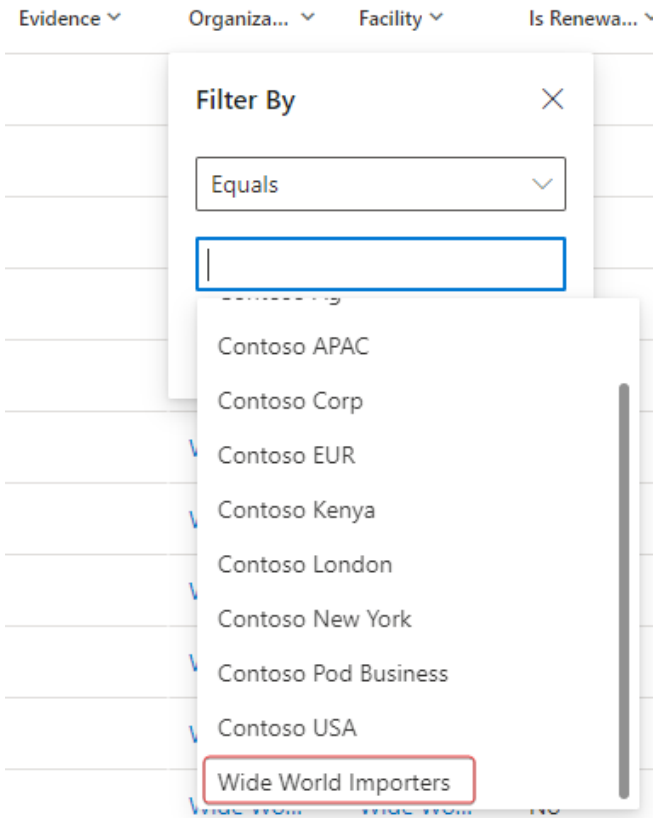
Filter by keyword

<input type="checkbox"/>	Name	Contract	Connection	Description	Energy Price	Evidence	Organization	Facility	Is Renewable	Consumption Start Date	Consumption End Date	Quantity	Unit
	PurchasedElectricity	Adatum	Wide World	October 2022	Electric	Wide World	Wide World	No	10/31/2022	10/1/2022	1,689,632	kWh	
	PurchasedElectricity	Adatum	Wide World	September 2022	Electric	Wide World	Wide World	No	9/30/2022	9/1/2022	2,494,647	kWh	
	PurchasedElectricity	VanArsde	Wide World	March 2022	Electric	Wide World	Wide World	No	3/31/2022	3/1/2022	1,817,976	kWh	
	PurchasedElectricity	Adatum	Wide World	November 2022	Electric	Wide World	Wide World	No	11/30/2022	11/1/2022	3,882,752	kWh	
	PurchasedElectricity	VanArsde	Wide World	October 2022	Electric	Wide World	Wide World	No	10/31/2022	10/1/2022	2,428,723	kWh	
	PurchasedElectricity	Adatum	Wide World	July 2022	Electric	Wide World	Wide World	No	7/31/2022	7/1/2022	2,894,133	kWh	
	PurchasedElectricity	Adatum	Wide World	August 2022	Electric	Wide World	Wide World	No	8/31/2022	8/1/2022	1,504,602	kWh	
	PurchasedElectricity	VanArsde	Wide World	November 2022	Electric	Wide World	Wide World	No	11/30/2022	11/1/2022	2,370,869	kWh	

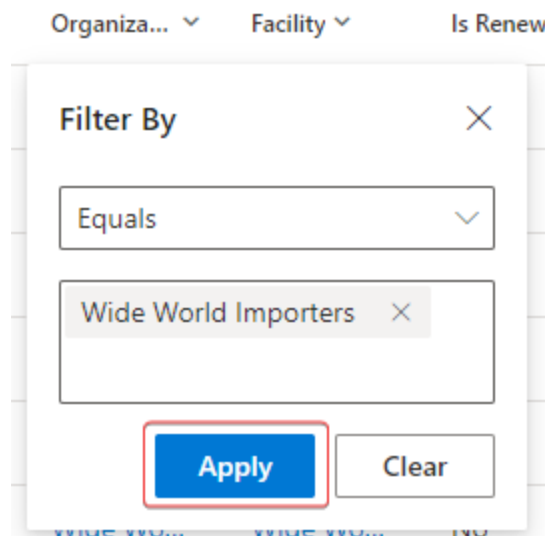
28. Filter the view by clicking the down arrow next to the **Organizational Unit** column, and selecting **Filter by**



29. Select **Wide World Importers** from the Filter By dialog



30. Click **Apply** to apply the filter to the column



31. After a few moments, the view will refresh, and the activity data records that were imported during this lab will be displayed.

Power Apps Sustainability Manager

SANDBOX

← Show Chart + New Refresh Visualize this view Email a Link | Flow Run Report Excel Templates Export to Excel

Purchased electricity* Edit columns Edit filters Filter by keyword

Name	Contractu...	Connection	Description	Energy Pr...	Evidence	Organi...	Facility	Is Renewa...	Consump...	Consump...	Quantity	Quantity
PurchasedElectric...	Adatum ...	Wide Wo...	October ...	Electric C...		Wide Wo...	Wide Wo...	No	10/31/20...	10/1/2022	1,689.632...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	Septemb...	Electric C...		Wide Wo...	Wide Wo...	No	9/30/2022	9/1/2022	2,494.647...	kWh
PurchasedElectric...	VanArsde...	Wide Wo...	March ac...	Electric C...		Wide Wo...	Wide Wo...	No	3/31/2022	3/1/2022	1,817.976...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	Novembe...	Electric C...		Wide Wo...	Wide Wo...	No	11/30/20...	11/1/2022	3,882.752...	kWh
PurchasedElectric...	VanArsde...	Wide Wo...	October ...	Electric C...		Wide Wo...	Wide Wo...	No	10/31/20...	10/1/2022	2,428.723...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	July activ...	Electric C...		Wide Wo...	Wide Wo...	No	7/31/2022	7/1/2022	2,894.133...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	August a...	Electric C...		Wide Wo...	Wide Wo...	No	8/31/2022	8/1/2022	1,504.602...	kWh
PurchasedElectric...	VanArsde...	Wide Wo...	Novembe...	Electric C...		Wide Wo...	Wide Wo...	No	11/30/20...	11/1/2022	2,370.869...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	Decembe...	Electric C...		Wide Wo...	Wide Wo...	No	12/31/20...	12/1/2022	3,002.299...	kWh
PurchasedElectric...	VanArsde...	Wide Wo...	January a...	Electric C...		Wide Wo...	Wide Wo...	No	1/31/2022	1/1/2022	4,022.151...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	June activ...	Electric C...		Wide Wo...	Wide Wo...	No	6/30/2022	6/1/2022	3,387.645...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	May activ...	Electric C...		Wide Wo...	Wide Wo...	No	5/31/2022	5/1/2022	2,744.943...	kWh
PurchasedElectric...	VanArsde...	Wide Wo...	Decembe...	Electric C...		Wide Wo...	Wide Wo...	No	12/31/20...	12/1/2022	4,006.636...	kWh
PurchasedElectric...	VanArsde...	Wide Wo...	August a...	Electric C...		Wide Wo...	Wide Wo...	No	8/31/2022	8/1/2022	1,503.367...	kWh
PurchasedElectric...	Adatum ...	Wide Wo...	April activ...	Electric C...		Wide Wo...	Wide Wo...	No	4/30/2022	4/1/2022	2,831.273...	kWh
PurchasedElectric...	VanArsde...	Wide Wo...	June activ...	Electric C...		Wide Wo...	Wide Wo...	No	6/30/2022	6/1/2022	1,695.275...	kWh

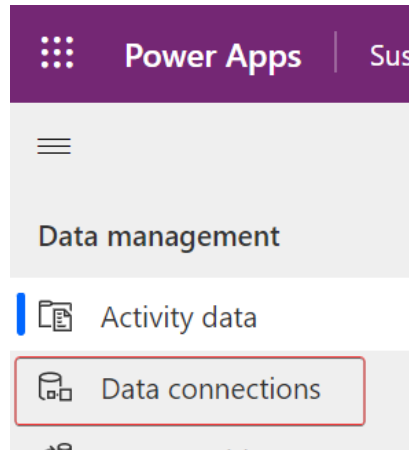
1 - 24 of 24 Page 1

Great job, you have just completed the data import of 2022 Purchased Electricity for Wide World Importers. This is an important step to realizing the goal of recording, reporting, and reducing carbon emissions. Next, we will import the 2022 Miles Driven for Wide World Importers fleet of electric vehicles. **Please continue to the next task.**

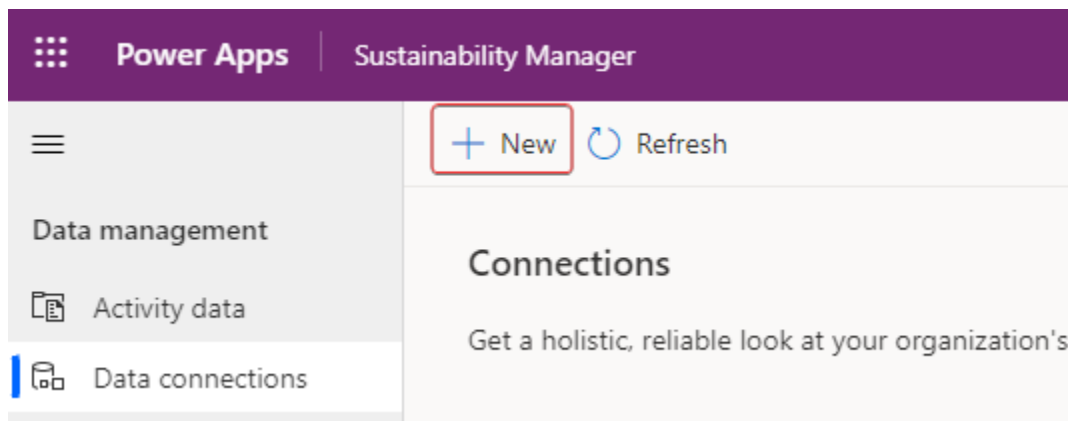
Task 2: Import 2022 data “Miles Driven” for Electric Trucks

In this task, Reed imports the second excel spreadsheet provided by Alex - “Fleet Vehicles Miles Driven Wide World Importers 2022.xlsx”. While electric vehicles do not produce direct tailpipe emissions, they do produce “Scope 2: Purchased electricity from charging”. This brings in the Miles driven by Wide World Importers fleet of electric trucks for the year 2022 into the Purchased electricity activity data.

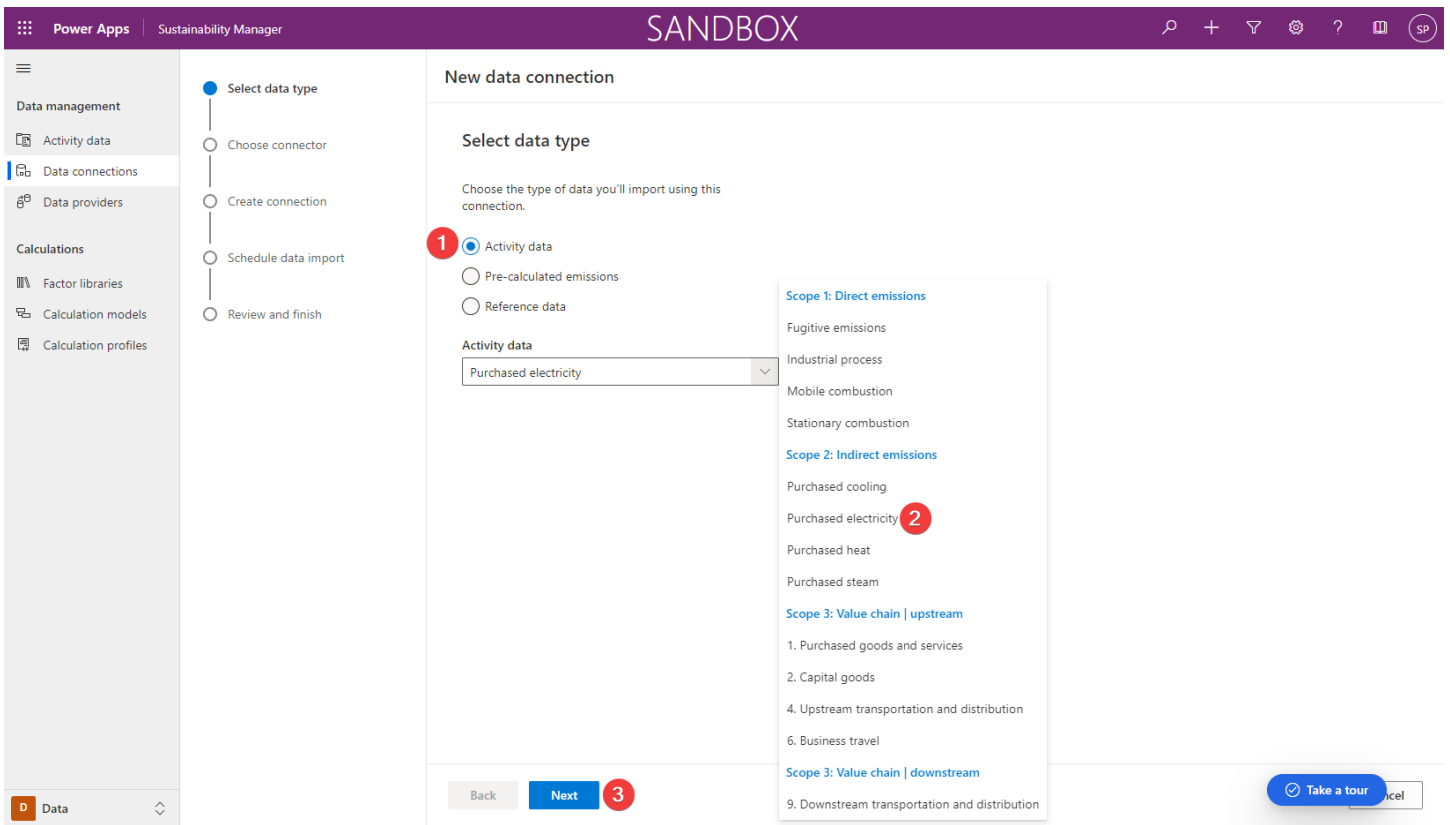
1. Navigate to “**Data connections**” on the left side of the page.



2. On the “Connections” view, click **+New**

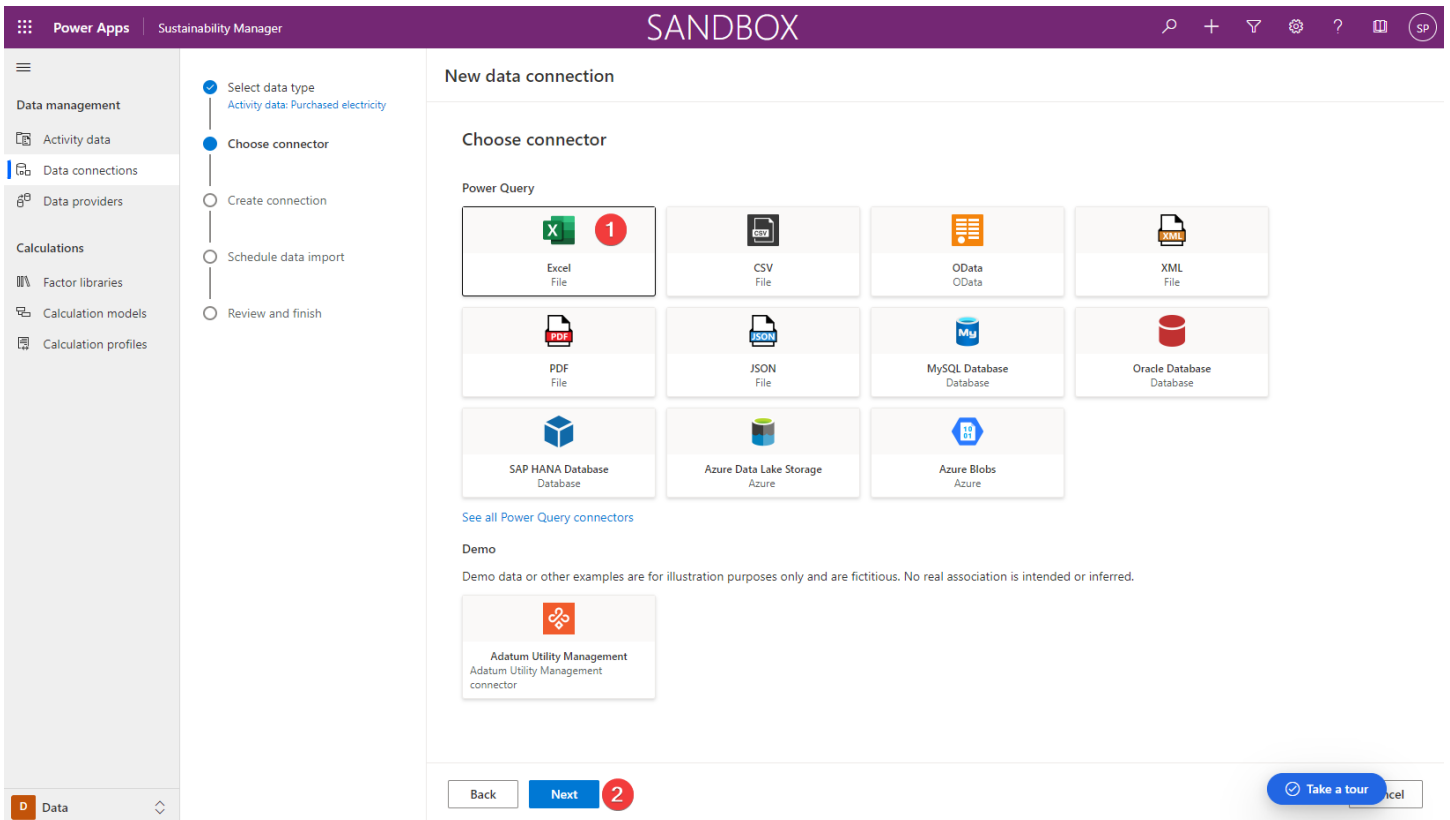


3. On the “New data connection” wizard:
 - 1) Select **Activity data** from data type screen
 - 2) Choose **Purchased electricity** from the Activity data drop down list
 - 3) Click **Next** when finished



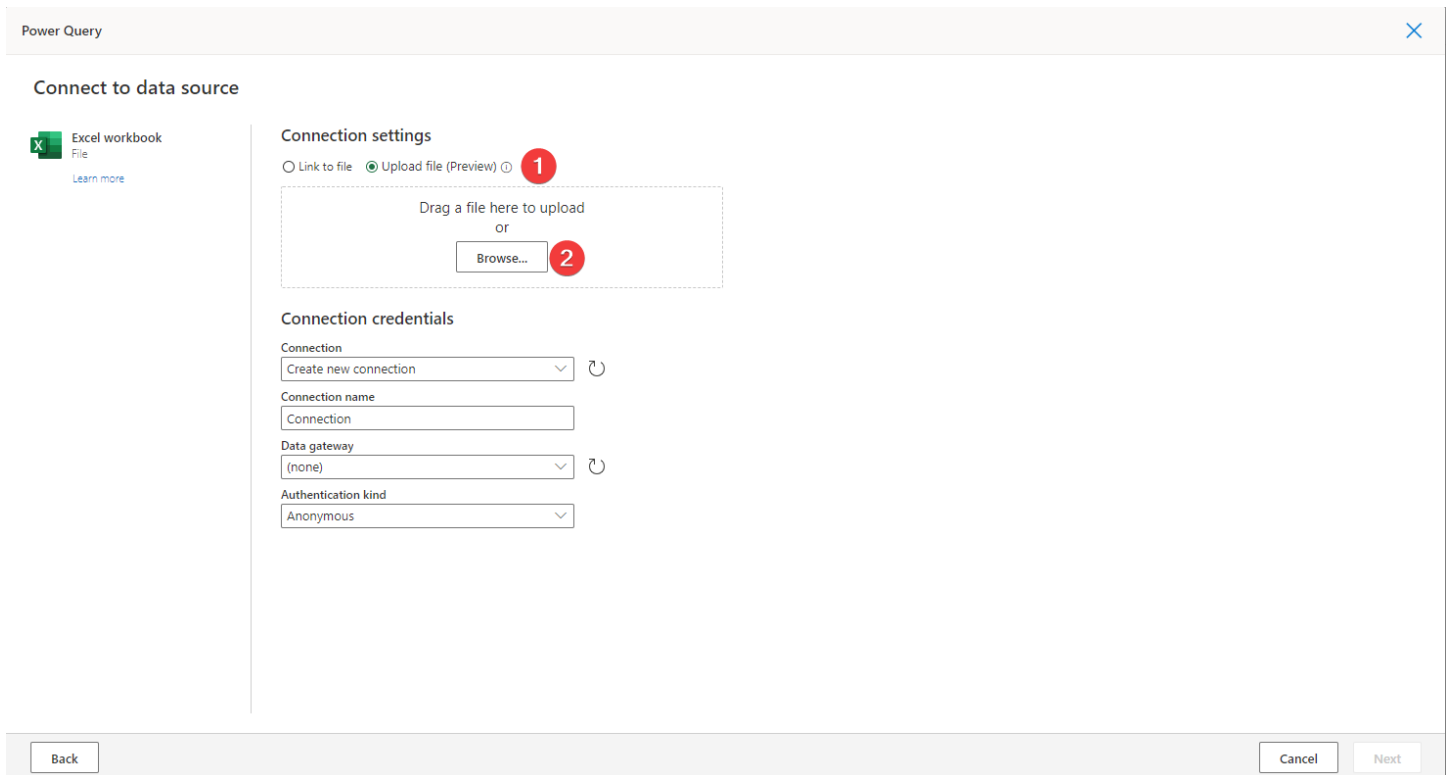
4. On the "Choose connector" page:

- 1) Select "**Excel**"
- 2) Click "**Next**" when finished



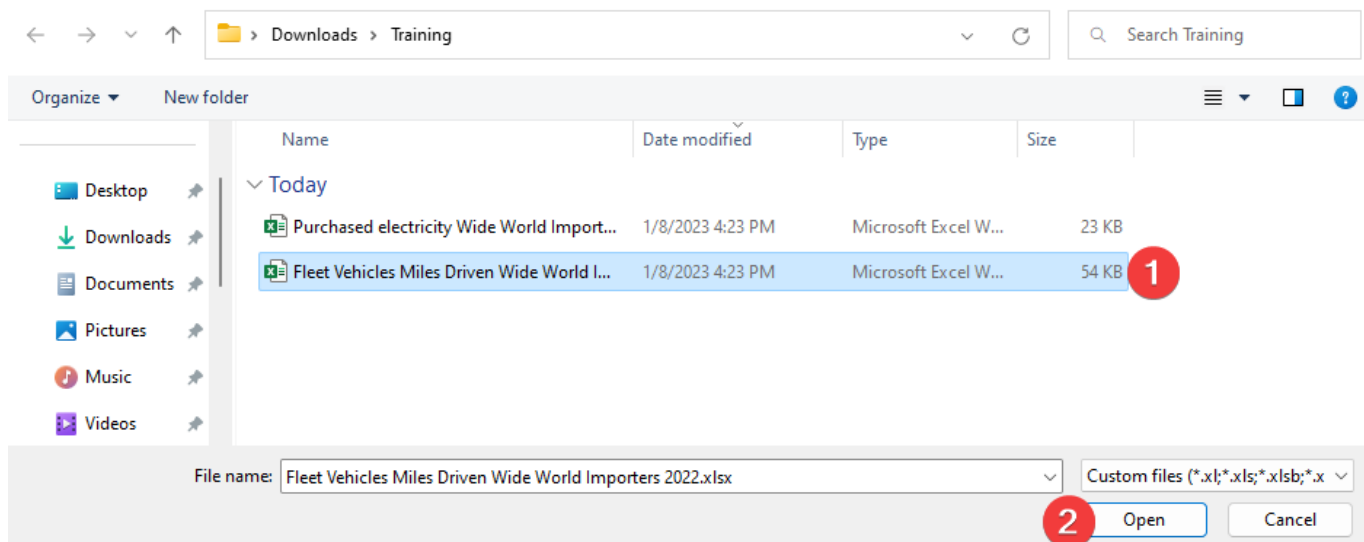
5. A new dialog will open for Power Query. On the Power Query dialog:

- 1) Click "**Upload file**"
- 2) Click "**Browse**"



6. On the file selection window, browse to the location of the excel files the downloaded.


- 1) Select the "**Fleet Vehicles Miles Driven Wide World Importers 2022.xlsx**" file
- 2) Click "**Open**"



7. Once the file is uploaded, the Connection credentials automatically selects the previous connection for authentication. Click **"Next"**


Power Query

Connect to data source

 Excel workbook
File
[Learn more](#)

Connection settings

☐ Link to file ☒ Upload file (Preview) ⓘ

 Fleet Vehicles Miles Driven Wide World Importers 2022.xlsx
Upload successful (53.5 KB)

Connection credentials

Connection
@PowerPlatformOpenHacks.onmicr... ⓘ

Authentication kind: Organizational account [Edit connection](#)

Back

Cancel




Next

8. On "Choose data" page of the Power Query wizard:
- 1) Select the **"Miles Driven"** sheet
 - 2) Click **"Transform data"**

Power Query

Choose data

Display options ▾

 Excel workbook [2]
 Table1
 Miles Driven

Miles Driven

Name	Contracted firm	Connection	Description	Provider	Evidence	Organizational Unit	Facility	Is Renewable
Fleet Vehicle 1	null	null	January activity data from Fleet Vehicle 1	Fabrikam Electric Truck 1	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 2	null	null	January activity data from Fleet Vehicle 2	Fabrikam Electric Truck 2	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 3	null	null	January activity data from Fleet Vehicle 3	Fabrikam Electric Truck 3	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 4	null	null	January activity data from Fleet Vehicle 4	Fabrikam Electric Truck 4	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 5	null	null	January activity data from Fleet Vehicle 5	Fabrikam Electric Truck 5	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 6	null	null	January activity data from Fleet Vehicle 6	Fabrikam Electric Truck 6	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 7	null	null	January activity data from Fleet Vehicle 7	Fabrikam Electric Truck 7	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 8	null	null	January activity data from Fleet Vehicle 8	Fabrikam Electric Truck 8	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 9	null	null	January activity data from Fleet Vehicle 9	Fabrikam Electric Truck 9	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 10	null	null	January activity data from Fleet Vehicle 10	Fabrikam Electric Truck 10	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 11	null	null	January activity data from Fleet Vehicle 11	Fabrikam Electric Truck 11	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 12	null	null	January activity data from Fleet Vehicle 12	Fabrikam Electric Truck 12	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 13	null	null	January activity data from Fleet Vehicle 13	Fabrikam Electric Truck 13	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 14	null	null	January activity data from Fleet Vehicle 14	Fabrikam Electric Truck 14	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 15	null	null	January activity data from Fleet Vehicle 15	Fabrikam Electric Truck 15	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 16	null	null	January activity data from Fleet Vehicle 16	Fabrikam Electric Truck 16	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 17	null	null	January activity data from Fleet Vehicle 17	Fabrikam Electric Truck 17	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 18	null	null	January activity data from Fleet Vehicle 18	Fabrikam Electric Truck 18	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 19	null	null	January activity data from Fleet Vehicle 19	Fabrikam Electric Truck 19	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 20	null	null	January activity data from Fleet Vehicle 20	Fabrikam Electric Truck 20	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 21	null	null	January activity data from Fleet Vehicle 21	Fabrikam Electric Truck 21	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 22	null	null	January activity data from Fleet Vehicle 22	Fabrikam Electric Truck 22	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 23	null	null	January activity data from Fleet Vehicle 23	Fabrikam Electric Truck 23	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 24	null	null	January activity data from Fleet Vehicle 24	Fabrikam Electric Truck 24	null	Wide World Importers	Wide World Importers - Miami Office	No
Fleet Vehicle 25	null	null	January activity data from Fleet Vehicle 25	Fabrikam Electric Truck 25	null	Wide World Importers	Wide World Importers - Tampa Office	No
Fleet Vehicle 26	null	null	January activity data from Fleet Vehicle 26	Fabrikam Electric Truck 26	null	Wide World Importers	Wide World Importers - Tampa Office	No

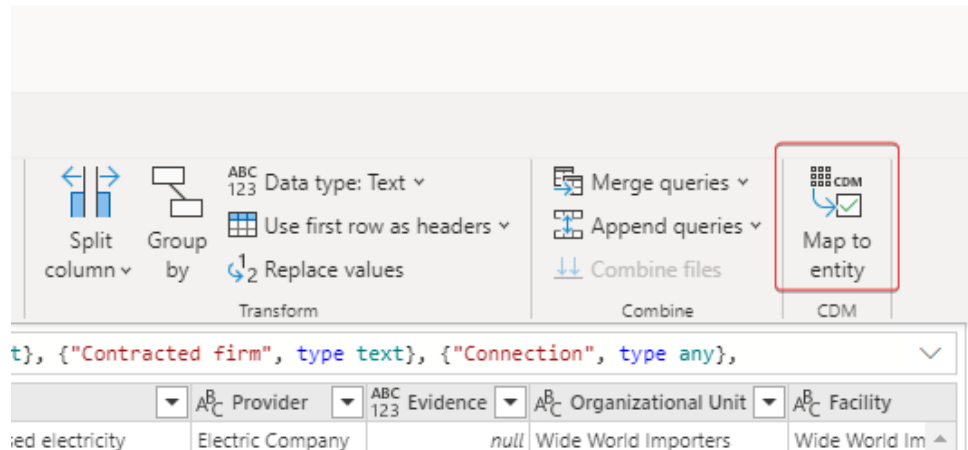
Back

Cancel

Transform data

On the "Transform data" page of the Power Query wizard, various data and column transformations can be performed. This will allow the adjusting of data types, column mappings updates, and even perform advanced transformations familiar with in Power Platform Dataflows or Power BI Datasets.

9. In this scenario, Reed will need to map the columns from the spreadsheet to the columns in Microsoft Sustainability Manager. To do this click on Map to entity in the upper right corner of the dialog window.



10. On the "Map to CDM entity" dialog window we need to:
 - 1) Select the table name, "**Purchased energy**"
 - 2) Select "**Auto map**" to allow any automatic mappings to occur
 - 3) Contractual Instrument Type was "Not mapped", hence Reed selects "**Contracted firm**" from the list of options in the "Query output column"
 - 4) Energy Provider name was "Not mapped", select "**Provider**" from the list of options in the "Query output column"
 - 5) When finished, click "**OK**"

Map to CDM entity

Map the columns from your query output to attributes of a standard Common Data Model (CDM) entity.

[Learn more](#)

2

Auto map

Clear all mappings

1

Purchased energy

Entity description

Electric energy, measured in MWh, delivered by the utility to a customer in accordance with the signed agreement.

Query output column	Entity attribute ↑	Mapping type
Consumption End Date	Consumption End Date	Auto mapped
Consumption Start Date	Consumption Start Date	Auto mapped
Contracted firm	Contractual Instrument Type	Mapped
Cost	Cost	Auto mapped
Cost unit	Cost unit	Auto mapped
Data Quality Type	Data Quality Type	Auto mapped
Description	Description	Auto mapped
Provider	Energy Provider Name	Mapped
Evidence	Evidence	Auto mapped
Facility	Facility	Auto mapped
Is Renewable	Is Renewable	Auto mapped
(none)	Meter number	Not mapped

5

OK

Cancel

11. The "Transform data" page should now look like this

Power Query

Home Transform Add column View Help

Get data Enter data Options

Manage parameters Parameters

Refresh Advanced editor Query Manage

Choose columns Remove columns Manage columns

Keep rows Remove rows rows

Sort column by Replace values Transform

Combine files Combine entity CDM

Queries [1]

Miles Driven

ABC

Contractual Instrument Type

ABC

Connection

ABC

Description

ABC

Energy Provider Name

ABC

Evidence

ABC

Organizational Unit

1 Fleet Vehicle 1 null null January activity data from Fleet Vehicle 1 Fabrikam Electric Truck 1 null Wide World Importers

2 Fleet Vehicle 2 null null January activity data from Fleet Vehicle 2 Fabrikam Electric Truck 2 null Wide World Importers

3 Fleet Vehicle 3 null null January activity data from Fleet Vehicle 3 Fabrikam Electric Truck 3 null Wide World Importers

4 Fleet Vehicle 4 null null January activity data from Fleet Vehicle 4 Fabrikam Electric Truck 4 null Wide World Importers

5 Fleet Vehicle 5 null null January activity data from Fleet Vehicle 5 Fabrikam Electric Truck 5 null Wide World Importers

6 Fleet Vehicle 6 null null January activity data from Fleet Vehicle 6 Fabrikam Electric Truck 6 null Wide World Importers

7 Fleet Vehicle 7 null null January activity data from Fleet Vehicle 7 Fabrikam Electric Truck 7 null Wide World Importers

8 Fleet Vehicle 8 null null January activity data from Fleet Vehicle 8 Fabrikam Electric Truck 8 null Wide World Importers

9 Fleet Vehicle 9 null null January activity data from Fleet Vehicle 9 Fabrikam Electric Truck 9 null Wide World Importers

10 Fleet Vehicle 10 null null January activity data from Fleet Vehicle 10 Fabrikam Electric Truck 10 null Wide World Importers

11 Fleet Vehicle 11 null null January activity data from Fleet Vehicle 11 Fabrikam Electric Truck 11 null Wide World Importers

12 Fleet Vehicle 12 null null January activity data from Fleet Vehicle 12 Fabrikam Electric Truck 12 null Wide World Importers

13 Fleet Vehicle 13 null null January activity data from Fleet Vehicle 13 Fabrikam Electric Truck 13 null Wide World Importers

14 Fleet Vehicle 14 null null January activity data from Fleet Vehicle 14 Fabrikam Electric Truck 14 null Wide World Importers

15 Fleet Vehicle 15 null null January activity data from Fleet Vehicle 15 Fabrikam Electric Truck 15 null Wide World Importers

16 Fleet Vehicle 16 null null January activity data from Fleet Vehicle 16 Fabrikam Electric Truck 16 null Wide World Importers

17 Fleet Vehicle 17 null null January activity data from Fleet Vehicle 17 Fabrikam Electric Truck 17 null Wide World Importers

18 Fleet Vehicle 18 null null January activity data from Fleet Vehicle 18 Fabrikam Electric Truck 18 null Wide World Importers

19 Fleet Vehicle 19 null null January activity data from Fleet Vehicle 19 Fabrikam Electric Truck 19 null Wide World Importers

20 Fleet Vehicle 20 null null January activity data from Fleet Vehicle 20 Fabrikam Electric Truck 20 null Wide World Importers

21 Fleet Vehicle 21 null null January activity data from Fleet Vehicle 21 Fabrikam Electric Truck 21 null Wide World Importers

22 Fleet Vehicle 22 null null January activity data from Fleet Vehicle 22 Fabrikam Electric Truck 22 null Wide World Importers

23 null null null null null null null

Query settings

Properties

Name Miles Driven

Entity type Purchased energy

Applied steps

Source

Navigation

Promoted h...

ABC 123 Changed co...

Mapped to ...

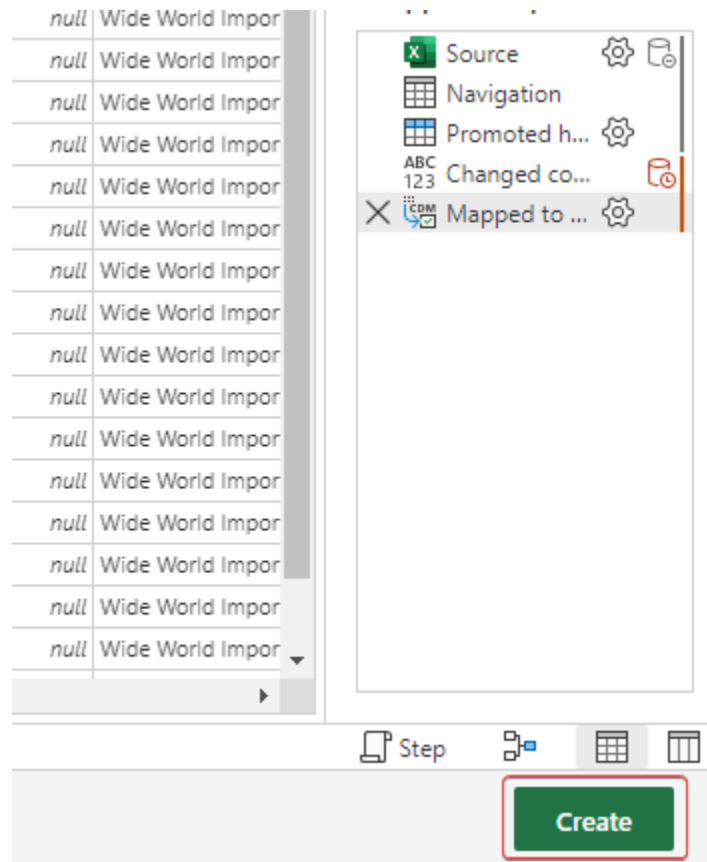
Completed (0.91 s) Columns: 19 Rows: 99+

Step Create

Note: Observe that the column names have changed to Contractual Instrument Type and Energy Provider Name.

27

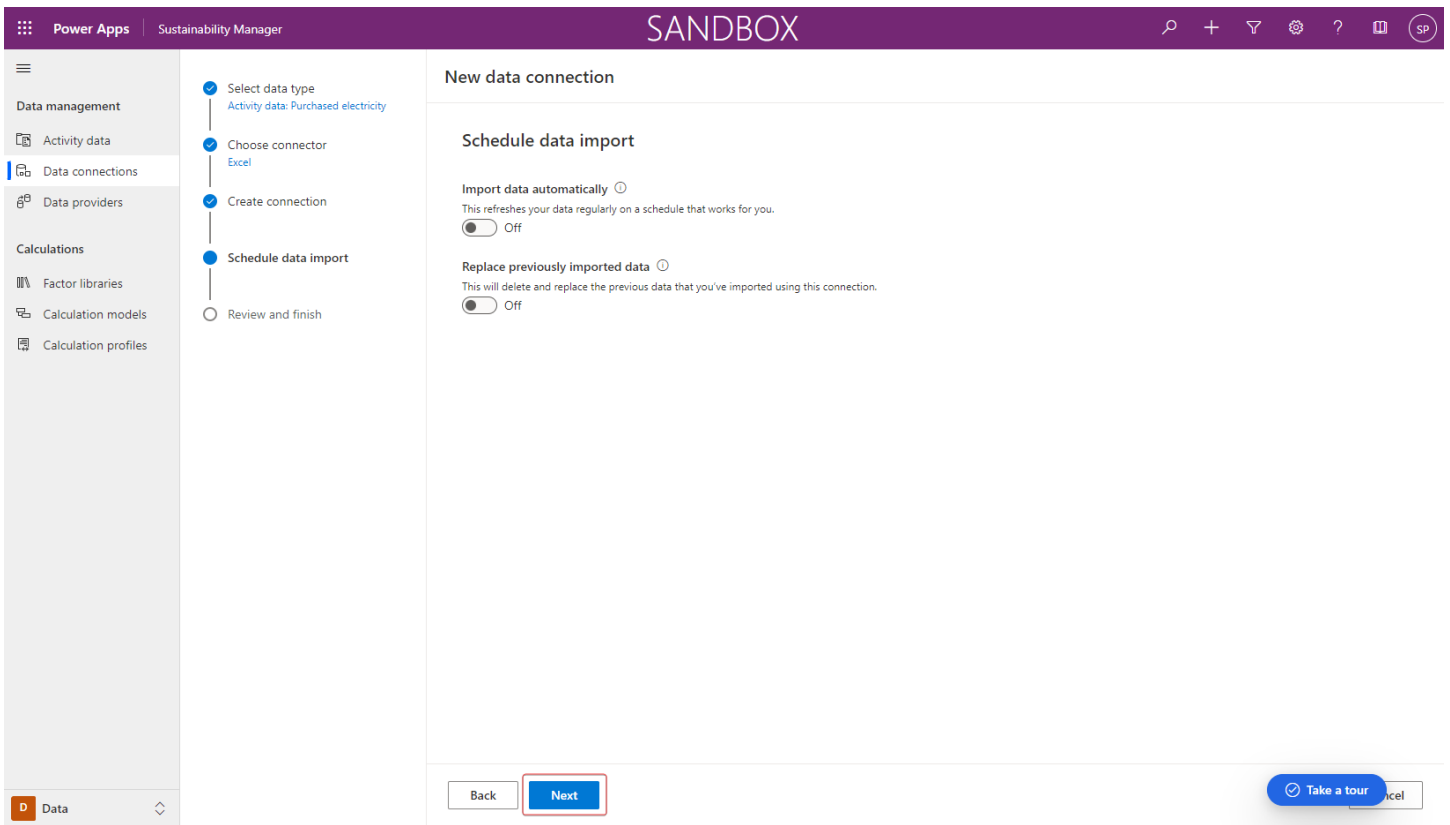
12. Click **Create** to start the data import process:



13. The “New data connection” wizard will now be on the Schedule data import page.

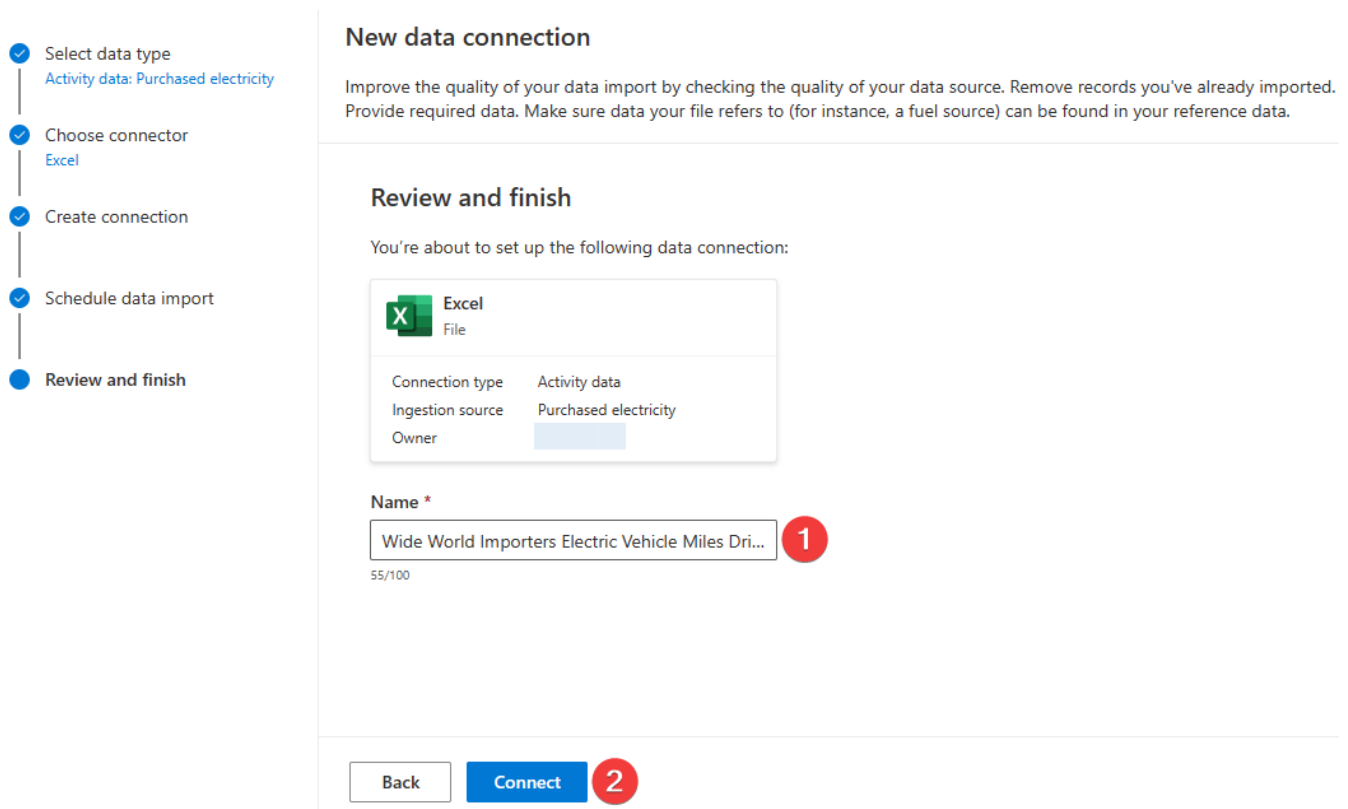
- Turning on “Import data automatically” will give the option to set a schedule to have the data imported automatically, this may be a good option if the connector will be used in a scenario where the data will change frequently such as a web API or FTP server.
- Turning on “Replace previously imported data” will remove all previously imported data and bring in the full data set that was retrieved, this may be a good option if the data source is not only providing data from the last import or always includes a full set of data. For this scenario of importing historical data, leave both options turned off.

Click **Next** when finished



14. On the "Review and finish" page:

- 1) Enter a name for the new connection, such as **"Wide World Importers Electric Vehicle Miles Driven 2022"**
- 2) Click **"Connect"**



15. At the bottom of the window, there will be a message, **"Creating connection..."**



16. Once the connection is created, click **"Done"**

The screenshot shows a multi-step wizard titled 'New data connection'. On the left, a vertical list of steps is shown with green checkmarks: 'Select data type' (with subtext 'Activity data: Purchased electricity'), 'Choose connector' (with subtext 'Excel'), 'Create connection', 'Schedule data import', and 'Review and finish' (which is the current step). The main area of the wizard has the heading 'New data connection' and a paragraph: 'Improve the quality of your data import by checking the quality of your data source. Remove records you've already imported. Provide required data. Make sure data your file refers to (for instance, a fuel source) can be found in your reference data.' Below this, a 'Good job!' message states 'You've set up the following data connection:'. A box displays the connection details: 'Excel File', 'Connection type: Activity data', 'Ingestion source: Purchased electricity', and 'Owner' (with a blue selection bar). Below this is a 'Name *' field containing the text 'Wide World Importers Electric Vehicle Miles Dri...' with a character count '55/100'. At the bottom, there are 'Back' and 'Done' buttons, with the 'Done' button highlighted by a red rectangle.

17. The **"Connections"** view will now be visible, along with the status of the recently created connection. It should say **"Processing"**

The screenshot shows the 'Connections' view in a software interface. At the top, there are filters and a search bar. Below the header, a table lists two data connections. The first connection, 'Wide World Importers - Elect...', has a status of 'Processing' (indicated by a blue dot and the word 'Processing' in a red-bordered box). The second connection, 'Wide World Importers - Purc...', has a status of 'Complete' (indicated by a green dot and the word 'Complete' in a green-bordered box).

Name	Connection type	Ingestion source	Owner	Last refresh	Next refresh	Inserted records	Status
Wide World Importers - Elect...	Activity data	Purchased electricity			—	—	Processing
Wide World Importers - Purc...	Activity data	Purchased electricity		8/11/2022 9:43 AM	—	24	Complete

18. After a minute or two click the **"Refresh"** button above the list to see the updated status, which should be **"Completed"**. Ensure you have the correct number of records as below and the status of the data connections are **Complete** before moving to next steps.

Note: In case if you have more duplicate records than below screenshot, due to an issue with the following the correct data import steps, you must delete the activity data and redo the process. Reach out to the lab instructor for support.

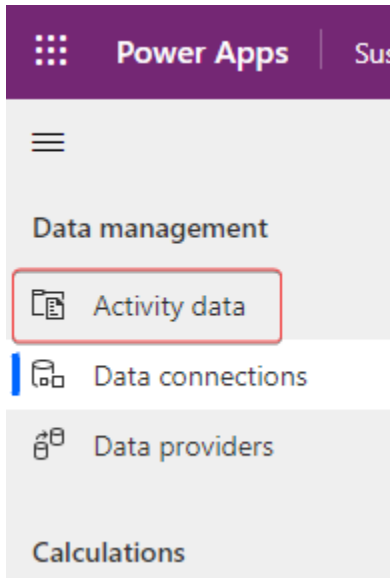
+ New Refresh

Connections [Clear all filters](#) [Filters](#) [List](#) ▼

Get a holistic, reliable look at your organization's emissions by using data connections to import activity and reference data. [Learn more about data connections](#)

Name	Connection type	Ingestion source	Owner	Last refresh	Next refresh	Inserted records	Status
Wide World Importers - Elect...	Activity data	Purchased electricity		9/7/2022 4:25 PM	—	480	● Complete
Wide World Importers - Purc...	Activity data	Purchased electricity		8/11/2022 9:43 AM	—	24	● Complete

19. Navigate to “**Activity data**” on the left side of the page.



20. Find Purchased electricity in the Scope 2: Indirect emissions section, and click **View**

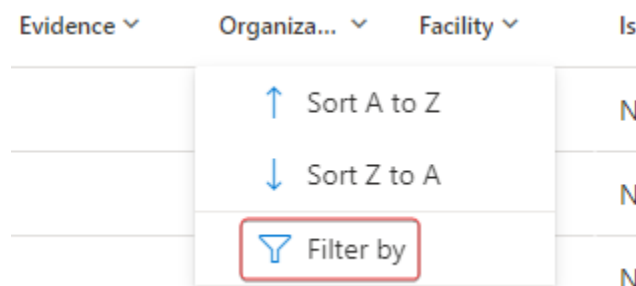
Scope 2: Indirect emissions				
Source	Data	Connections	Number of connections	
Purchased cooling	View	Manage	0	
Purchased electricity	View	Manage	2	
Purchased heat	View	Manage	0	
Purchased steam	View	Manage	0	

Scope 3: Value chain upstream				
---------------------------------	--	--	--	--

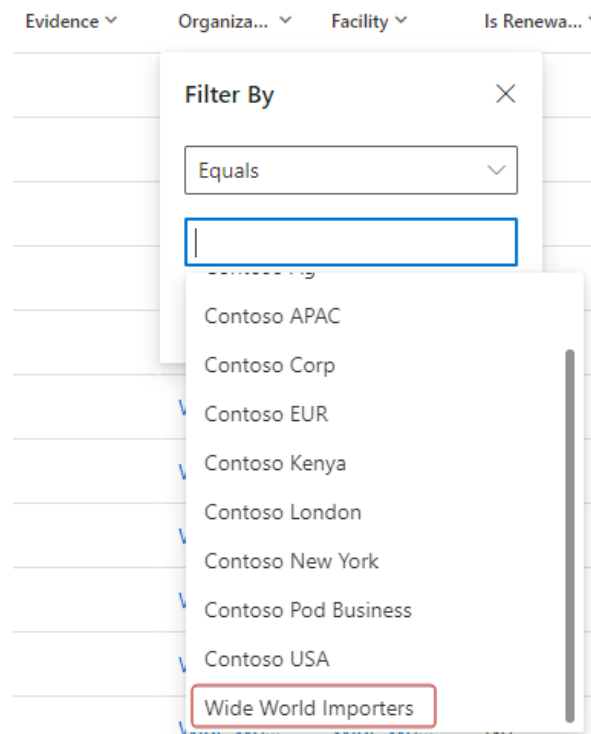
21. The Purchased electricity view shows all purchased electricity activity data that has been imported

Name	Contract...	Connection	Description	Energy Pr...	Evidence	Organizat...	Facility	Is Renewa...	Consump...	Consump...	Quantity	Quantity
Purchased Electri...	Utility Co...		Demo da...	Electric C...		Contoso ...	Contoso ...	No	3/31/2018	3/1/2018	1,081.305...	kWh
Purchased Electri...	Utility Co...		Demo da...	Electric C...		Contoso ...	Contoso ...	No	1/31/2021	1/1/2021	826.8475...	kWh
Purchased Renew...	Green Re...		Demo da...	Electric C...		Contoso ...	Contoso ...	Yes	8/31/2020	8/1/2020	864.6848...	kWh
Purchased Electri...	Utility Co...		Demo da...	Electric C...		Contoso ...	Contoso ...	No	8/31/2020	8/1/2020	865.9514...	kWh
Purchased Renew...	Green Re...		Demo da...	Electric C...		Contoso ...	Contoso ...	Yes	8/31/2019	8/1/2019	965.6590...	kWh
Purchased Electri...	Utility Co...		Demo da...	Electric C...		Contoso ...	Contoso ...	No	3/31/2020	3/1/2020	940.0272...	kWh
Purchased Electri...	Utility Co...		Demo da...	Electric C...		Contoso ...	Contoso ...	No	11/30/20...	11/1/2018	1,030.175...	kWh
Purchased Electri...	Utility Co...		Demo da...	Electric C...		Contoso ...	Contoso ...	No	11/30/20...	11/1/2020	990.9037...	kWh
Purchased Electri...	Utility Co...		Demo da...	Electric C...		Contoso ...	Contoso ...	No	7/31/2021	7/1/2021	963.7646...	kWh

22. Filter the view by clicking the down arrow next to the **Organizational Unit** column, and selecting **Filter** by



23. Select "**Wide World Importers**" from the Filter By dialog



24. Click **Apply** to apply the filter to the column

25. After a few moments, the view will refresh, and the activity data records that were imported during this lab will be displayed.

Purchased electricity* ▾

Edit columns Edit filters Filter by keyword

<input type="checkbox"/>	Name ▾	Contractu... ▾	Connection ▾	Description ▾	Energy Pr... ▾	Evidence ▾	Organi... ▾	Facility ▾	Is Renewa... ▾	Consump... ▾	Consump... ▾	Quantity ▾	Quantity ... ▾
	Fleet Vehicle 16		Wide Wo...	January a...	Fabrikam ...		Wide Wo...	Wide Wo...	No	1/31/2022	1/1/2022	7,838.371...	mile
	Fleet Vehicle 17		Wide Wo...	May activ...	Fabrikam ...		Wide Wo...	Wide Wo...	No	5/31/2022	5/1/2022	10,409.83...	mile
	Fleet Vehicle 2		Wide Wo...	August a...	Fabrikam ...		Wide Wo...	Wide Wo...	No	8/31/2022	8/1/2022	5,310.195...	mile
	Fleet Vehicle 19		Wide Wo...	January a...	Fabrikam ...		Wide Wo...	Wide Wo...	No	1/31/2022	1/1/2022	13,751.60...	mile
	Fleet Vehicle 23		Wide Wo...	August a...	Fabrikam ...		Wide Wo...	Wide Wo...	No	8/31/2022	8/1/2022	13,823.27...	mile
	Fleet Vehicle 22		Wide Wo...	June activ...	Fabrikam ...		Wide Wo...	Wide Wo...	No	6/30/2022	6/1/2022	7,243.797...	mile
	Fleet Vehicle 26		Wide Wo...	August a...	Fabrikam ...		Wide Wo...	Wide Wo...	No	8/31/2022	8/1/2022	8,445.492...	mile
	Fleet Vehicle 28		Wide Wo...	July activ...	Fabrikam ...		Wide Wo...	Wide Wo...	No	7/31/2022	7/1/2022	9,651.377...	mile
	Fleet Vehicle 29		Wide Wo...	Septemb...	Fabrikam ...		Wide Wo...	Wide Wo...	No	9/30/2022	9/1/2022	5,834.966...	mile
	Fleet Vehicle 37		Wide Wo...	July activ...	Fabrikam ...		Wide Wo...	Wide Wo...	No	7/31/2022	7/1/2022	12,732.01...	mile
	Fleet Vehicle 40		Wide Wo...	April acti...	Fabrikam ...		Wide Wo...	Wide Wo...	No	4/30/2022	4/1/2022	10,668.74...	mile
	PurchasedElectric...	Adatum ...	Wide Wo...	October ...	Electric C...		Wide Wo...	Wide Wo...	No	10/31/20...	10/1/2022	1,689.632...	kWh
	Fleet Vehicle 10		Wide Wo...	July activ...	Fabrikam ...		Wide Wo...	Wide Wo...	No	7/31/2022	7/1/2022	9,461.426...	mile
	Fleet Vehicle 13		Wide Wo...	Septemb...	Fabrikam ...		Wide Wo...	Wide Wo...	No	9/30/2022	9/1/2022	9,213.889...	mile
	Fleet Vehicle 13		Wide Wo...	Novembe...	Fabrikam ...		Wide Wo...	Wide Wo...	No	11/30/20...	11/1/2022	16,251.61...	mile
	Fleet Vehicle 12		Wide Wo...	June activ...	Fabrikam ...		Wide Wo...	Wide Wo...	No	6/30/2022	6/1/2022	18,201.88...	mile

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Congratulations! You have just completed the data import for 2022 Miles Driven for Wide World Importers. This is an important step to realizing the goal of recording, reporting, and reducing carbon emissions. In the following labs we will calculate emissions, review insights and reporting, and define our reduction scorecards and goals.