



Carbon Accounting Masterclass Workbook

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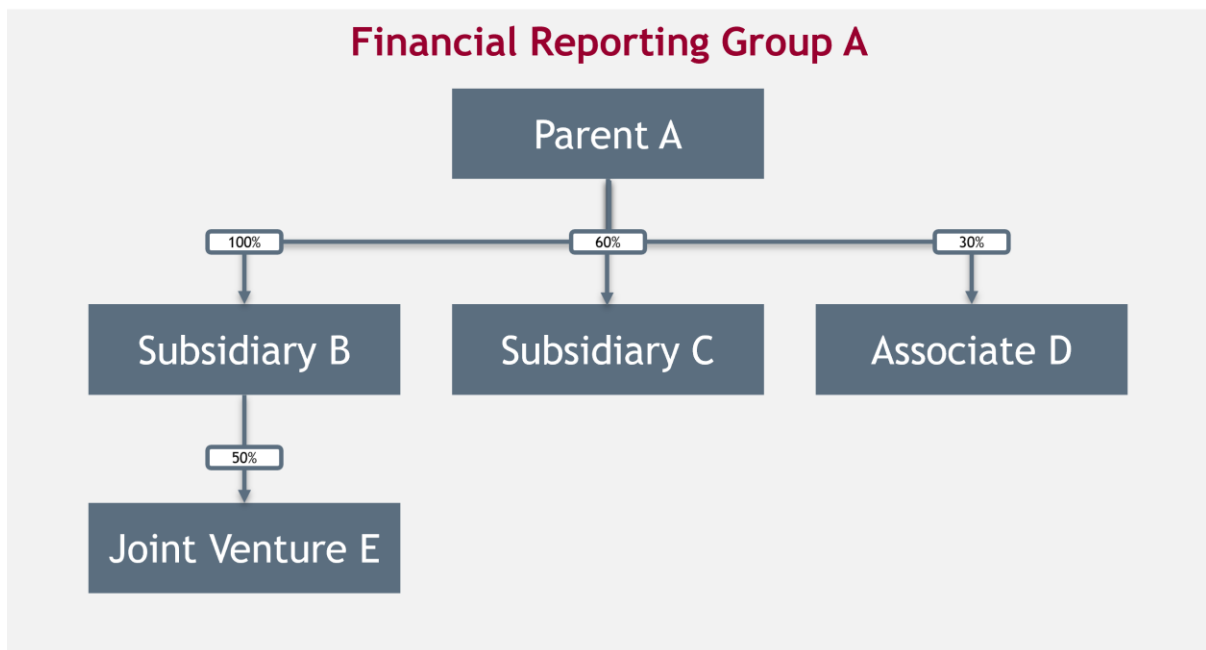
Part two - Boundary setting

Question 1 - Set the organisational boundary

This question illustrates how the approach used to set the organisational boundary can change the scope that emissions of a group belong to.

Background

Financial Reporting Group A is required to calculate its greenhouse gas emissions using the GHG Protocol. Its group structure for financial reporting purposes is as follows:



Assume that Parent A:

- Has **financial** and **operational** control over Subsidiary B
- Has **financial** and **operational** control over Subsidiary C
- Has **joint financial control** (i.e. does not have financial control) and **operational** control over Joint Venture E, and
- Has **operational** control but **does not** have **financial** control over Associate D.

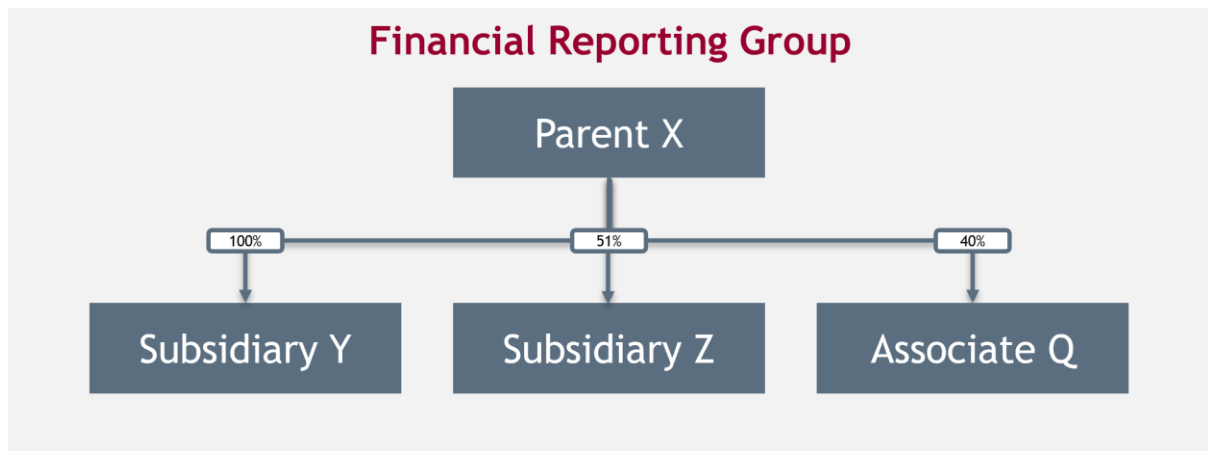
Question

How could Financial Reporting Group A determine their inventory boundary in order to calculate its greenhouse gas emissions?

Question 2 - Determine the organisational boundary

Background

- Financial Reporting Group (FRG) is required to calculate its greenhouse gas emissions using the GHG Protocol.
- It has chosen to apply the operational control approach to set its organisational boundary.
- Its group structure for financial reporting purposes is shown below.
- Assume that Parent X:
 - Has operational control over Subsidiary Y
 - Does not have operational control over Subsidiary Z
 - Has operational control over Associate Q.



Question

Determine how FRG should account for each entity within its group when it uses the operational control approach (select all that apply)

- 100% of the Scope 1, Scope 2 and Scope 3 emissions of Parent X should be included
- 100% of the Scope 1, Scope 2 and Scope 3 emissions of Subsidiary Y should be included
- 100% of the Scope 1, Scope 2 and Scope 3 emissions of Subsidiary Z should be included
- 100% of the Scope 1, Scope 2 and Scope 3 emissions of Associate Q should be included
- 51% of the of the Scope 1, Scope 2 and Scope 3 emissions of Subsidiary Z should be included
- 40% of the Scope 1, Scope 2 and Scope 3 emissions of Associate Q should be included
- Include the emissions from Associate Q within Scope 3 Category 15 (calculated as 40% of Associate Q's Scope 1, Scope 2 and Scope 3 emissions)
- Include the emissions from Subsidiary Z within Scope 3 Category 15 (calculated as 51% of Subsidiary Z's Scope 1, Scope 2 and Scope 3 emissions)

Part four - Measurement of Scope 3 emissions

Question 3 - Category 1: Purchased goods and services

Background

Manufacturer A manufactures and sells lawnmowers.

Question

Which of the following emissions would it include within Scope 3 Category 1 purchased goods and services (select all that apply)?

- Emissions from the production of the motors used in each lawn mower that were purchased from third parties
- Emissions from the transport of the lawn mower motors from the third-party supplier to Manufacturer A's manufacturing facility
- Emissions from the shipping of the lawnmowers to customers - shipping cost paid for by Manufacture A's customers
- Emissions from the production of bolts used in each of the lawnmowers that were purchased from third parties
- Emissions from the production of consumables used in the manufacturing facility
- Emissions from the manufacturing of desks that were purchased to use in Manufacturer A's head office
- Emissions from the electricity used in Manufacturer A's manufacturing facility
- Emissions from the production of tea and coffee that was purchased for Manufacturer A's employees to drink

Question 4 - Category 1: Purchased goods and services

Background

Accounting Firm B is in the process of identifying its Scope 3 Category 1 emissions.

Question

Which of the following emissions should be categorised as part of Category 1 (select all that apply)?

- Emissions incurred by staff when they commute to the office
- Emissions from staff flying to attend training in another jurisdiction
- Emissions associated with the storage of client data in the cloud
- Emissions associated with the coffee that staff drink that they purchased from a cafe on the way into the office
- Emissions from the computers used by staff in the office purchased two years ago
- Emissions associated with staff subscriptions to online tax resources

Question 5 - Category 2: Capital goods

Background

Supermarket A is in the process of calculating its Scope 3 GHG emissions.

Question

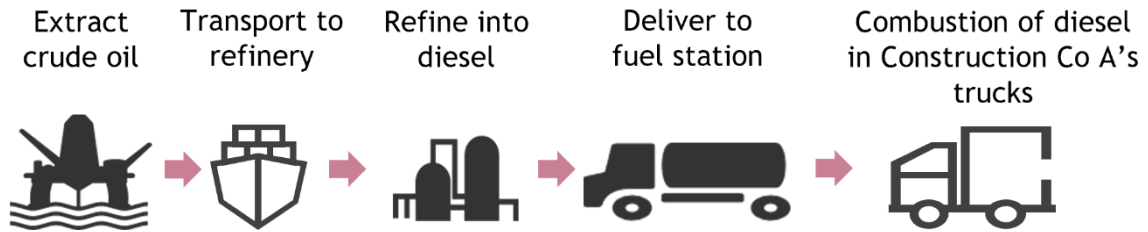
Which of the following emissions would it include within Scope 3 Category 2 Capital Goods (select all that apply)?

- Emissions to grow and manufacture the food that it purchased during the year from third-party suppliers
- Emissions from the transport of food by third-party shipping companies from third-party suppliers to Supermarket A's warehouse
- Emissions from the shipping food from Supermarket A's warehouses to supermarkets in its own trucks
- Emissions from the construction of three new supermarkets during the reporting period
- Emissions from the manufacturing of refrigerators that Supermarket A purchased during the reporting period from third-party suppliers
- Emissions from using the refrigerators during the reporting period
- Emissions from the manufacturing of delivery trucks purchased during the reporting period
- Emissions from delivering food to customers in the delivery trucks that it purchased during the year

Question 6 - Category 3a: Fuel- and energy-related activities

Background

Construction Co A (CCA) purchases diesel to run the trucks it uses to assist with the construction of buildings for third-party customers. The upstream value chain for the purchased diesel is as follows:



Question

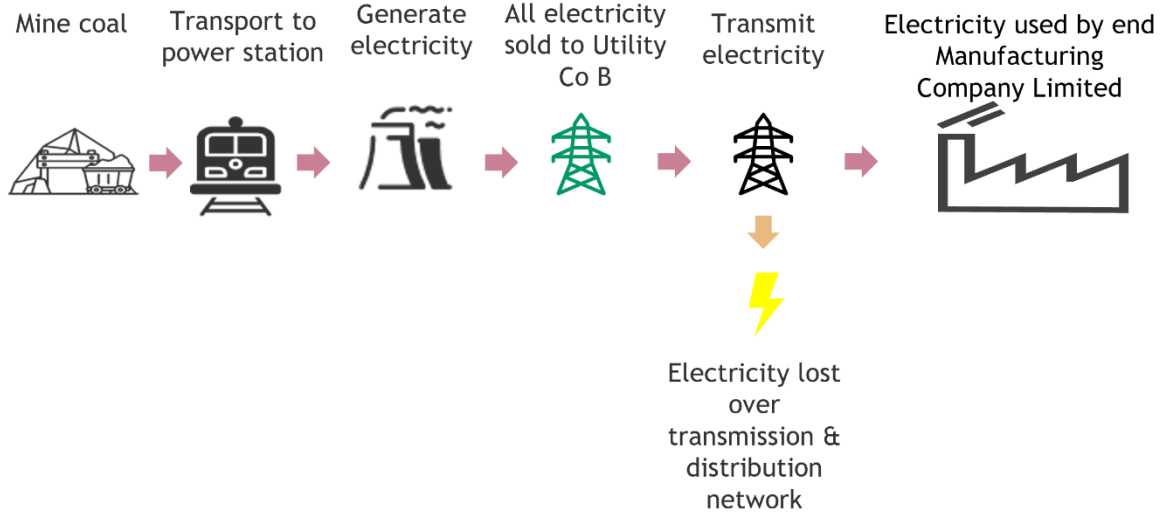
For each of the emissions associated with the fuel that CCA used in its trucks, decide which category the emissions should be included in?

	Emissions are Scope 1 Direct GHG Emissions	Emissions are Scope 3 Category 3 a Upstream emissions of purchased fuels
CCA's share of emissions from extracting the crude oil	<input type="checkbox"/>	<input type="checkbox"/>
Combustion of diesel in CCA's own trucks	<input type="checkbox"/>	<input type="checkbox"/>
CCA's share of emissions from transporting the crude oil to the refinery	<input type="checkbox"/>	<input type="checkbox"/>
CCA's share of emissions from refining the crude oil into diesel	<input type="checkbox"/>	<input type="checkbox"/>
CCA's share of the emissions for transporting diesel to fuel station	<input type="checkbox"/>	<input type="checkbox"/>

Question 7 - Category 3b & 3c: Fuel- and energy-related activities

Background

Manufacturing Company Limited (MCL) purchases electricity from Utility Company B in Jurisdiction D. Electricity in Jurisdiction D is generated at coal-fired power plants by Jurisdiction D's government. However, the grid operator sells the electricity to utility companies to sell to the end users. The upstream value chain for the purchased electricity is as follows:



Question

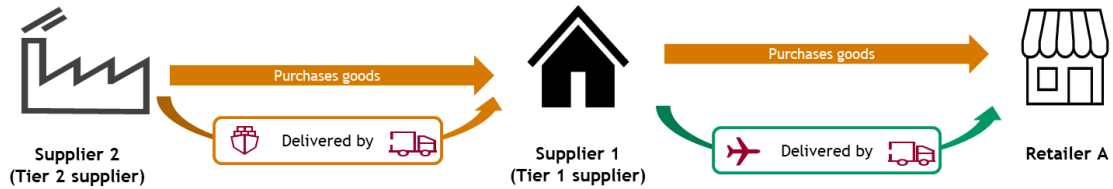
For each of the emissions associated with the electricity that MCL used in its operations, decide which category the emissions should be included in?

	Emissions are Scope 1 Direct GHG Emissions	Emissions are Scope 2 Purchased Electricity	Emissions are Scope 3 Category 3b Upstream emissions of purchased electricity	Emissions are Scope 3 Category 3c T&D losses
MCL's share of emissions from coal mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MCL's share of emissions from the generation of electricity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MCL's share of emissions from coal mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MCL's share of electricity lost during transmission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 8 - Category 4: Upstream transportation and distribution

Background

Retailer A purchases goods from Supplier 1, and Supplier 1 purchases the goods from Supplier 2. Supplier 1 organises and pays for the delivery of the goods to Retailer A. The goods are shipped via both air and road transport using third-party couriers.



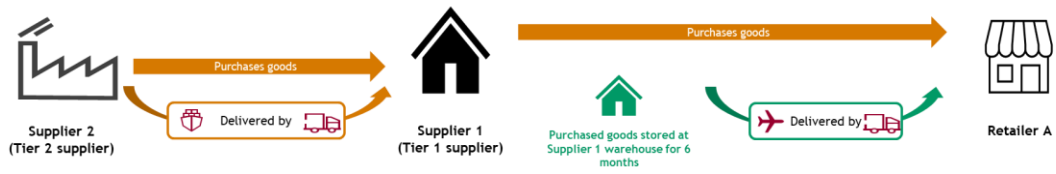
Question

What emissions should Retailer A include as part of Scope 3 Category 4?

Question 9 - Category 4: Upstream transportation and distribution

Background

Continuing from Example 8 above, assume that Supplier 1 agrees to store the goods it sold to Retailer A in its own warehouse for a period of six months prior to delivery.



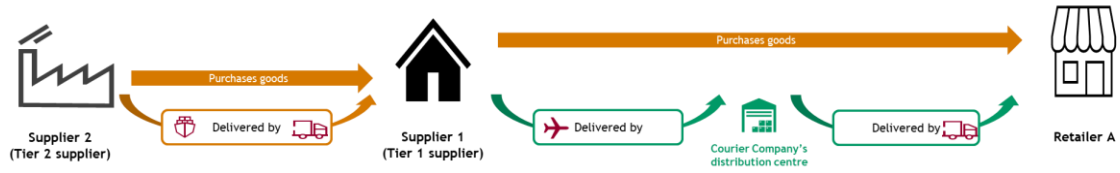
Question

What emissions should Retailer A include as part of Scope 3 Category 4?

Question 10 - Category 4: Upstream transportation and distribution

Background

Continuing from question 8 above, assume that when the goods were shipped to Retailer A they were processed through the courier company's airport distribution centre.



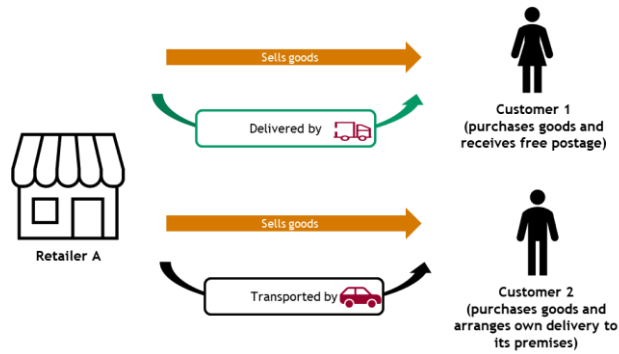
Question

What emissions should Retailer A include as part of Scope 3 Category 4?

Question 11 - Category 4 and Category 9: Upstream and downstream transportation and distribution

Background

- Retailer A sold goods to Customer 1 and also arranged to post the goods and bear the cost of shipping. Retailer A uses a third-party courier company to post the goods to Customer A
- Retailer A sold goods to Customer 2, however, it did not bear the cost of shipping because Customer 2 arranged their own delivery.



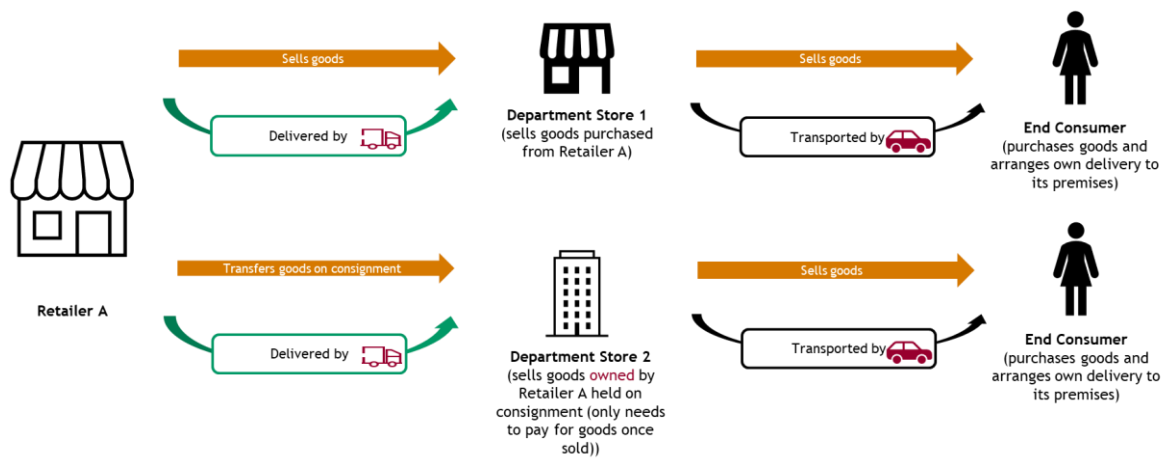
Question

What emissions should Retailer A include as part of Scope 3 Category 4 and Scope 3 Category 9?

Question 12 - Category 4 and Category 9: Upstream and downstream transportation and distribution

Background

- Retailer A sold goods to Department Store 1 and also paid for delivery by a third party courier. Department Store 1 then sold the goods to the End Consumer (who transported the goods home in their vehicle).
- Retailer A transferred goods on consignment (i.e. Retailer A retains ownership of the goods) to Department Store 2. The goods were transferred from its warehouse to Department Store 2 using a third-party courier company. Department Store 2 then sells the goods to the End Consumer (who transported the goods home in their vehicle) on behalf of Retailer A. Department Store 2 is required to pay Retailer A for the goods once sold to End Consumer, and Retailer A pays Department Store 2 for shelf space.



Question

What emissions should Retailer A include as part of Scope 3 Category 4 and Scope 3 Category 9?

Question 13 - Category 5: Waste generated in operations

Background

Entity A is a professional services firm. It generates solid waste during the year that is sent to landfill via third parties.



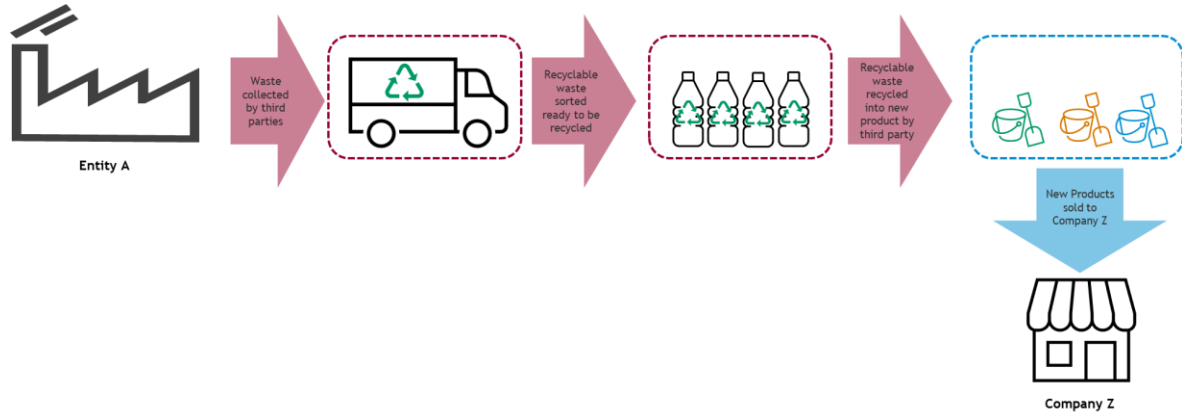
Question

What emissions should Entity A include as part of Scope 3 Category 5?

Question 14 - Category 5: Waste generated in operations

Background

Entity A is a professional services firm. It generates recyclable waste during the year that is collected by a third party and transported to a recycling facility. The recyclable waste is sorted and recycled into new products. Company Z purchased goods manufactured from the recycled waste disposed of by Entity A.



Question

What emissions should Entity A include as part of Scope 3 Category 5?

Question 15 - Category 6: Business travel

Background

Entity A takes its finance team to a three-day conference. On the first day of the conference, the finance team met at the office before leaving for the airport as a group.

Question

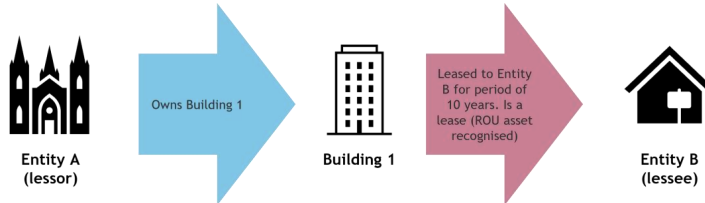
Which of the following emissions would it include within Scope 3 Category 6 (select all that apply)?

- Emissions associated with the finance team employees travelling to the office on the first day of the conference
- Emissions associated with the taxi used to transport the finance team from the office to the airport
- Emissions for the plane used to transport the finance team to and from the conference
- Emissions for the taxi used to transport the finance team from the airport to the hotel where the conference is held
- Emissions for the hotel stay for the finance team
- Emissions for two finance team members who stayed in the hotel for an additional three nights (at own expense) to go sightseeing
- Emissions from the food consumed by the finance team during the conference

Question 16 - Category 8: Upstream led assets

Background

- Entity B leases Building 1 from Entity A for 10 years. On the commencement date of the lease, Building 1 was 5 years old and was expected to have a useful life of 50 years.



- Entity B accounts for the lease in accordance with IFRS 16. On initial recognition of the lease, it recognises a right-of-use asset and a corresponding lease liability.
- Entity B is directly responsible for paying the electricity provider for all electricity used within the building. Entity B does not directly combust any fuel during the period of use of the building.
- When Building 1 was constructed, an air conditioning system was installed. Fugitive emissions are released from the air conditioning system.
- Entity B uses the operational control approach to determine its organisational boundary for GHG emissions.

Question

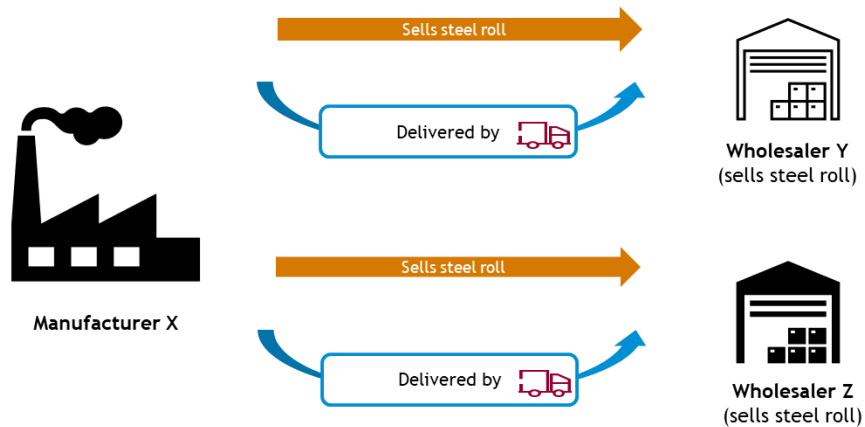
What emissions should Entity B (the lessee) include as part of Scope 3 Category 8?

Question 17 - Category 9: Transportation and distribution of sold products

Background

Manufacturer X manufactures rolls of steel. Manufacturer X sells its steel to Wholesaler Y and Wholesaler Z, who each have a large range of customers that use the steel rolls to produce a wide variety of products. Manufacturer X is uncertain about who the end users of the steel are or how the end users will use the steel.

Wholesaler Y and Wholesaler Z pay third-party companies to transport the goods from Manufacturer X's warehouse and its own premises.



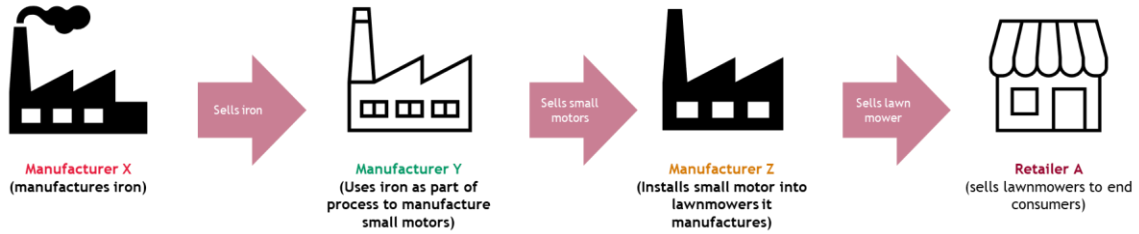
Question

What emissions should Manufacturer X include as part of Scope 3 Category 9?

Question 18 - Category 10: Processing of sold products

Background

Manufacturer X manufactures iron. The iron is sold to Manufacturer Y who uses it to manufacture small motors. The small motors are then sold to Manufacturer Z, a lawn mower manufacturer, who then installs them into lawnmowers. Retailer A purchases the final lawnmower from Manufacturer Z to sell to the end customer.



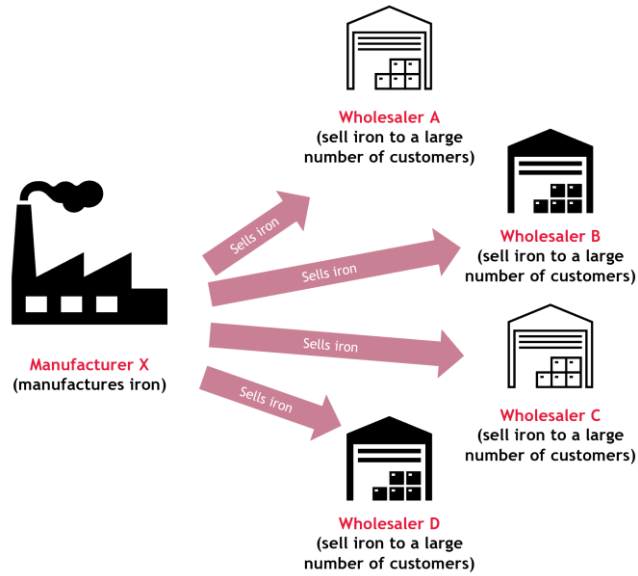
Question

What emissions should Manufacturer X include as part of Scope 3 Category 10?

Question 19 - Category 10: Processing of sold products

Background

Manufacturer X manufactures iron. The iron is sold to Wholesaler A, Wholesaler B, Wholesaler C and Wholesaler D. Each of the wholesalers sells the iron to hundreds of different customers and it is not known what final product the iron is used in by any of the end customers



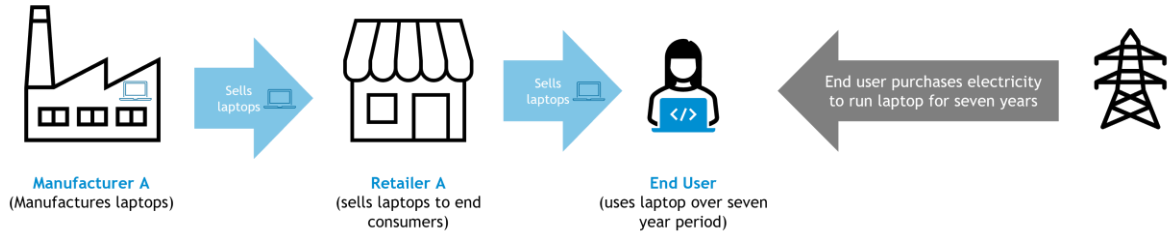
Question

What emissions should Manufacturer X include as part of Scope 3 Category 10?

Question 20 - Category 11: Use of sold products

Background

Manufacturer A sells laptops to Retailer A, who sells the laptops to the end user. The laptops have an expected useful life of seven years at the point of sale.



Question

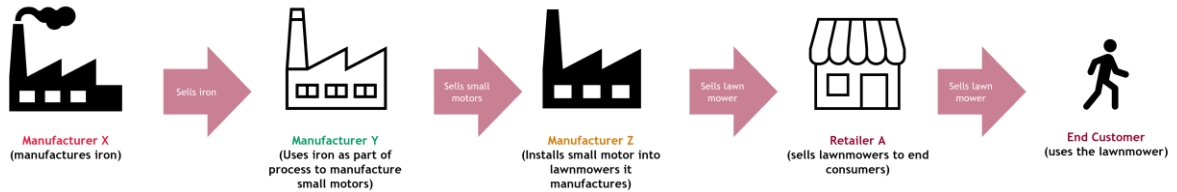
What emissions should Manufacturer A include in Category 11 for the use of sold products?

Question 21 - Category 11: Use of sold products

Background

Assume that the facts in this example are the same as Question 18 above.

Manufacturer X manufactures iron. The iron is sold to Manufacturer Y who uses it to manufacture small motors. The small motors are then sold to Manufacturer Z, a lawn mower manufacturer, who then installs them into lawnmowers. Retailer A purchases the final lawn mower from Manufacturer Z to sell to End Customer.



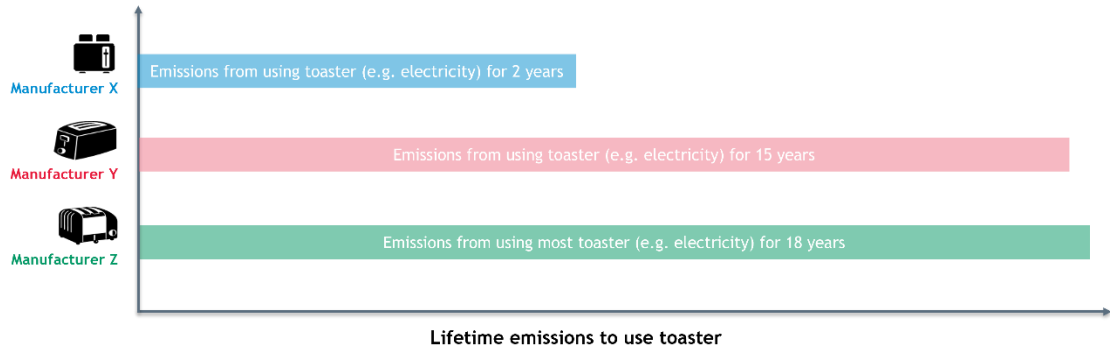
Question

What emissions should Manufacturer X, Manufacturer Y, Manufacturer Z and Retailer A include in Category 11 for the use of sold products?

Question 22 - Category 11: Use of sold products

Background

Manufacturer X sells toasters that have an expected life of 2 years, Manufacturer Y sells toasters with an expected useful life of 15 years and Manufacturer Z sells toasters with a useful life of 18 years. Manufacturer Z's toasters are more efficient than Manufacturer X and Y.



Question

What emissions should Manufacturer X, Manufacturer Y and Manufacturer Z include as part of Scope 3 Category 11?

Question 23 - Category 12: End-of-life treatment of sold products

Background

Drink Co. manufactures and sells soft drinks in bottles that can be recycled.



Question

What emissions should Drink Co. include in Category 12 for the end-of-life treatment of its sold products?

Question 24 - Category 13: Downstream leased assets

Background

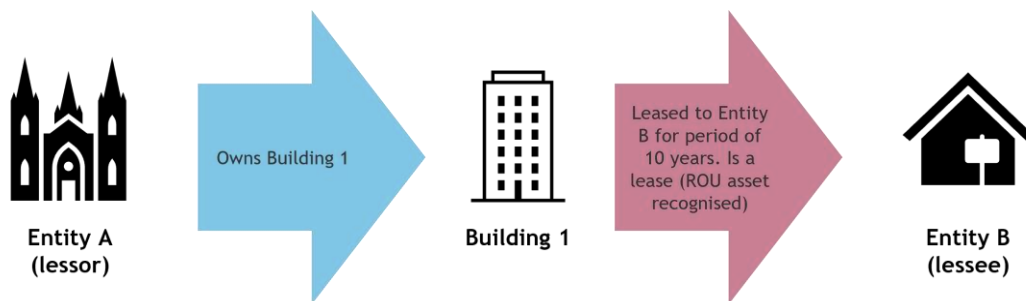
Entity B leases Building 1 from Entity A for 10 years. On the commencement date of the lease, Building 1 was 5 years old and is expected to have a useful life of 50 years.

Entity A accounts for the building as an investment property in accordance with IAS 40 Investment Property and it accounts for the lease of Building 1 to Entity B as an operating lease in accordance with IFRS 16 Leases.

Entity B is directly responsible for paying the electricity provider for all electricity used within the building. Entity B does not directly combust any fuel during the period of use of the building.

When Building 1 was constructed, an air conditioning system was installed. Fugitive emissions are released from the air conditioning system.

Entity A uses the operational control approach to determine its organisational boundary for GHG emissions.



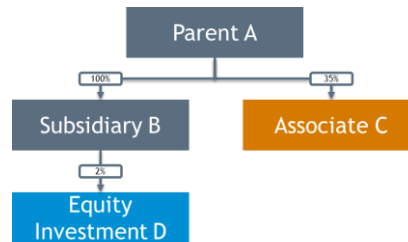
Question

What emissions should Entity A (the lessor) include as part of Scope 3 Category 13?

Question 25 - Category 15: Investments

Background

Financial Reporting Group A (FRGA) is in the process of determining its greenhouse gas emissions.



FRGA determines that it has:

- **Financial** and **operational** control over Subsidiary B
- Neither **financial** or **operational** control over Associate C
- Neither **financial** or **operational** control over Equity Investment D.

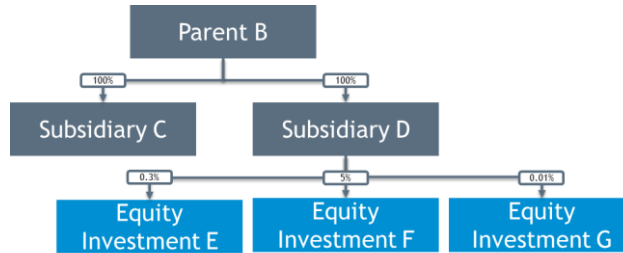
Question

How would FRGA's emissions profile differ if it used the equity share approach, financial control approach or operational control approach to determine its organisational boundary, (i.e. what emissions would it include in Scope 1 & 2 or Scope 3 Category 15)?

Question 26 - Category 15: Investments

Background

Financial Reporting Group B (FRGB) has the following group structure:



FRGB uses the operational control approach when setting its organisational boundary. It determines that it has operational control over Subsidiary C and Subsidiary D, but it does not have operational control over Equity Investment E, Equity Investment F or Equity Investment G.

Equity Investment E operates in the oil and gas industry and is considered to be a significant emitter of greenhouse gases.

Equity Investment F and Equity Investment G do not operate in industries that are considered to significantly contribute to greenhouse gas emissions.

FRGB has a policy to exclude emissions from equity investments where it owns less than 1% of the equity in the entity AND the investment is not considered to be in an industry that is a significant emitter because the emissions will not be considered material.

Question

What emissions would FRGB recognise for its investments in its emissions inventory?

Here to help

Questions on the GHG Protocol, IFRS Sustainability Disclosure Standards or ESRs should be directed to Global IFRS & Corporate Reporting via the following [Sustainability Technical Questions](#) link.

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