

Exercise OIL.1 (questionnaire)

Open exercise sheet "OIL.1_user.xls". This is a blank annual oil questionnaire.

1) Supply of primary oil products

a) Fill in Table 1 of the oil questionnaire with the data below:

In 2012, your country:

- Produced 16,410,400 barrels of crude oil
- Imported a total of 522,315,000 litres of crude oil

- The opening stock level for crude oil was 1,227 kt.
- The closing stock level for crude oil was 1,260 kt.

TIPS

Data should be converted to kilo tonnes. Use default density of 7.3 bbl/tonnes for crude oil. 1bbl = 159 litres.

Report the stocks levels and calculate and report the stock change.

b) What is the calculated refinery intake?

c) The refineries declare a refinery intake of 2,670 kt for 2012.
Report the observed refinery intake in the appropriate cell.

d) The line "statistical difference" shows the difference between the refinery intake as calculated by the statistician and the refinery intake declared by the refineries.
What could explain the mismatch between the refinery intake calculated by the statistician and the refinery intake declared by the refineries?

e) **Should you worry about this statistical difference? Why or why not?**
 (Hint: Use a formula to compare the statistical difference to the observed refinery intake)

2) Supply of secondary oil products

a) **Fill in Table 2a of the oil questionnaire with the data below.**

In 2012, your country's refineries:

- Produced 576 kt of regular motor gasoline (exclusive of any bio component)
- Produced 633 kt of low sulphur fuel oil
- Produced 356 kt of naphtha
- Produced 199 kt of LPG.
- Produced 391 kt of non-bio jet kerosene
- Produced 5kt of refinery gas, all of which they consumed as refinery fuel for heat production

TIPS

Output from refineries should be reported in the line "refinery gross output".

The line primary products receipts is mainly used in cases where primary oil products are consumed directly, without being transformed in refineries. In this case, the quantities should be reported as direct use in Table 1 and in Table 2a as primary product receipts.

b) **In 2012, what was the total refinery output of oil products in kt?**

c) **Calculate the refinery losses, using the refinery intake observed in Table 1.**

d) **Are the losses reasonable?**

(Hint: Use a formula to compare the refinery losses to the observed refinery intake)

3) Consumption

a) Fill in Table 3a and Table 3b of the oil questionnaire with the data below.

CONSUMPTION DATA

- No biogasoline was consumed in the country. All the motorgasoline was consumed by cars (520 kt) and public buses (56 kt)
- All the fuel oil was used for heating: 401 kt in households, 232kt in schools.
- The construction industry used 199 kt of LPG as fuel
- The petrochemical plants used 356 kt of naphtha as a feedstock to produce plastics

TIPS

In the Oil Questionnaire, non-energy use is reported in a separate table, Table 3b. The quantities of oil that are not used for heating and burning purposes are deducted when calculating CO2 emissions.

b) What was the total consumption of oil products of this country in 2012 in kilo tonnes, excluding refinery use?

(Hint: Go to Table 3 which includes both energy and non-energy use)

c) In Table 2a, you calculated the total supply of oil products available for consumption after refinery use in the domestic market “Gross inland deliveries (calculated)”. Compare it to the consumption reported above. Is there a statistical difference between the two figures?

4) Bonus questions

If you do not have much time left, go directly to the next exercise.

a) The refineries exported only 389kt of their jet kerosene production. The rest of the jet kerosene production got spoiled with water and could only be exported as other kerosene. Fill in Table 2a accordingly. (Hint: Look for the definition of interproduct transfers)

- b) In some countries, a part of the diesel or motor gasoline consumed is of renewable origin. In 2012, your country's refineries produced a total of 524 kt of B5, a type of diesel that includes 5% of palm oil. All this B5 was consumed in cars.

Report:

- B5 output in Table 2a
- B5 consumption in Table 3a
- the palm oil additive supply in Table 1

- c) You probably noticed we have ignored Table 2b. This table clarifies the complex flows observed in the petrochemical sector.

Fill it with the information you have already got on petrochemical plants: in 2012, they consumed 356kt of naphtha as a feedstock to produce plastic.

Save your sheet **without** running the checks. Go to exercise OIL.2.

Exercise OIL.2 (questionnaire)

Open "OIL.2_user.xls".

1. Go to the Menu tab and run the checks for 2012.
2. What errors do the checks help you detect?

3. Try to solve the errors. Run the checks for 2012 until you find no errors.

a. Hint 1: Trade

Imports should also be reported in Table 4 by country of first origin. Your country imported all of your crude imports from Singapore. Singapore imported all of this crude from Saudi Arabia. Report the imports by country in Table 4.

Exports should also be reported in Table 5 by country of final destination. Your country exported 389kt of jet kerosene and 2kt of other kerosene to the United Kingdom. Report the exports in Table 5.

b. Hint 2: Stock changes

2012 Opening stocks = 2011 Closing stocks

Hint: To input data for the previous year, go to Menu and choose "2011" in the drop down menu, then click on the table where you wish to input data.