Please check the examination details below before entering your candidate information

| Candidate surname | Other names |
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| StemUp Model Solution | |

Centre Number | Candidate Number

# Pearson Edexcel International Advanced Level

## Wednesday 11 October 2023

Afternoon (Time: 1 hour 45 minutes)

Paper reference **WEC11/01**

# Economics

## International Advanced Subsidiary
## UNIT 1: Markets in Action

**You must have:**
Source Booklet (enclosed)

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **ALL** questions in Sections A, B and C.
- Answer **ONE** question in Section D.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

### Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Calculators may be used.

### Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

*Turn over* ▶

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## SECTION A

**Answer ALL questions in this section.**

**Questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.**

**1** Which **one** of the following is an example of government failure?

- ☒ **A** Market forces eliminating excess supply of a product by enabling its price to fall
- ☒ **B** A market bubble emerging in the value of shares on the stock exchange
- ☒ **C** The introduction of a tax that causes a decrease in external costs
- ☒ **D** The introduction of a tax that causes an increase in smuggling

**(Total for Question 1 = 1 mark)**

**2** The table shows the maximum production possibilities for a country in 2021 and 2022.

| Year | Consumer goods | | Capital goods |
|---|---|---|---|
| 2021 | 220 | **OR** | 105 |
| 2022 | 195 | **OR** | 96 |

Which **one** of the following might have caused this change in the country's production possibilities?

- ☒ **A** A natural disaster
- ☒ **B** A rise in the rate of unemployment
- ☒ **C** An improvement in technology
- ☒ **D** An increase in the number of immigrants

**(Total for Question 2 = 1 mark)**

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**3** The table shows the estimated price elasticity of demand for different car types in Norway.

| Car type | Price elasticity of demand |
|---|---|
| Diesel | –0.99 |
| Petrol | –1.08 |
| Electric | –1.27 |

Which **one** of the following can be deduced from the table?

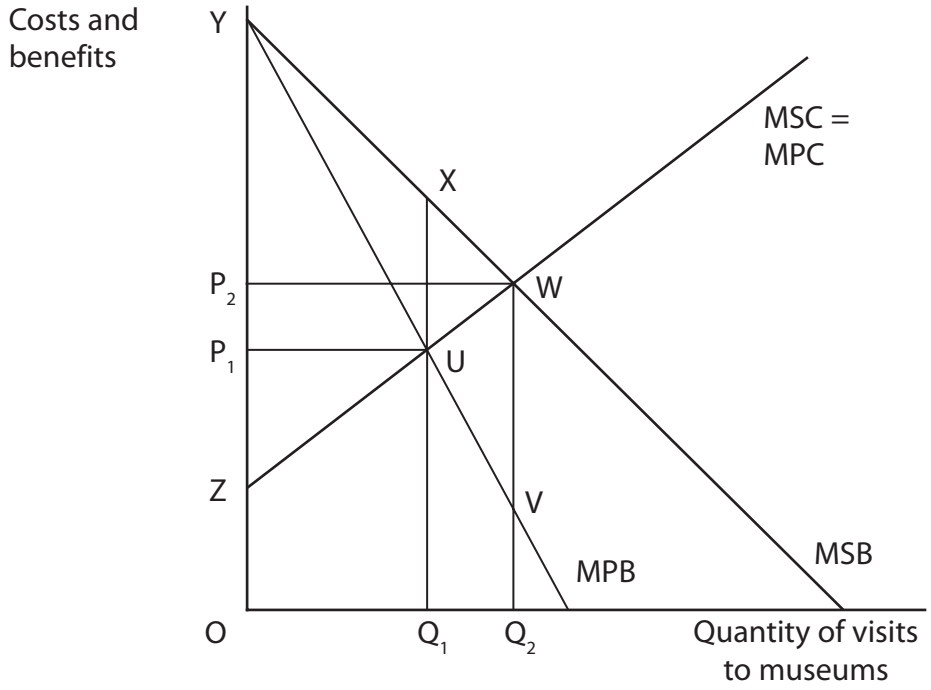
- ☒ **A** Demand for all three car types is price inelastic
- ☒ **B** Demand for all three car types is price elastic
- ☒ **C** An increase in the price of diesel cars will result in an increase in the total revenue for diesel car manufacturers
- ☒ **D** An increase in the price of electric cars will result in an increase in the total revenue for electric car manufacturers

**(Total for Question 3 = 1 mark)**

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**4** The diagram shows the market for museum visits in Spain.




Which **one** of the following can be deduced from this diagram?

- ☒ **A** The market equilibrium quantity is at $Q_2$
- ☒ **B** The social optimum quantity is at $Q_1$
- ☒ **C** The welfare gain area would be equal to UVW
- ☒ **D** The welfare gain area would be equal to UWX

**(Total for Question 4 = 1 mark)**

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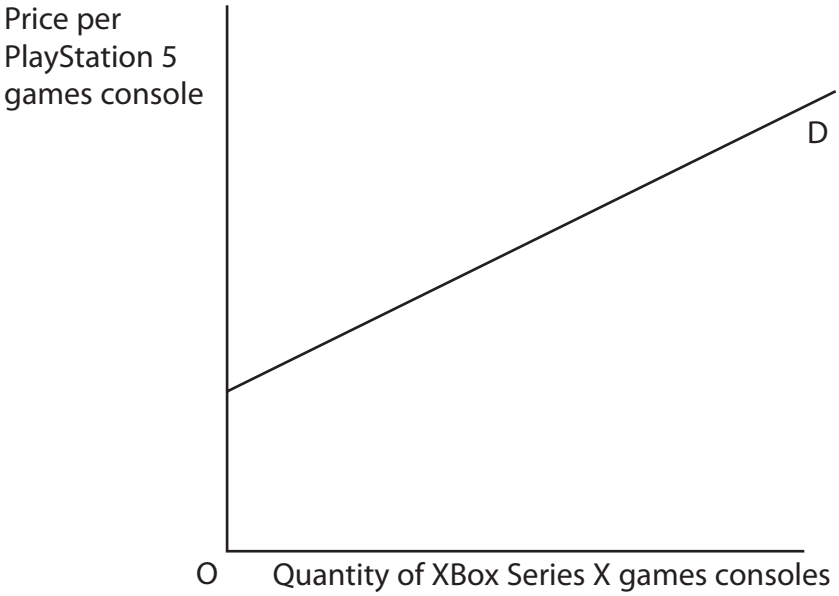
**5** Before the global financial crisis of 2008, commercial banks expected that their governments would not allow them to fail because of the threats to the rest of the economy. This meant that some staff at banks took excessive risks when lending and investing.

Which **one** of the following concepts best describes the behaviour of staff at these banks?

- ☒ **A** Inertia
- ☒ **B** The free-rider problem
- ☒ **C** Moral hazard
- ☒ **D** Market bubble

**(Total for Question 5 = 1 mark)**

**6** The diagram illustrates the relationship between the price of PlayStation 5 games consoles and the quantity demanded of Xbox Series X games consoles.




Which **one** of the following can be deduced from the diagram about the relationship between PlayStation 5 games consoles and Xbox Series X games consoles?

- ☒ **A** They are substitutes
- ☒ **B** They are complements
- ☒ **C** They are unrelated goods
- ☒ **D** They are inferior goods

**(Total for Question 6 = 1 mark)**

**TOTAL FOR SECTION A = 6 MARKS**

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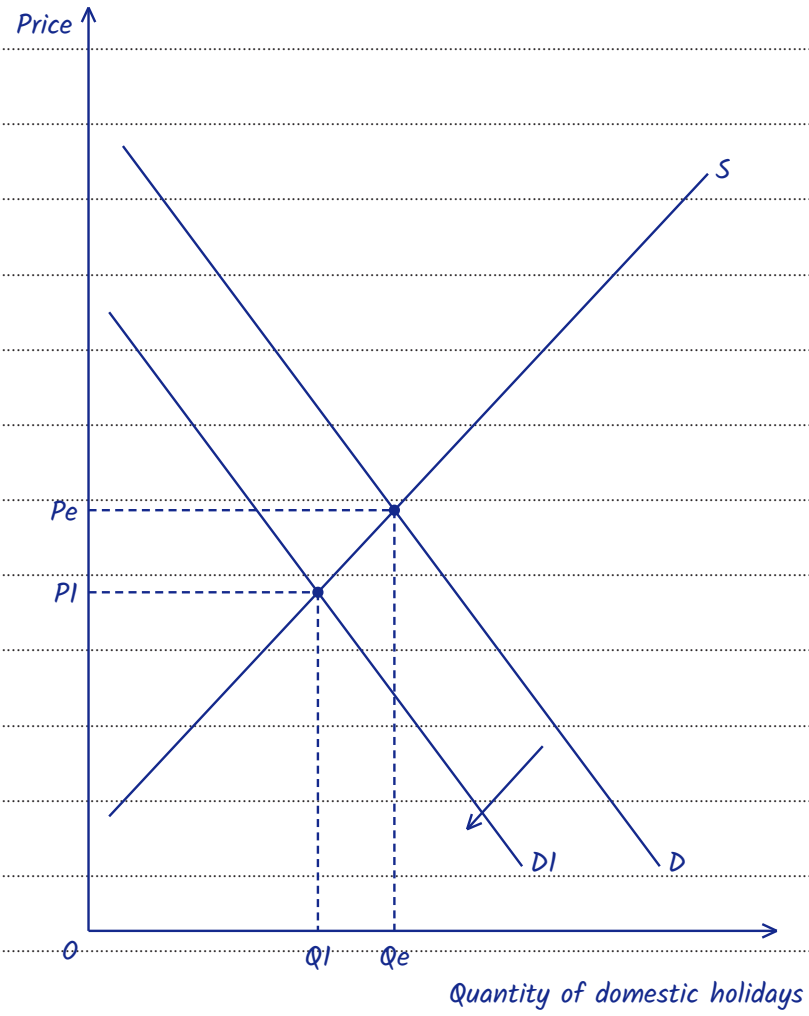
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## SECTION B

**Answer ALL questions in this section in the spaces provided.**

**7** In Laos consumers' real incomes decreased by 12.32% during 2021. The income elasticity of demand for a domestic holiday was +1.36.

Draw a diagram to illustrate the likely impact of this change in consumers' real incomes on the equilibrium price and quantity for domestic holidays in Laos.




A domestic holiday is a normal good (YED = +1.36). Real incomes fell by 12.32%, so demand falls by about 1.36 × 12.32 = 16.8%. Demand shifts left from D to D1, so price falls from Pe to P1 and quantity falls from Qe to Q1.

**(Total for Question 7 = 4 marks)**

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**8** In the USA 96 million consumers have never switched banks. 39% of consumers had accounts at the same bank as their parents. 13% of consumers said that the process of switching involved too much time and effort.

With reference to switching banks, explain the difference between 'herding' and 'inertia'.

*Herding is when consumers make decisions by copying the choices of other people, such as friends or family, rather than comparing the options for themselves. In the USA 39% of consumers had accounts at the same bank as their parents, so they chose their bank because their parents used it, not because it offered the best deal.*

*Inertia is when consumers do not change their behaviour because they think the effort of switching is too great, so they stay with what they already have. 13% of consumers said that switching banks involved too much time and effort, so they stay with their current bank even if a better account is available elsewhere.*

*So the difference is that herding is choosing based on what others do, while inertia is failing to make a new choice at all because of the effort involved. Both help explain why 96 million US consumers have never switched banks.*

**(Total for Question 8 = 4 marks)**

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**9** In Thailand 10% of household income was saved during 2022.

In October 2022 banks in Thailand made loans to the private sector amounting to THB 4 809 billion.

With reference to Thailand, explain **one** role of financial markets.

*One role of financial markets is to facilitate saving and to make these funds available to businesses and individuals who want to borrow.*

*In Thailand 10% of household income was saved during 2022. Banks pay interest on these savings, which gives households an incentive to save, for example to build up a deposit to buy a house in the future.*

*The banks then lend the funds to others. In October 2022 banks in Thailand made loans to the private sector of THB 4 809 billion. This allows firms to borrow money to invest in new capital goods such as machinery and factories, which helps the businesses to grow, and allows consumers to borrow to buy goods such as cars. So financial markets link savers with borrowers and channel savings into investment.*

**(Total for Question 9 = 4 marks)**

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**10** The table shows the average world price of cocoa per metric tonne and the quantity supplied globally in 2020 and 2021.

| Year | Average world price of cocoa per metric tonne | Quantity of cocoa supplied, metric tonnes |
|---|---|---|
| 2020 | $ 2 131 | 4 741 000 |
| 2021 | $ 2 770 | 5 242 000 |

*Ceteris paribus*, calculate the price elasticity of supply for cocoa. Show your working.

PES = % change in quantity supplied ÷ % change in price

Change in quantity supplied = 5 242 000 – 4 741 000 = 501 000 tonnes

% change in quantity supplied = 501 000 ÷ 4 741 000 × 100 = 10.57%

Change in price = $2 770 – $2 131 = $639

% change in price = 639 ÷ 2 131 × 100 = 29.99%

PES = 10.57 ÷ 29.99

= 0.35

PES is between 0 and 1, so the supply of cocoa is price inelastic.

**Total for Question 10 = 4 marks)**

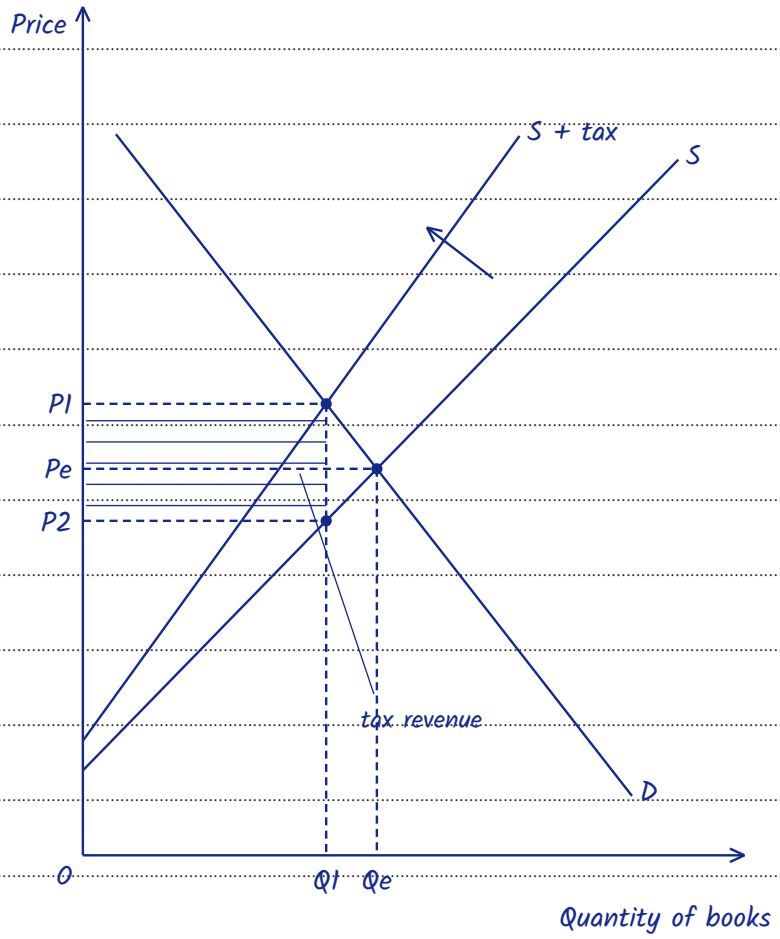
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**11** In January 2022 Vietnam's Government introduced an indirect tax on online sales. This was charged at 10% on all online transactions.

Explain the impact of the introduction of this indirect tax on the market for paperback books sold online in Vietnam.

Illustrate your answer with an appropriate diagram.

*An indirect tax is a tax on expenditure on goods and services, paid to the government by the producer. This 10% tax is an ad valorem tax on online sales.*




*The tax adds 10% to the price of each book, so the supply curve pivots left from S to S + tax. The price paid by consumers rises from Pe to P1 and the quantity of paperback books sold online falls from Qe to Q1. Producers only receive P2, so consumer surplus and producer surplus both fall, and the government gains the tax revenue P1P2 × Q1 (shaded).*

**(Total for Question 11 = 4 marks)**

**TOTAL FOR SECTION B = 20 MARKS**

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## SECTION C

**Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.**

**Write your answers in the space provided on the following pages.**

**12** (a) Define the term 'tradeable pollution permit scheme'. (Extract B, line 16)

**(2)**

(b) With reference to Extract B, explain whether the supply of phosphate rock is likely to be price elastic or price inelastic.

**(4)**

(c) With reference to Figure 1 and Extract A, analyse **one** demand factor *and* **one** supply factor that caused the price of fertiliser to increase between January 2021 and April 2022.

Illustrate your answer with a supply and demand diagram.

**(6)**

(d) With reference to Extract C, examine **two** likely effects of the subsidies paid by Canada's Government to farmers who use more organic farming methods.

**(8)**

(e) With reference to Extract B, discuss the external costs associated with the production and the use of fertiliser.

Illustrate your answer with an appropriate diagram.

**(14)**

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**12** (a) Define the term 'tradeable pollution permit scheme'. (Extract B, line 16)

**(2)**

*A tradeable pollution permit scheme is where firms are given or sold permits that allow them to pollute up to a certain level. Firms that pollute less than their allowance can sell their excess permits, and firms that need to pollute more must buy additional permits, as with fertiliser manufacturers in the European Union.*

(b) With reference to Extract B, explain whether the supply of phosphate rock is likely to be price elastic or price inelastic.

**(4)**

*The supply of phosphate rock is likely to be price inelastic. This means that a change in price leads to a less than proportionate change in quantity supplied, so PES is between 0 and 1.*

*Phosphate rock is a finite resource and the amount available is decreasing, so even if the price rises producers cannot easily increase the quantity they extract. Supply is also highly concentrated: 85% of the world supply comes from just five countries and Morocco produces 70% of total production. If these mines are already working near capacity, other producers cannot quickly enter the market, as opening new mines takes many years.*

*Therefore the quantity supplied cannot respond quickly to changes in price, especially in the short run, so supply is price inelastic.*

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(c) With reference to Figure 1 and Extract A, analyse **one** demand factor *and* **one** supply factor that caused the price of fertiliser to increase between January 2021 and April 2022.

Illustrate your answer with a supply and demand diagram.

**(6)**

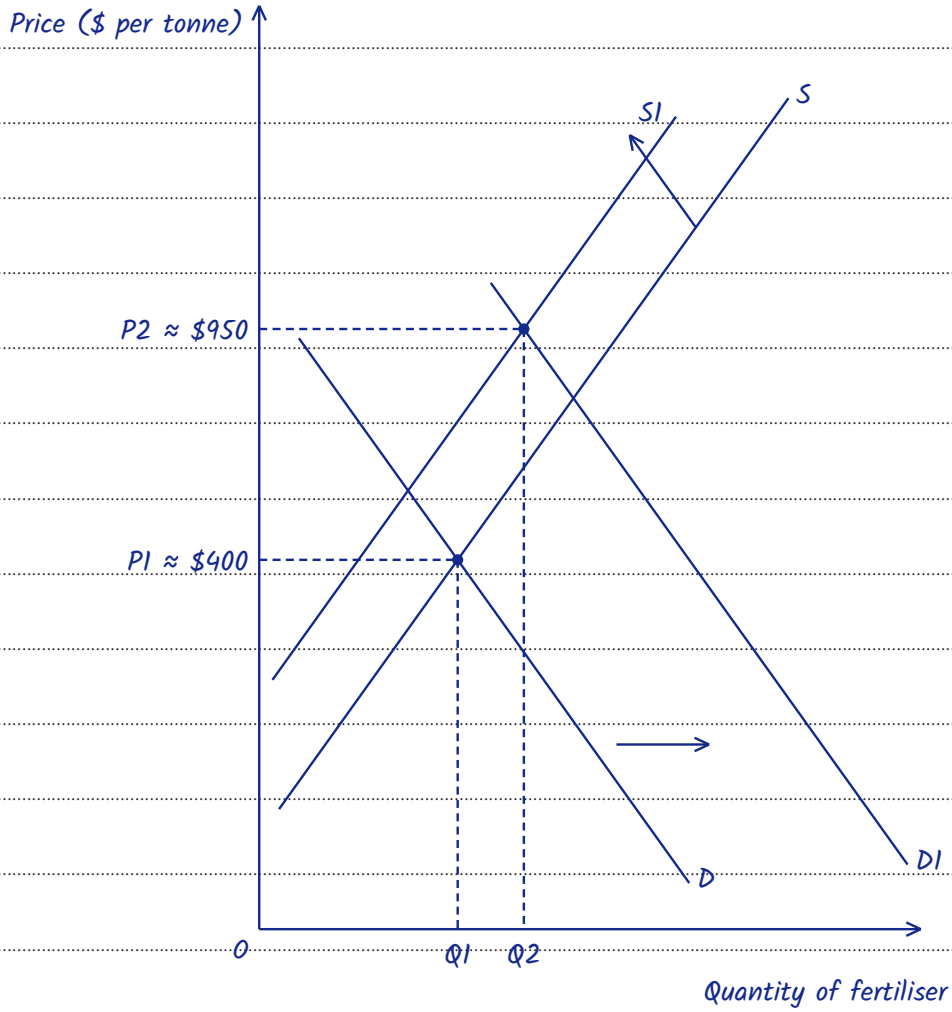



*Figure 1 shows that the world price of fertiliser rose from just above $400 per tonne in January 2021 to about $950 per tonne in April 2022, more than doubling.*

*The demand factor is higher crop prices. Higher crop prices in 2021 gave farmers an incentive to grow more crops, and fertiliser has a derived demand, as it is needed to increase crop output. As a result the demand for fertiliser increased by 6.3% compared with 2020, so demand shifts right from D to D1. At the original price P1 there is now excess demand, which pushes the price up.*

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The supply factor is a rise in costs of production. Fertiliser production uses large amounts of gas, and there was a significant increase in the world price of gas. Higher costs reduce the profit on each tonne, so producers supply less at every price. Poor weather such as winter storms and Hurricane Ida in the USA also shut down some fertiliser factories for several weeks. So supply shifts left from S to S1.

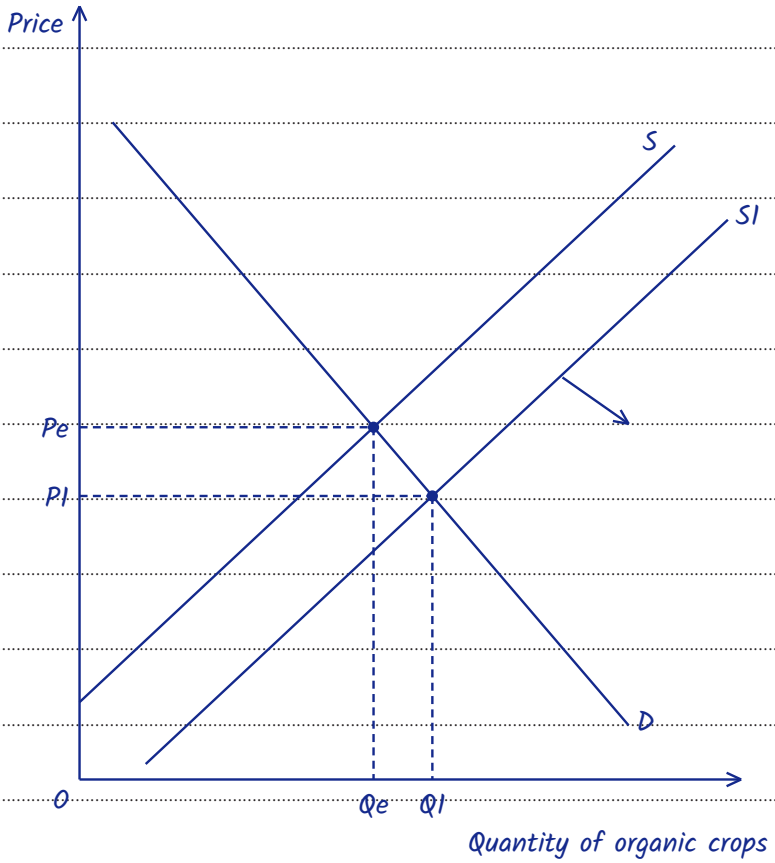
With demand increasing and supply decreasing at the same time, the equilibrium price rises sharply from P1 to P2, explaining the large rise in the price of fertiliser.

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(d) With reference to Extract C, examine **two** likely effects of the subsidies paid by Canada's Government to farmers who use more organic farming methods.

**(8)**

A subsidy is a payment by the government to producers that lowers their costs of production. Canada's Government is paying CA$ 750 million to farmers over 10 years to use more organic farming methods, because fertiliser has accounted for about 10% of Canada's greenhouse gas emissions since 1990.




The first effect is that more farmers adopt organic farming. The subsidy reduces the costs of organic production, so the supply of organic crops shifts right from S to S1. The price of organic food falls from Pe to P1 and the quantity rises from Qe to Q1, which increases consumer surplus and may create more jobs in organic farming.

The second effect is a fall in the use of fertiliser, which reduces external costs. As farmers switch to organic methods, demand for fertiliser falls, so less is produced and less is washed

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into rivers and lakes, reducing greenhouse gas emissions. This helps Canada reach its 2030 emissions target. However, this may lead to job losses in the fertiliser industry, and as organic methods usually give lower yields, total crop output may fall.

However, the effects may be limited. CA$ 750 million spread over 10 years is only CA$ 75 million a year, which may be too small to change the behaviour of many farmers, so fertiliser use may fall by less than needed to hit the target. The subsidy also has an opportunity cost, as the money could have been spent on healthcare or education, and farmers may become dependent on the subsidy, so the government may need to keep paying it after the 10 years.

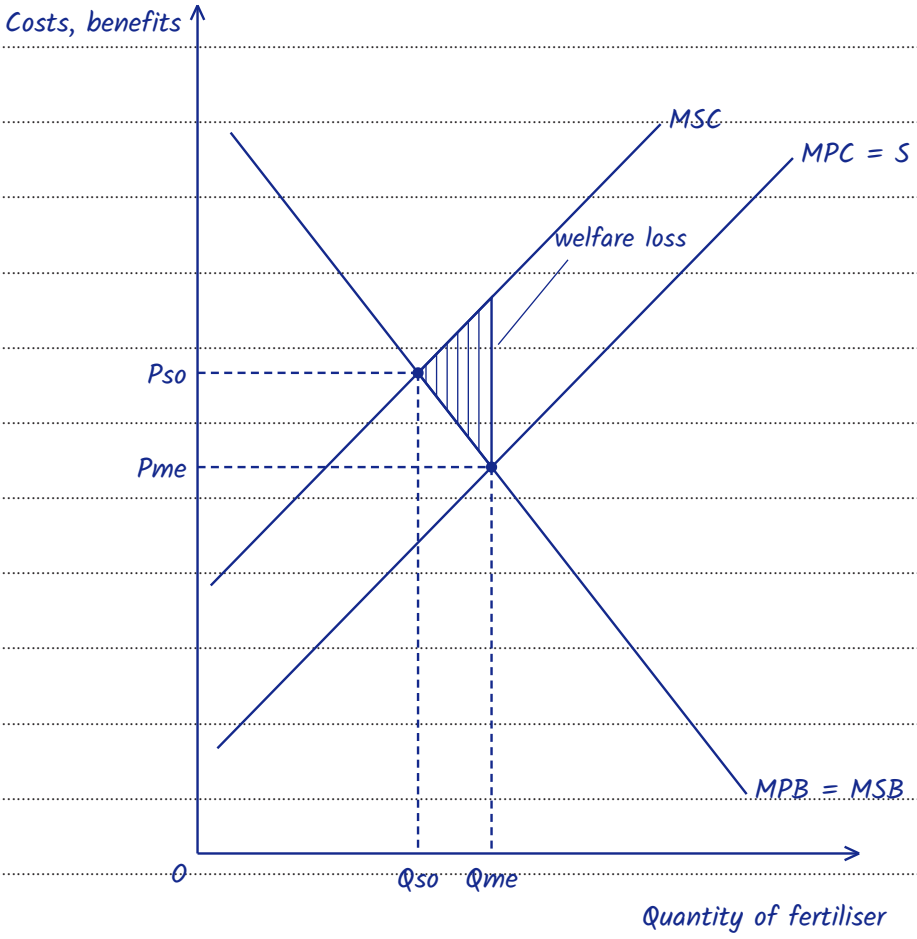
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(e) With reference to Extract B, discuss the external costs associated with the production and the use of fertiliser.

Illustrate your answer with an appropriate diagram.

**(14)**

External costs are the negative effects of production or consumption on third parties who are not part of the transaction and are not compensated, so marginal social cost (MSC) is greater than marginal private cost (MPC). Between 1960 and 2019 there was a ten-fold increase in the use of fertiliser, so these external costs are likely to be large.




Fertiliser producers and farmers only consider their private costs and benefits, so the market produces at Qme where MPC = MPB, at price Pme. The social optimum is Qso where MSC = MSB. Fertiliser is overproduced and overused by QsoQme, and the price Pme is below the socially optimal price Pso. The shaded triangle is the welfare loss to society.

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The first external cost comes from production. Producing fertiliser requires the substantial use of non-renewable resources such as gas and coal, so it is responsible for 1% of global energy use and 1.4% of total carbon emissions. These emissions add to global warming, which increases the risk of floods and droughts. This harms third parties, for example farmers whose crops are destroyed and whose incomes fall, and people whose homes are flooded. Fertiliser is also made by applying acids to phosphate rock, and if these acids leak into the environment they can cause illness and extra healthcare costs.

The second external cost comes from use. Fertiliser used on farmland is often washed into rivers and lakes, which causes algae to develop and oxygen levels to fall, so fish stocks decline. This harms people in the fishing industry, who catch fewer fish and earn less, and reduces biodiversity, none of which is paid for by the farmer.

However, the size of these external costs is debatable. 1.4% of total carbon emissions is small compared with sectors such as energy and transport, although it is still significant on a global scale. External costs are also very difficult to measure and value, so we cannot be sure how big the welfare loss really is.

The external costs must also be weighed against the benefits. Fertiliser use helped crop production increase four-fold between 1960 and 2019, raising farmers' revenues and increasing the world food supply, which gives external benefits by reducing hunger. The industry also creates jobs and incomes.

The external costs are not spread evenly. 85% of phosphate rock comes from just five countries, with Morocco producing 70%, so the external costs of mining and processing are concentrated there, while carbon emissions and run-off from fertiliser use affect the whole world. They may

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also fall over time: the European Union's tradeable pollution permit scheme covers fertiliser manufacturers in France and Germany, so if the number of permits is reduced, firms must cut emissions or pay for them, internalising the externality.

Overall, the production and use of fertiliser create significant external costs through carbon emissions and water pollution, causing overproduction and a welfare loss. However, the size of these costs is hard to measure and must be balanced against the large benefit of higher food production, so the best approach is to reduce the external costs, for example through permits and subsidies for organic farming, rather than to stop fertiliser use altogether.

**(Total for Question 12 = 34 marks)**

**TOTAL FOR SECTION C = 34 MARKS**

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## SECTION D

**Answer ONE question from this section.**

**Write your answer in the space provided.**

**EITHER**

**13** In the UK the maximum price for a unit of electricity for domestic consumers was £0.28 per kilowatt hour in September 2022. This was increased by the Government to £0.34 per kilowatt hour in October 2022.

Evaluate the microeconomic effects of an increase in the maximum price of electricity.

**(Total for Question 13 = 20 marks)**

**OR**

**14** Many consumers do not buy travel insurance before going on holiday abroad, despite the likely substantial costs if they need medical care.
Many car drivers do not provide complete and accurate information to car insurance companies when insuring their cars.

Evaluate the microeconomic effects of imperfect information on insurance markets.

**(Total for Question 14 = 20 marks)**

**Indicate which question you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.**

Chosen question number: **Question 13** ☒ **Question 14** ☐

Write your answer here:

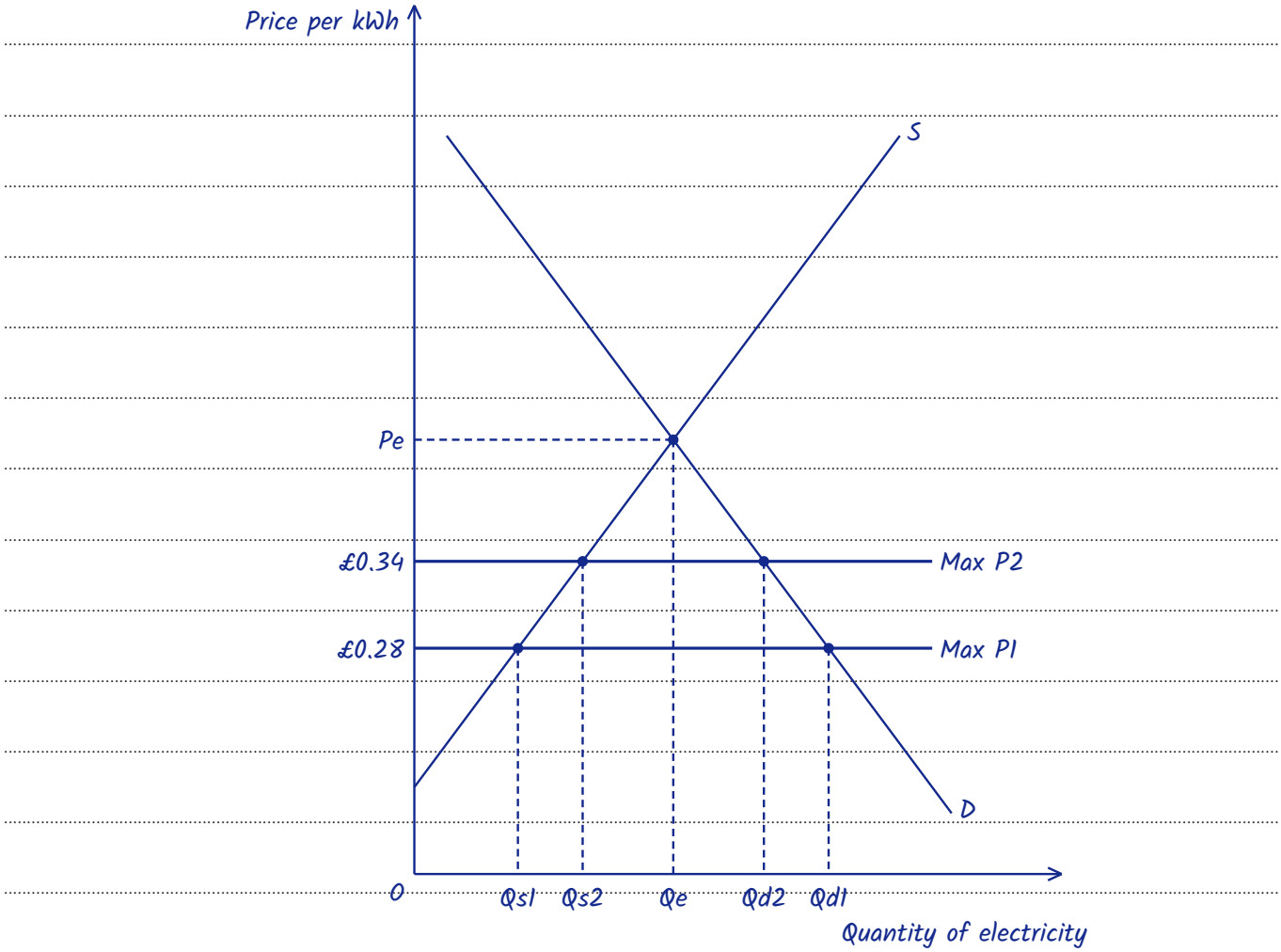
A maximum price is a legal price ceiling set by the government, above which firms cannot charge. To have an effect it must be set below the equilibrium price. In the UK the maximum price of electricity for domestic consumers was raised from £0.28 to £0.34 per kilowatt hour in October 2022, an increase of 21.4%, but still below the equilibrium price Pe.

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At the old maximum price of £0.28 (Max P1), quantity demanded was Qd1 but quantity supplied was only Qs1, so there was a large excess demand of Qs1Qd1. When the maximum price rises to £0.34 (Max P2), there is a contraction in quantity demanded from Qd1 to Qd2 and an extension of supply from Qs1 to Qs2. The market is still in disequilibrium, but the excess demand is reduced to Qs2Qd2, so the shortage of electricity is smaller.

For consumers, electricity becomes less affordable. Electricity is a necessity with few substitutes, so households must spend more of their income on it, leaving less income for other goods and services, and real incomes fall. Low-income households, who spend a larger share of their income on energy, are hit hardest and fuel poverty may rise. Consumer surplus falls because they pay more per unit. Consumers also have an incentive to save energy, for example by buying energy-saving devices such as electric blankets or investing in home insulation.

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For producers, the higher maximum price increases revenue per unit. At £0.28 many smaller energy companies were making losses, as the world price of gas they must buy had risen, and some shut down. The higher maximum price should increase their profitability, so fewer firms exit the market and the supply of electricity is more secure, and producer surplus rises.

There may also be effects on third parties. If consumers use less electricity, less needs to be generated, so fewer fossil fuels are burned and the external costs of carbon emissions fall. In addition, the government may have to spend less on supporting firms that would otherwise fail.

However, the size of these effects depends on the price elasticity of demand. Demand for electricity is likely to be price inelastic in the short run, as households need it for heating, lighting and cooking, so the contraction in demand will be small. This means that consumers will mostly pay more rather than cut usage, so the fall in external costs will be limited, while the rise in producers' revenue will be large.

The magnitude of the increase also matters. A rise of 6 pence per kWh, or 21.4%, is large, so it will have a significant impact on household budgets. Whether real incomes fall a lot depends on whether wages and benefits rise at the same time. It only applies to domestic consumers, so it has no direct effect on businesses, which may already pay higher prices.

Energy prices are also very volatile. If the world price of gas falls, the equilibrium price of electricity could fall below £0.34, so the maximum price would no longer be binding and would have no effect. There is also a risk of government failure: the government faces an information gap about the true equilibrium price and costs of energy firms, so it may set the maximum price at the wrong level, either too low, causing shortages and firm closures, or too high, so that

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consumers pay more than necessary. Adjusting the cap regularly also creates administrative costs.

In conclusion, increasing the maximum price reduces the excess demand and helps energy companies survive, which improves the security of supply in the long run, but it imposes a large cost on households, especially low-income ones. As demand is price inelastic, the main effect is a transfer from consumers to producers rather than a large fall in consumption. The overall impact depends on how much real incomes change and on future gas prices, so the government should combine the higher cap with targeted support for low-income households.

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**TOTAL FOR SECTION D = 20 MARKS**

**TOTAL FOR PAPER = 80 MARKS**





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# Pearson Edexcel International Advanced Level

## Wednesday 11 October 2023

Afternoon (Time: 1 hour 45 minutes)

Paper reference **WEC11/01**

# Economics

**International Advanced Subsidiary**
**UNIT 1: Markets in Action**

**Source Booklet**
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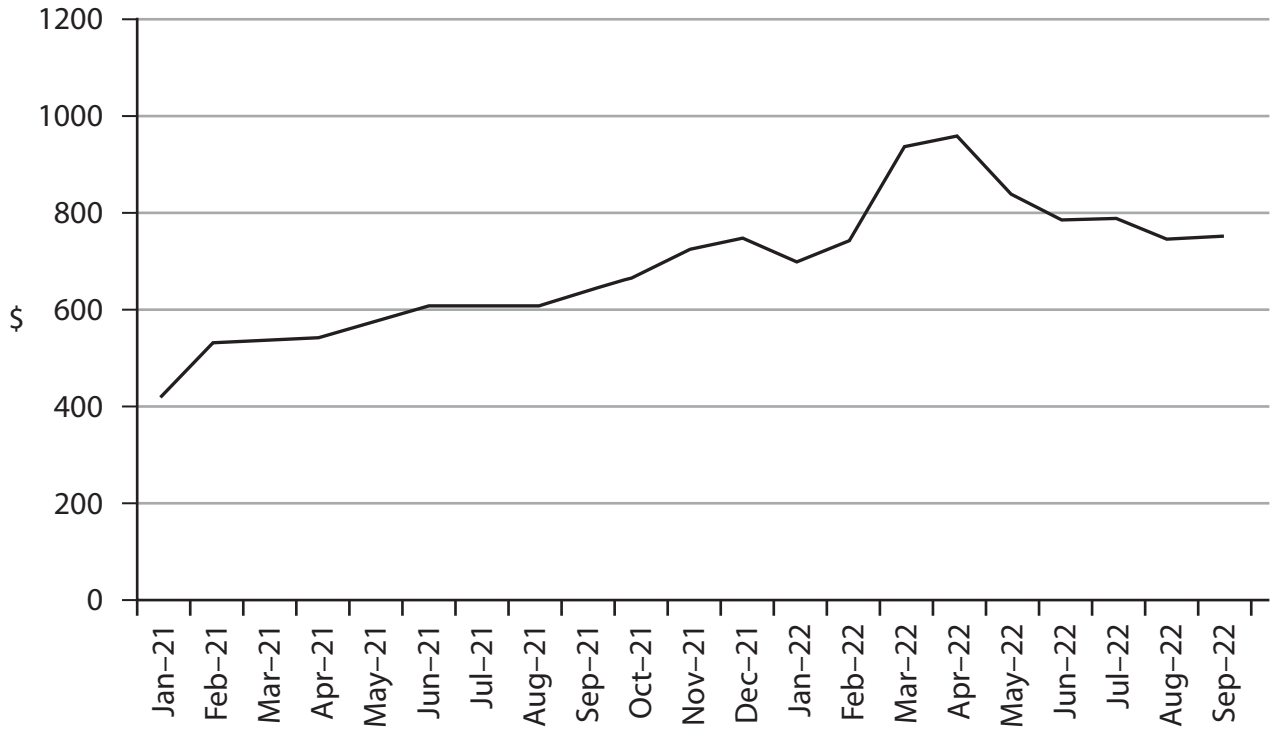
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## Sources for use with Section C

### The market for fertiliser

**Figure 1 World price of fertiliser, $ per tonne, January 2021 to September 2022**




**Extract A Demand and supply**

Higher crop prices in 2021 provided an incentive for farmers to increase the quantity of crops that they grew. As a result, the demand for fertiliser increased by 6.3% compared with 2020.

Another reason for the increase in demand for fertiliser was that governments paid subsidies to farmers during the global health crisis. These subsidies encouraged farmers to grow more crops.

Poor weather caused some factories that manufacture fertiliser to shut down for several weeks. For example, winter storms and Hurricane Ida disrupted production in the USA. Costs of production also rose as a result of a significant increase in the world price of gas.



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**Extract B Fertiliser production and its use**

Between 1960 and 2019 there was a ten-fold increase in the use of fertiliser by farmers to increase agricultural output. Over the same period crop production increased four-fold. Fertiliser is produced by applying acids to phosphate rock. Phosphate rock is a finite resource and the amount available is decreasing. In addition, the production of fertiliser requires the substantial use of non-renewable resources such as gas and coal. This results in greenhouse gas emissions. Consequently, fertiliser production is responsible for 1% of total global energy use and 1.4% of total carbon emissions.

The fertilisers that are used on farmland are often washed into rivers and lakes. This causes algae to develop and oxygen levels to decrease, resulting in a decline in fish stocks.

85% of the world's supply of phosphate rock comes from just five countries. Morocco produces 70% of total production.

France and Germany are the largest fertiliser manufacturers in the European Union. The European Union's tradeable pollution permit scheme applies to fertiliser manufacturers in these countries.

**Extract C Subsidies in Canada**

Since 1990 the production and use of fertilisers have accounted for approximately 10% of Canada's greenhouse gas emissions. To reach its 2030 greenhouse gas emissions target, Canada needs to reduce its use of fertiliser. Canada's Government is providing subsidies of CA$ 750 million to farmers over 10 years to use more organic farming methods to achieve this target.



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**Acknowledgements**

Figure 1 adapted from:
https://www.indexmundi.com/commodities/?commodity=dap-fertilizer&months=60

Extract A adapted from:
https://www.fertilizer.org/news/why-are-fertilizer-prices-so-high/

https://www.theguardian.com/business/2022/mar/08/surge-in-fertiliser-prices-adds-to-pressure-on-uk-farmers

Extract B adapted from:
https://www.carbonbrief.org/qa-what-does-the-worlds-reliance-on-fertilisers-mean-for-climate-change/#:~:text=The%20global%20production%20of%20fertilisers,non-CO2%20greenhouse%20gas%20emissions.

Extract C adapted from:
'Government seeks guidance on path towards reducing emissions associated with fertiliser', Agriculture and Agri-Food Canada, 3 April 2022, https://www.canada.ca/en/agriculture-agri-food/news/2022/03/government-seeks-guidance-on-path-towards-reducing-emissions-associated-with-fertilizer.html