

Suggested Mark Scheme for JC2 H2 Prelims 2016

Question 1

Electricity prices have been fluctuating. It has been observed, since early 2015, that there is a downward trend of electricity prices due to fall in oil prices.

Discuss the different supply and demand factors and their likely importance in determining the observed changes in electricity prices in Singapore. [25]

Suggested answers

Approach: Students should use demand/supply factors and PED/PES concepts to explain why electricity prices have been fluctuating and why there was a fall in electricity prices.

Introduction

Brief explanation of market equilibrium and that changes to the price of electricity is due to changes in demand and supply factors.

Body

Side 1: Demand and supply factors are important in determining reported changes in the prices of electricity in Singapore.

Students need to demonstrate that they can weigh the significance of the relevant demand and supply factors and the relative extent of shift in demand and supply

Possible factors affecting market for electricity

SS factor:

- Fall in cost of production of electricity- due to the fall in price of FOP (natural gas/oil) for electricity generation
- Increase or fall in cost of distribution – network cost (there is an increase in network/distribution cost over the years)

DD factor:

- Higher demand from household and firms- Increase household /industry needs etc
- Changes in population – Increase in population in Singapore

Better answers should demonstrate that they can weigh the significance of each demand and supply factors (address the likely importance of each demand and supply factor)

E.g. while network costs went up due to infrastructure investment to replace ageing assets and meet rising electricity demand, the lower cost of natural gas/oil more than offset this increase. Hence the fall in global price of oil and natural gas which is the main factor affecting cost of production, leads to an overall fall in cost of production, leading to an increase in supply.

Students should be able to recognise that the supply response needs to outweigh the demand response for price to fall. (relative shifts in demand and supply curves)

Considering magnitude of shift/changes: Increase in demand is less than the increase in supply, resulting in an overall fall in price.

Students should then show the combined effects of an increase in supply (answers should relate to oil/natural gas prices) and increase in demand for electricity on the same diagram that explained an overall fall in electricity prices.

Students should also explain that fluctuation in prices are due to frequent changes in demand and supply factors.

Note: If analysis is sound, it is possible to credit explanation for a fall in demand but students must give credible reasons and links to demand factors.

Side 2: Other factors are also important in determining reported changes in the prices of electricity in Singapore, particularly the volatility of electricity prices.

PED for electricity is likely to be price-elastic: As electricity is the most common form of energy for running home appliances and business operations, there is a high degree of necessity. There are no close substitutes hence its PED is likely to be less than 1

PES for electricity varies on a few factors: It largely depends on whether the power plants in Singapore are running with or without spare capacity. Mobility of FOP is also a relevant factor that the students can use.

Natural gas/oil are commodities which experience significant changes to its demand and supply (explain a few: speculation, weather conditions, quota agreed by major exporters etc.) **As natural gas/oil are factors of production of electricity, the volatility in these factor markets as well as the price inelasticity of supply and demand for electricity result in frequent fluctuation in to the prices of electricity.**

Students can illustrate with a diagram for clearer explanation

Possible conclusion and evaluation

In conclusion, the electricity prices are strongly influenced by changes in its factor market, i.e. oil/natural gas. The fluctuation in prices observed are very often the direct outcomes of fluctuations in price of oil/gas. Therefore demand and supply factors (especially supply factors) are important factors influencing the price of electricity. The fluctuation in prices can be explained by both demand and supply factors as well as PED/PES of electricity.

Other external factors that affect price changes:

Energy market authority regulates prices of electricity in Singapore. Evaluation can be made on how regulation can reduce large fluctuations in prices as the government will avoid sharp changes (reduce volatility) to electricity prices which may affect consumer expenditure significantly or increased uncertainty to firms' cost of production

Electricity prices may also be charged on seasonal cost as changes in cost of production generally reflect variations in electricity demand, availability of different generation sources, fuel costs, and power plant availability. Prices are usually highest in hot weather/ hazy condition when total demand is high and when more expensive generation is needed to meet the increased demand.

Level	Knowledge, Understanding, Application and Analysis	Marks
L3	For a balanced and well-explained answer that uses application and analysis to discuss the importance of demand and supply factors in influencing the fluctuation AND the fall in electricity prices. Good analysis on relative importance of demand and supply factors/PED and PES and the relative magnitude of shifts are considered in the given context.	15-21
L2	For a good attempt to discuss the importance if demand and supply factors but limited in analysis. For good but one-sided answers which did not consider the importance of other factors such as elasticity values or why prices fluctuate much in the given context (max of 10).	10-14
L1	For some knowledge but limited applications of demand and supply factors on how it influence price changes. Answer may be irrelevant.	1-9
Level	Allow up to 4 additional marks for Evaluation	Marks
E2	Judgement that is well-substantiated based on economic analysis.	3-4
E1	For an unsubstantiated judgement, or one that is not based on economic analysis.	1-2