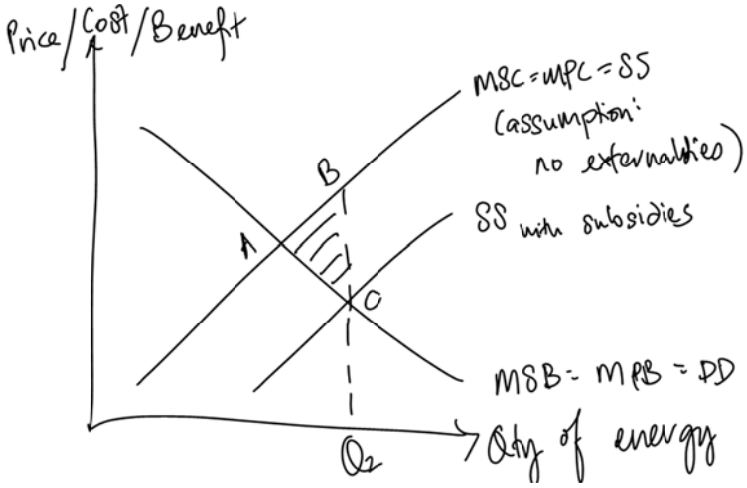
Prelim Case Study H2 Q1 Suggested Answers

(a)		Compare changes in oil prices from 1996 to 2010 and existing world solar energy capacity over the same time period.	[2]

Both are increasing. (1)Existing world solar energy capacity is rising at a faster rate than oil prices

(b)		Explain why 'artificially low energy prices increase waste and destroy incentives to invest in alternative technologies'.	[6]

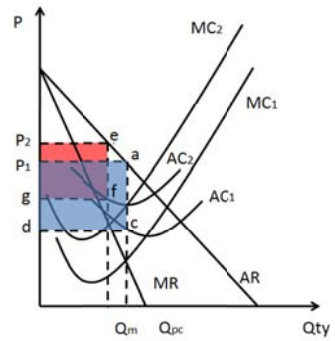
Artificially low energy prices caused by subsidies. Subsidies reduce cost of production, increases supply and decreases prices artificially



New market equilibrium lies at a lower price P2 and higher output at Q2. (1)
At Q2, the additional social cost of the unit produced is more than the marginal social benefit. There is a resulting deadweight loss of ABC, hence, resources are wasted.

Subsidies make oil much cheaper than alternative energy sources → reduce the demand for alternative energy sources. (1) As such, lower profitability in alternative technologies and incentives to invest in them are destroyed.

(c)		With the help of a diagram, explain the impact of the proposed new law on a firm like Tepco.	[4]

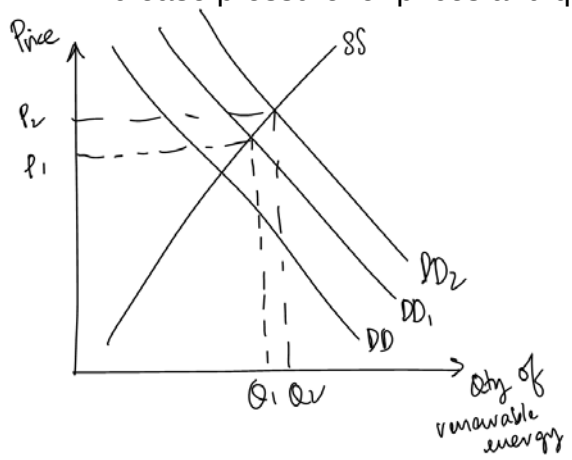


The proposed new law would mean that Tepco would have to buy all electricity generated through renewable means. This results in Tepco incurring higher unit costs for the electricity which it distributes.

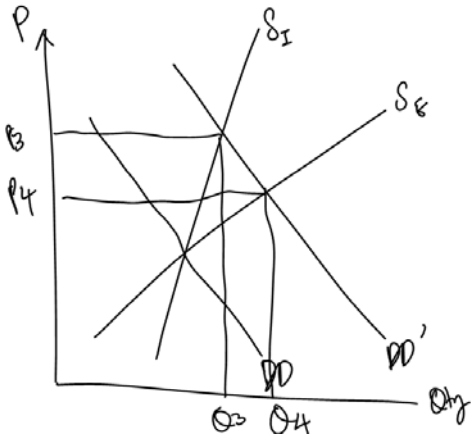
The firm's original supernormal profit is area P1acd. Proposed new law resulting in a smaller supernormal profit, area P2efg.

(d)		To what extent will the changes in oil prices impact the renewable energy markets of different economies?	[8]

1. Rising prices of oil → increase demand for renewable energy. Different economies have also adopted different policies for renewable energy (extract) . → changes in oil prices will impact renewable energy markets of different economies differently.
2. Increase prices of oil → Increase demand (DD→DD') for renewable energy → Increase pressure for prices and quantities to rise.



3. The XED value of oil and renewables may differ across economies. Countries who are better equipped to switch may have higher demand compared to those that do not (e.g. Extract 5: Japan whose grid is not suited for renewable energy). As such, the extent of shift of the demand for renewables will be more for the some countries (D1) compared to other countries like Japan (D2). The impact of increasing oil prices will be less for countries like Japan (less increase in prices, P1 and quantity traded, Q1) than for countries like Spain (P2,Q2) since they are less able to switch oil for renewables.



4. However, different economies have different capacities and capabilities for renewable energy markets. Economies that are ahead in the technology (e.g. China and EU who have spent a lot more money on renewable energy compared to Indonesia and Japan who are only just starting development in the area) are likely to be better able to respond to price changes in renewable energy. → PES of renewable energy in China and EU likely to be higher than PES of renewable energy in Indonesia and Japan. Hence, increasing oil prices will lead to higher renewable energy prices (P3) in Indonesia and Japan compared to China and EU (P4) while the latter will have higher output (Q3 vs Q4).

5. The overall effect would depend on the relative extent of shifts in the DD and the PES value of renewable energy of the different economies.

6. Different countries have invested different amounts into renewables. Economies in the EU have cut spending, Indonesia and Japan have yet to develop renewable energy, while China has increased investments significantly

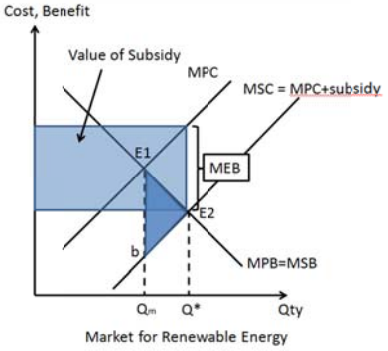
Conclusion: Synthesis

Extent of impact of rising oil prices on different economies depending on PES value

of renewables in different economies and relative extent of shifts in demand and supply. There are also other factors that may affect the renewables market. That contribute to rising demand for renewables. However, in the long run, we can foresee that the impact of rising oil prices on renewables is likely to be large as they are the closest substitutes to oil other than nuclear energy.

Knowledge, Understanding, Application, Analysis		
L3	Well developed response with the relevant economic concepts used to support discussion within a clear theoretical framework and uses appropriate case material.	6 - 8
L2	Largely underdeveloped response with limited rigour	4 - 5
L1	Answers with conceptual inaccuracies and/or did not refer to case material.	1- 3

(e)		In light of the data provided, if you were a consultant economist, would you recommend that Singapore leave the production of renewable energy to the free market? Justify your answer.	[10]



Arguments against leaving to market:

<u>Positive Externalities in Production</u>

- Market equilibrium → MPB=MPC
- Socially optimal equilibrium→ MSB=MSC (e→ there is an under-production of QmQ* → underallocation of resources →deadweight loss, E1E2b)

Need to intervene to achieve socially optimal output → Evidence: Existence of subsidies in Europe and China → Intervention: Increases SS to MSC, reaching social optimum

<u>Existing utility has no incentive to produce renewable energy →</u> Evidence: Japan's utilities, Singapore's SP

Arguments for leaving to market:

<u>Government failure</u>

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Evaluation of EU's subsidies

- **<u>Subsidies are costly</u>** → Government debt as in Extract 2
- **<u>Info failure</u>** (govt failure)

Evaluation of Japan's feed-in tariffs

- Japan's tariffs actually lead to an increase in the price of electricity (increases inequity as some lower-income earners may not be able to afford it

Efficiency can be attained by the market

Conclusion: Synthesis

Land scarce Singapore → Singapore has little/no capacity for other forms of renewable energy →SR: Benefits may be limited (little external benefit) and costs too high to justify government intervention. LR: Potential area for growth, Falling costs and rising demand: Greater justification for intervention.

Knowledge, Understanding, Application, Analysis		
L3	A balanced discussion with a clear theoretical framework that considers the entire case material.	7 -10
L2	Some attempt to respond to the question but is largely one-sided and/or arguments lack rigour. Limited use of case materials	4 - 6
L1	Largely theoretical response that has inaccuracies	1- 3