

Student Scenario Template

Given your understanding of market demand and supply models, elasticity, government intervention, and its impacts on the market, answer the following question using **detailed explanation** and **sketches**.

Scenario

****ALL FIGURES IN CAD****

Canadian tar sands producers are struggling to be profitable. The price of Western Canada Select (the blend of bitumen and light oil that is produced in the tar sands) has been extremely volatile lately. During October and November 2018, the price fell as low as \$17/bbl, but has since slightly rebounded to about \$45/bbl as of February 28th. Tar sands oil is located deep in the earth, covered by layers of rock and, if it can be extracted, it comes out in a thick sludge that must be combined with light oil to move, then heavily refined to make it usable (Digital Journal). According to the Canadian Energy Research Institute, it costs between \$79/bbl and \$99/bbl to produce tar sands bitumen depending on the type of drilling operation. According to the same study, tar sands drilling start-up costs are very high and prohibitive to most potential joiners of the industry. Due to these high costs, the Canadian government heavily subsidizes the industry, spending about \$3.7B annually to prop it up (Vice News). It is also getting harder to transport tar sands bitumen cheaply through pipelines because more and more environmental groups have been applying pressure to stop their construction, which has resulted in a stalling of new projects and a stagnant pipeline capacity. Tar sands producers are now being forced to use more difficult and expensive methods to transport the oil, such as by rail (Edmonton Journal).

The government spends large amounts of money to prop up the industry because the economy of Alberta is heavily reliant on tar sands oil production. The oil and gas sector (mainly tar sands) produces about 20% of Alberta's GDP in 2018 (Government of Alberta) and the tar sands indirectly create about 400,000 jobs across Canada (Natural Resources Canada).

There is also an environmental aspect to this issue. NASA states that the main cause of climate change is the burning of fossil fuels. The IPCC's recent report suggested that we must stop burning fossil fuels to hold climate change to 1.5°C. More specifically, the G20 has called for all members to phase out fossil fuel subsidies by 2020 - a policy like this would significantly impact the tar sands (G20). This, coupled with growing pressure within Canada from environmental groups, has made it more and more politically difficult for governments to support the tar sands. Renewable forms of energy are becoming more efficient and financially viable as an alternative to tar sands oil production. Predictions about renewable energy overtaking fossil fuels vary - Cosmos Magazine says "solar and wind will replace fossil fuels in 20 years," Business Insider says 50% of global energy will be renewable by 2050 - but, it is clear renewables are the way of the future and will eventually make oil obsolete as a form of energy. Alberta has significant potential for growth in solar energy production because of its large land mass and flat geography. The solar energy industry in Alberta is rapidly growing: the number of units installed has grown by 2500% over the past 9 years (Green Energy Alberta).

The global demand for oil is steadily increasing, and, while peak oil demand is coming, there is little evidence to suggest it is around the corner (Reuters). There are many suppliers in the global oil market, with OPEC being the biggest seller. Despite this, there continues to be a relatively steady market for Canadian oil, particularly from the USA, to whom we are the largest oil supplier by an ever-increasing margin (Canadian exports to USA have increased by 40% in the past 5 years) (Canada's Oil Sands).

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The Canadian Government is developing new economic policy in response to the low profitability of the tar sands, and environmental concerns. Using your understanding of elasticity and the different types of intervention, suggest **one** primary intervention (either price floor **or** price ceiling) suitable to this situation, **one** secondary intervention (excise taxes, subsidies, quotas, or demand NPFs), and outline the market impacts.

Mark Breakdown

In short, set out the theory of a price ceiling OR a price floor by explaining –

1. describe the reason for the intervention ($^{1/2}$ mark),
2. directly reference 2 specific details from the scenario itself that support your conclusions about elasticity and the original position of the market (2 marks),
3. what it is (i.e., define it) ($^{1/2}$ mark),
4. how it occurs (i.e., in the market model) (1 mark),
5. how it impacts demand and supply in the market (i.e., describe the type of disequilibrium) (1 mark),
6. a secondary intervention necessary to correct the effect of the primary intervention and 1 specific detail from the scenario itself that supports your intervention (2 marks),
7. potential problems and/or criticisms of such an intervention (2 marks), and
8. a sketch to animate your intervention and illustrate your explanation (3 marks).

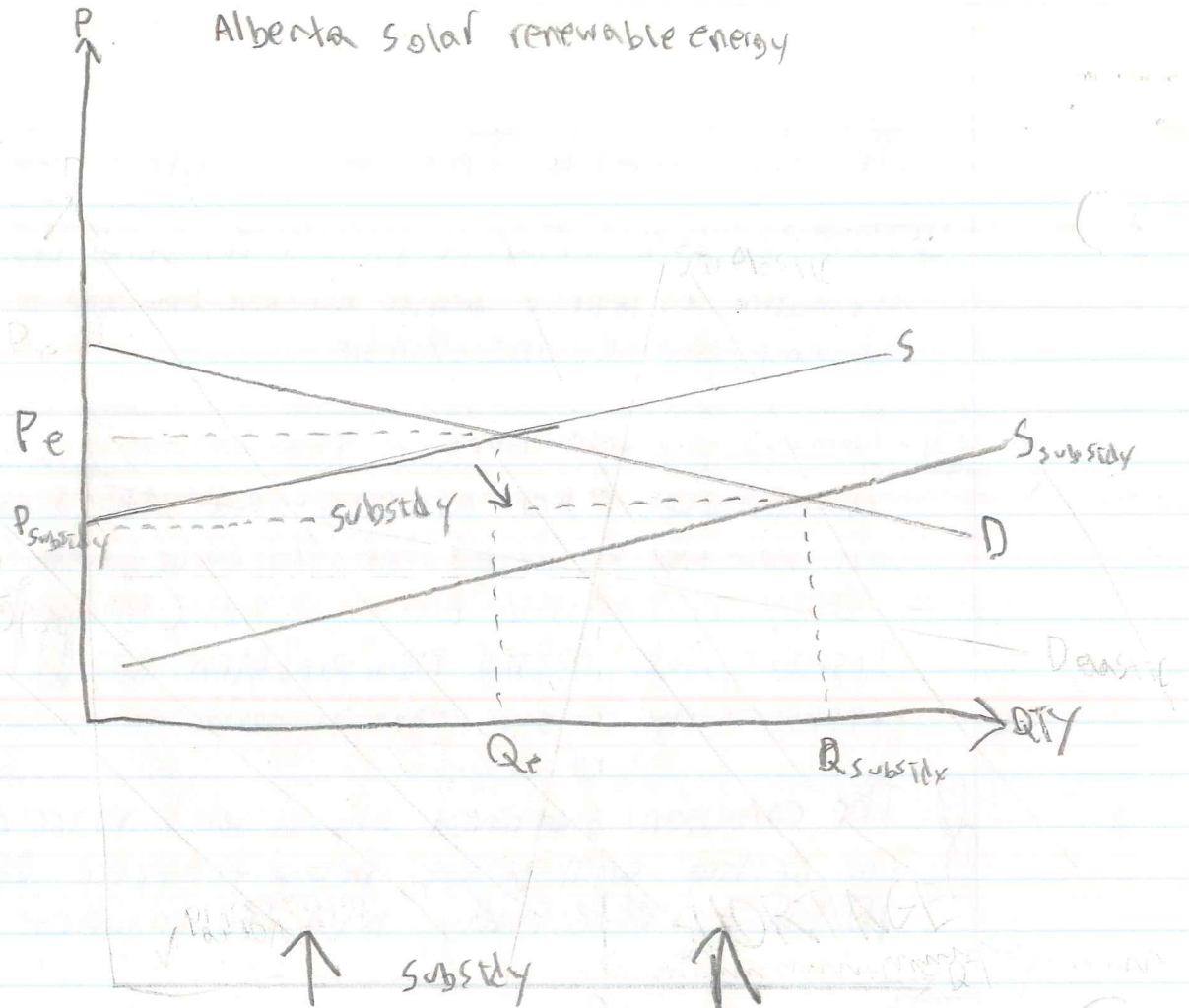
* "it" being either a ceiling OR floor.

MDA = Alberta Tar Sands WCS Bitumen

- ① There has been a Market failure. Tar sands producers are struggling to profit despite massive subsidies and the Tar Sands are environmentally unsustainable.
- ② - Demand is elastic because "there are many suppliers in the global market" There are many accessible^{oil} substitutes that are more easily refined than tar sands bitumen.
- supply is inelastic because of the Canadian Energy Research Institute study noting high production costs (\$79-\$99/bbl) and prohibitively high start-up costs. The oil is also difficult to get out of the ground that the world.
- ③ The Canadian Government should set a price ceiling.
- ④ The ceiling will be set below the price equilibrium at \$0/bbl to effectively kill the industry.
- ⑤ This will create a massive shortage. This shortage will either be filled by OIL from other nations like OPEC or by alternative energy sources.
- ⑥ A subsidy will be put in place to help oil producers and employees shift to the renewable energy industry. The fossil fuel industry is environmentally unsustainable according to NASA, the IPCC and the G20 studies/policy mentioned in the scenario. Meanwhile, the renewable energy industry is growing rapidly: a conservative estimate states it will make up 50% of the energy market by 2050.
- ⑦ - The tar sands employ 400,000 people and make up 20% of Alberta's economy so the shift of industries could be painful for many workers and the province. If the transition to renewables does not go well, many will be out of work and the economy would go into crisis.
- many people have a cultural/ideological attachment to the tar sands as an economic engine so shifting the market could stir up insurmountable political backlash, particularly in Alberta.

Alberta solar renewable energy

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⑧

MDA: Alberta Tar Sands Oil

