ECON 3535 Midterm 2

## Good luck to you!

## Multiple Choice

- 1. (5 pts.) Why are local pollutants much easier to regulate than global pollutants?
  - (a) Global pollutants have no immediate impact on human health, while local pollutants do.
  - (b) A locality faces all the benefits of reducing a local pollutant, but does not face all the benefits of reducing a global pollutant.
  - (c) Local pollutants are produced in larger quantities and are more difficult to track.
  - (d) Global pollutants are more visible and, therefore, receive more public attention and regulatory scrutiny.
- 2. (5 pts.) Which of the following is an example of the rebound effect?
  - (a) A company invests in energy-efficient lighting and reduces its overall electricity consumption by 20%.
  - (b) A homeowner installs solar panels and sells excess electricity back to the grid.
  - (c) A city implements a congestion charge to reduce traffic, but drivers start taking longer trips to avoid the charge.
  - (d) A restaurant switches to compostable packaging, which reduces waste and is better for the environment.
- 3. (5 pts.) Why does a large amount of solar supply create the "Duck Curve" problem?
  - (a) Solar energy is unreliable and cannot be stored efficiently, leading to fluctuations in energy supply and demand.
  - (b) Solar energy is more expensive than traditional energy sources, leading to lower demand and higher prices.
  - (c) Solar panels require a lot of space and can only be installed in certain areas, leading to limited energy production.
  - (d) Solar energy production peaks during the day, when demand is relatively low, but drops off sharply in the evening when demand is high, creating a mismatch between supply and demand.

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## Free Response Questions

1. (15 pts.) List a main advantage and disadvantage of each of these electricity sources, from the viewpoint of the grid regulator:

- (a) Natural Gas
- (b) Solar
- (c) Hydro
- 2. (15 pts.) Describe why the Acid Rain Program in the US was so cost-effective of a policy? (*Hint:* use the concept of efficiency)
- 3. (15 pts.) Why did stated emission goals of The Paris Climate Accord fall below the necessary amount to hit the goal of 2 degrees?
- 4. (10 pts.) If an energy generator was able to invent low-cost energy storage, how would they be able to profit from it?
- 5. (10 pts.) France had an pollution tax, but set the tax amount too low to hit the goal. Why did emissions not fall by that much after the tax?
- 6. (20 pts.) Consider the merit-order curve in Figure 1.
  - (a) Why does the price of electricity vary throughout the day?
  - (b) If demand for electricity hits 1250 gWh, what will the market price be?
  - (c) Using the concept of the 'merit order effect', describe why increasing wind capacity could be so beneficial to consumers when demand is 1250 gWh.
  - (d) What is the Levalized Cost of Electricity and how does it differ from the Marginal Cost of producing a gWh? When considering construction of new energy sources, which is typically used by energy companies?

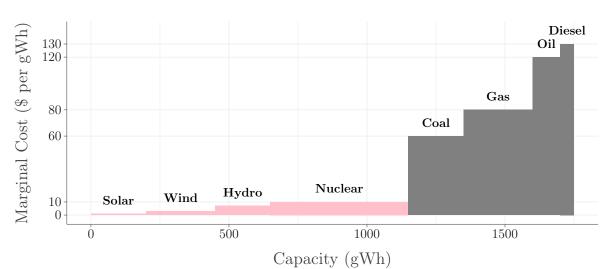


Figure 1: Merit Order Curve