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.

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