

## Lecture Questions: Renewable Energy Sources

These questions are largely taken from chapter 8 of the textbook, though some outside research might also be needed.

1. Make a list of all renewable energy sources. For each, provide a brief (1 sentence) description and describe the environmental impacts of its use.
2. What is a redox reaction? Give an example, and define the following terms: oxidation, reduction, and half reaction.
3. What are batteries and how do they work? Explain in detail. In your explanation, define the *anode* and *cathode*.
4. How does the alkaline cell work?
5. How does the lead-acid storage battery work?
6. The lead-acid storage battery is an example *rechargeable* battery. What makes it so? In your explanation, be sure to differentiate between galvanic and electrolytic electrochemical cells.
7. How do fuel cells work? In your answer, include an explanation of *distributed generation*.
8. Make a list—as complete as possible—of the environmental impacts of batteries, including fuel cells.
9. What is the hydrogen economy? Describe its components in some detail. In your answer, explain how the hydrogen economy could potentially serve as the basis for a renewable energy system that emits little or no carbon dioxide or other air pollution.