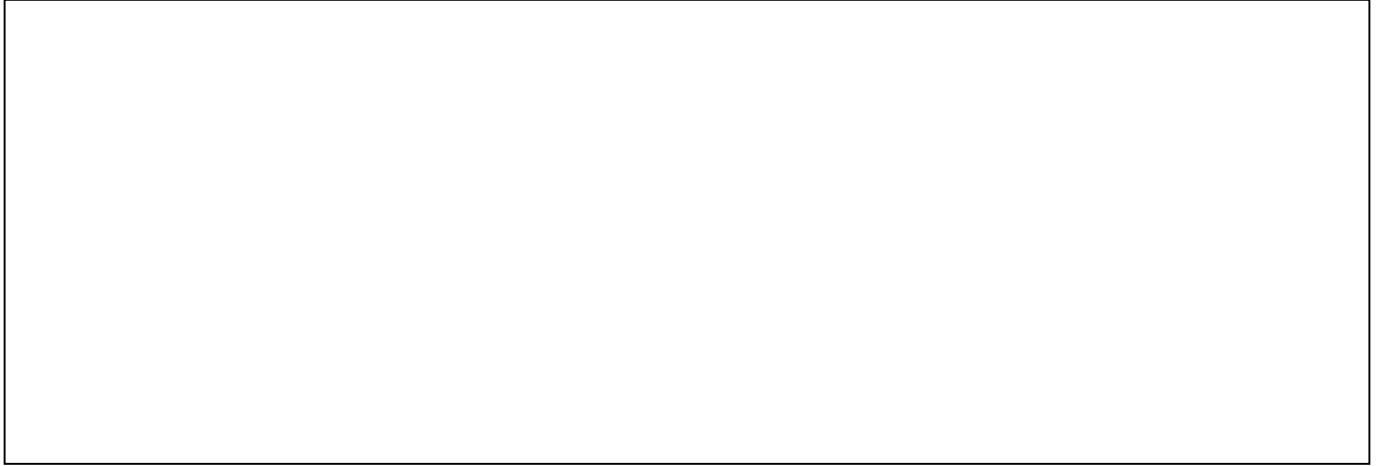


# CHAPTER 16: ENERGY EFFICIENCY AND RENEWABLE ENERGY

## 16-1 Why is Energy Efficiency an Important Resource?

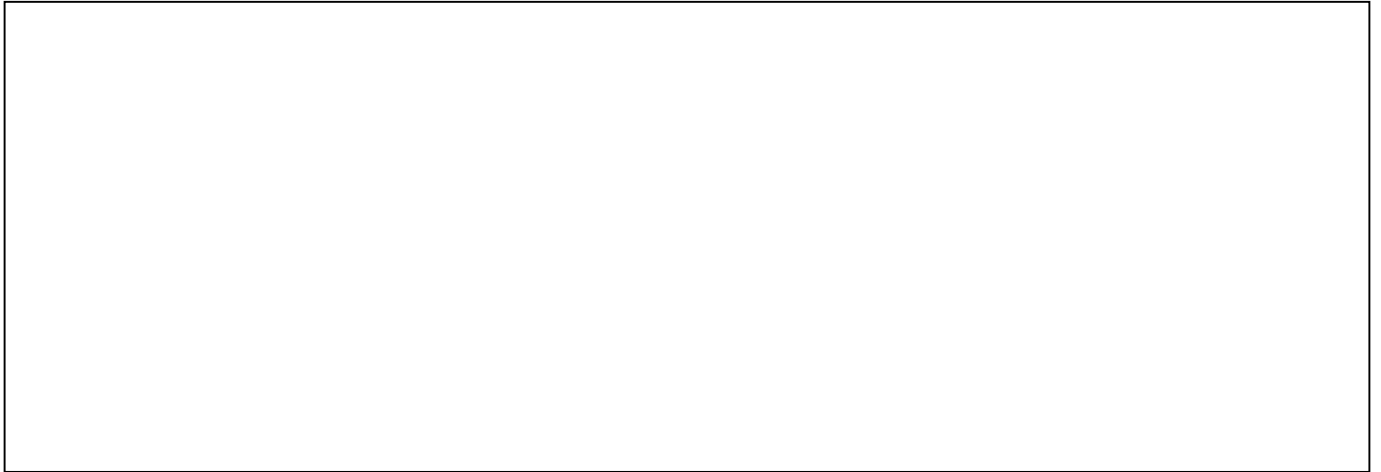
- We Waste YUGE Amounts of Energy



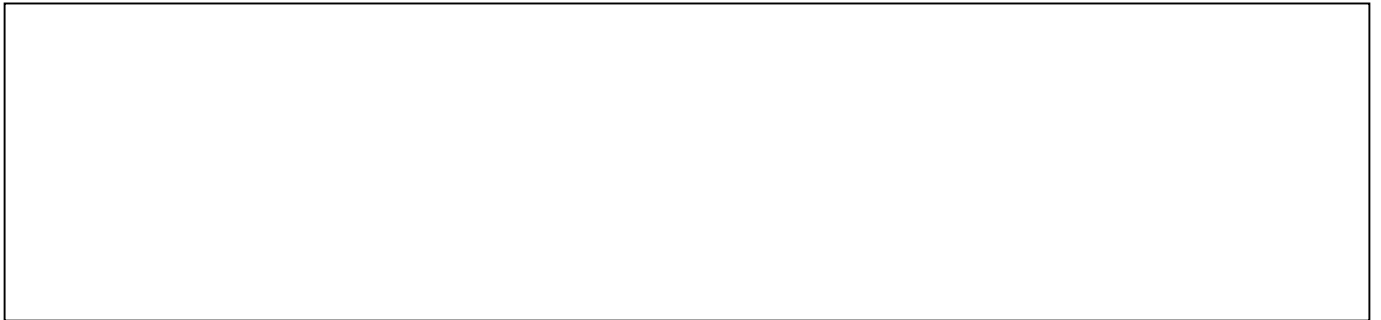
**Diagrams:**

## 16-2 How Can We Cut Energy Waste?

- Save Energy and Money in Industry and Utilities



- A Smarter Electrical Grid



- Save Energy and Money in Transportation



● More Efficient Vehicles

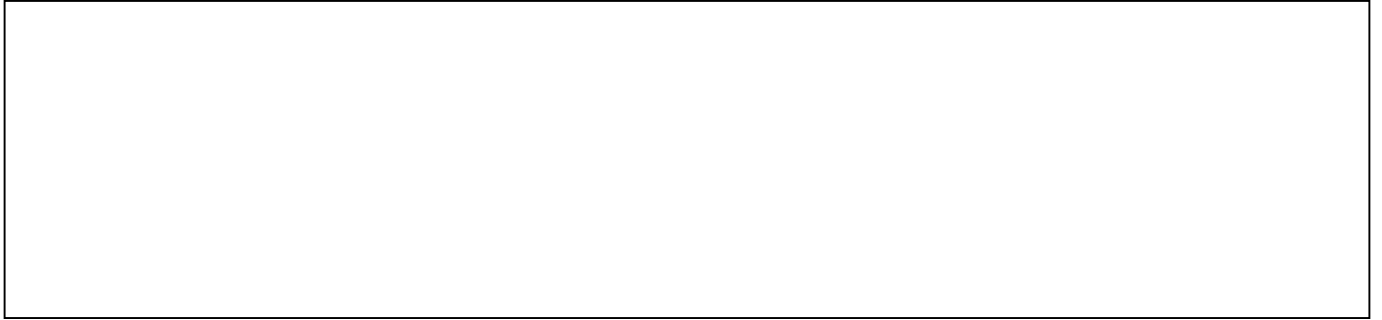
● Building Design

● Save Money and Energy in Existing Buildings

• Why Are We Wasting Energy and Money?



• Renewable Energy to Provide Heat and Electricity



### 16-3 Advantages and Disadvantages of Solar Energy

- Heat Buildings and Water

- Cool Buildings Naturally

- Concentration of Sunlight (Solar Thermal Systems)

- Use Sunlight to Produce Electricity

**Trade-Offs:**

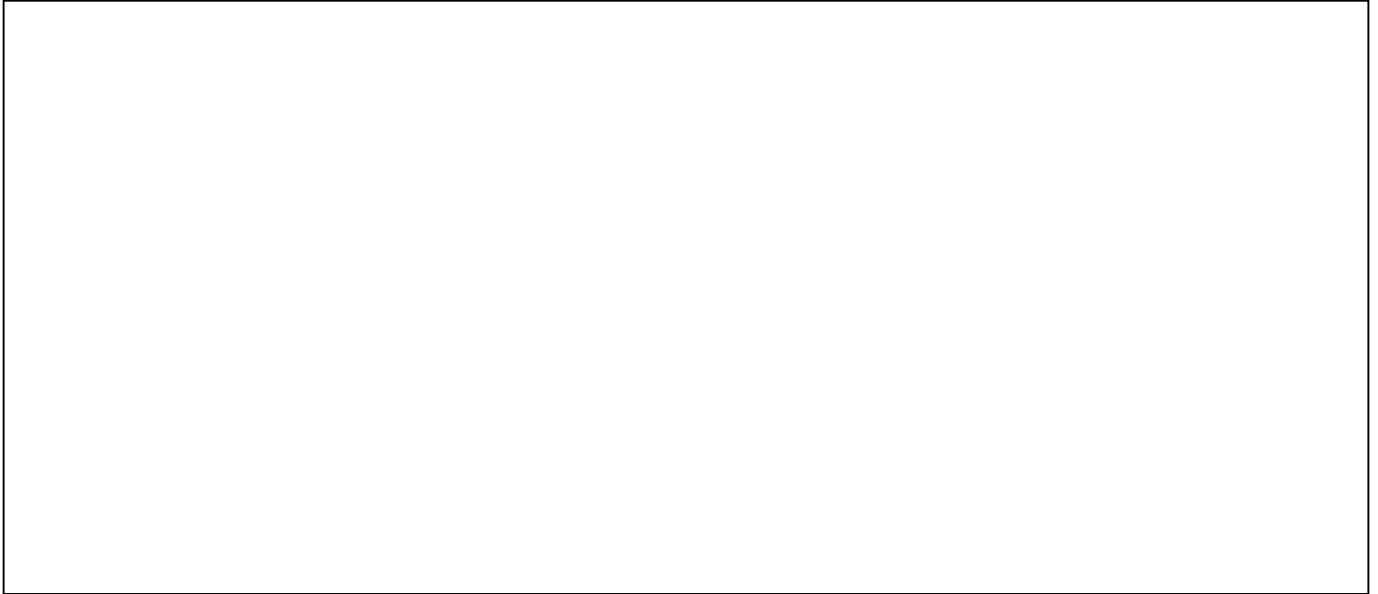
## 16-4 Advantages and Disadvantages of Hydropower

### ● Falling and Flowing Water

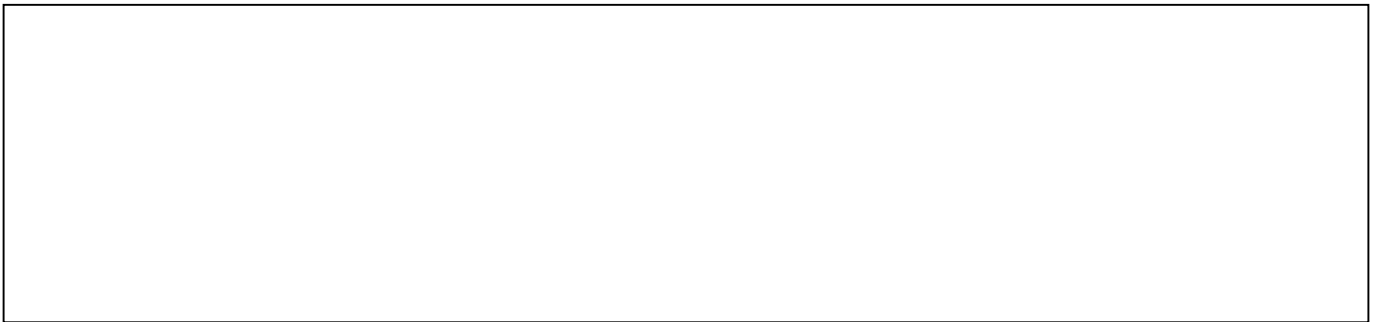
### ● Tides and Waves

## 16-5 Advantages and Disadvantages of Wind Power

- Important Step Toward Sustainability



- Potential For Wind Power in the US



## 16-6 Advantages and Disadvantages of Biomass as a Resource

### ● Burning Solid Biomass

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### ● Convert Plants/Plant Wastes to Liquid Biofuels

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### ● Biodiesel

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### ● Ethanol

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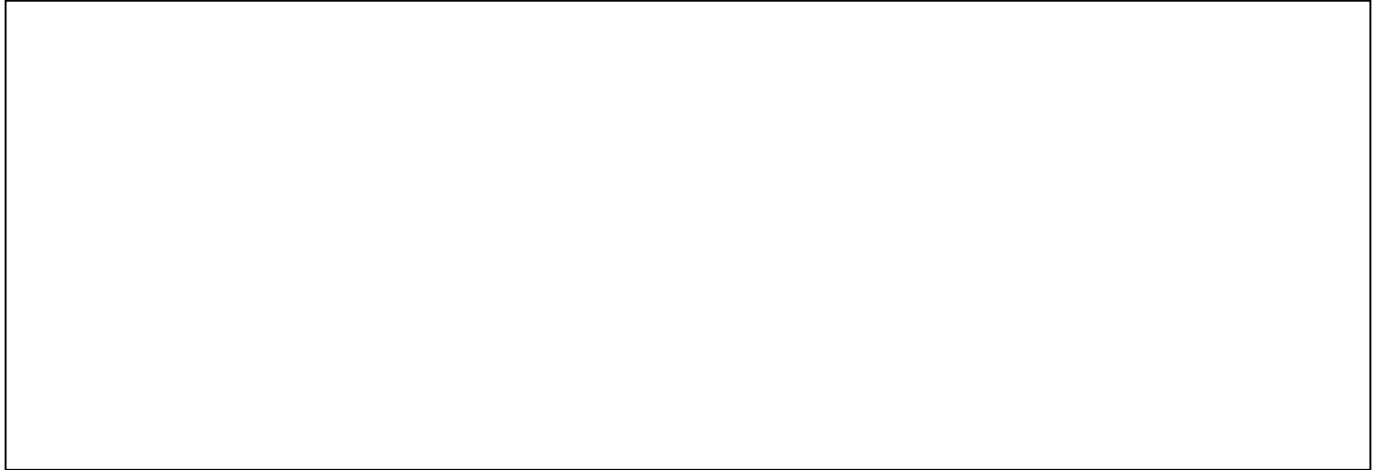
● Gasoline and Diesel Fuel From Algae and Bacteria



**Trade-Offs:**

## 16-7 Advantages and Disadvantages of Geothermal Energy

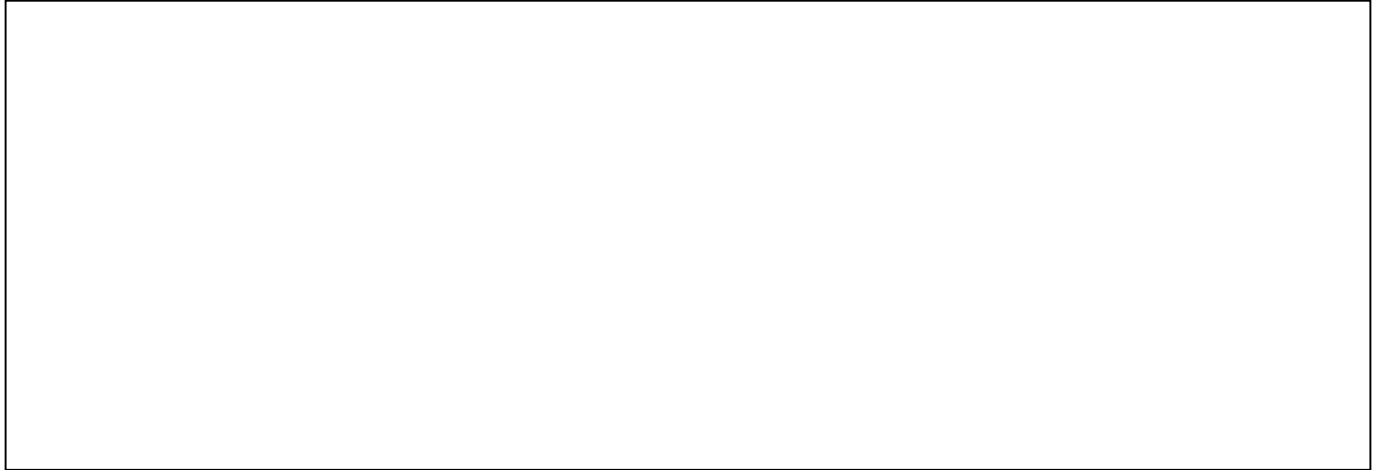
- Tapping Earth's Internal Heat



**Trade-Offs:**

## 16-8 Advantages and Disadvantages of Hydrogen as a Resource

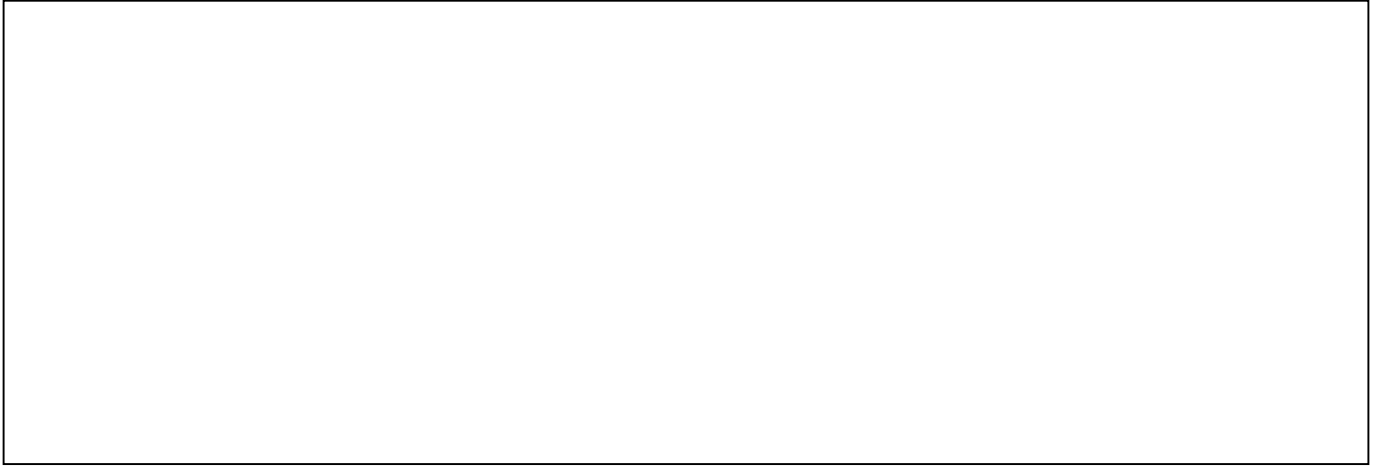
● Will Hydrogen Save Us?



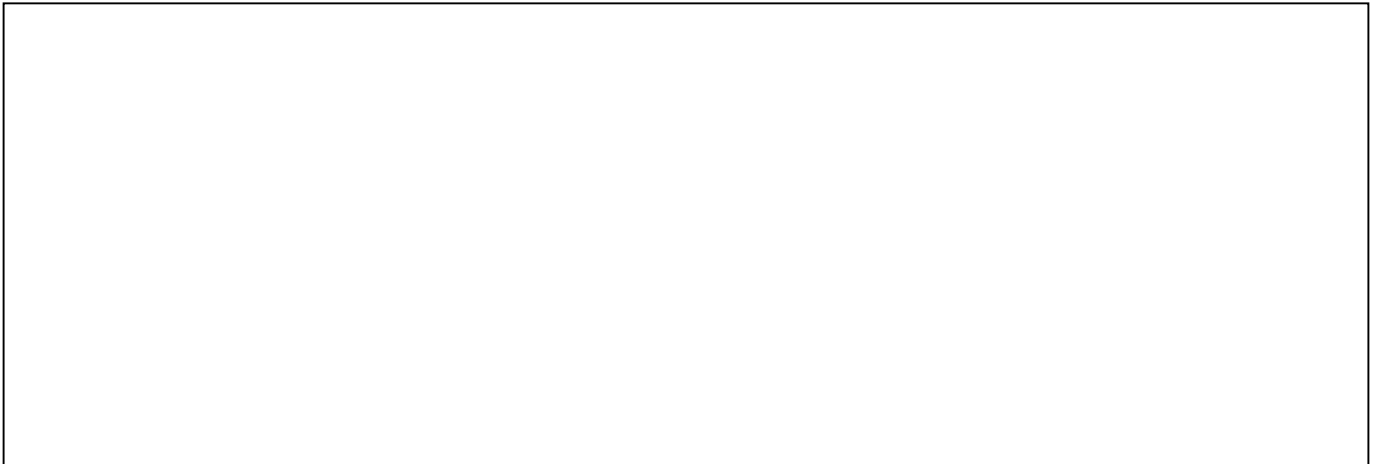
**Trade-Offs:**

## 16-9 Transition to a More Sustainable Energy Future

### ● Choosing Energy Paths



### ● Economics, Politics, and Education...



**Diagram:**