ENVSC 296: Lesson No. 14

Energy & Health

February 17, 2005

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Lesson Overview

- Energy
  - Generation
  - Distribution
  - Consumption
  - Health Effects
- Case Example: MTBE
- Course Paper

Human Energy Needs

- Basic human needs
  - Heat, Light, Cooking
- Agriculture
  - Irrigation, mechanization
- Urbanization
  - Basic services
- Transportation
- Industrial Production

Energy Risks

- Material acquisition and construction
- Emissions from material acquisition and production
- Operation and maintenance
- Energy back-up systems
- Energy storage systems
- Transportation
- Waste Management

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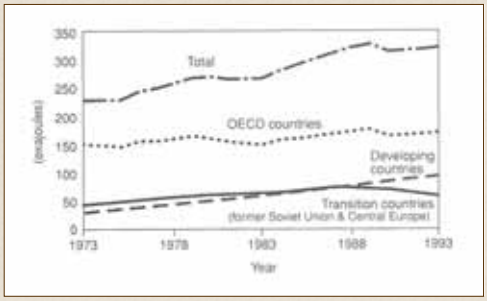
Energy Consumption



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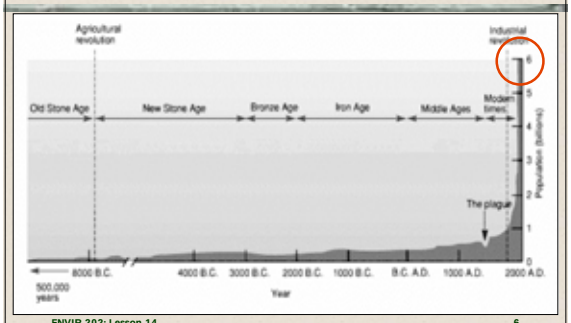
World Population



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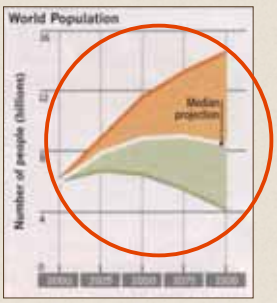
Population Growth



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Mesolithic Energy

- Muscle
- Fire (Wood, etc.)
- Animals
- Water
- Wind
- Health Implications?
  - Good
  - Bad

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Early Industrial Energy

- Water
- Steam
- Coal
- Oil
- Natural Gas
- Health Implications?
  - Good
  - Bad

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Industrial Energy

- Coal
- Petroleum
- Hydro
- Nuclear
- Health Implications?
  - Good
  - Bad

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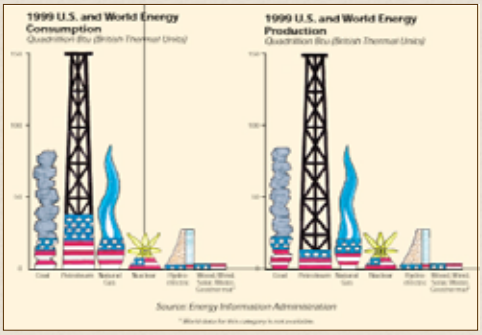
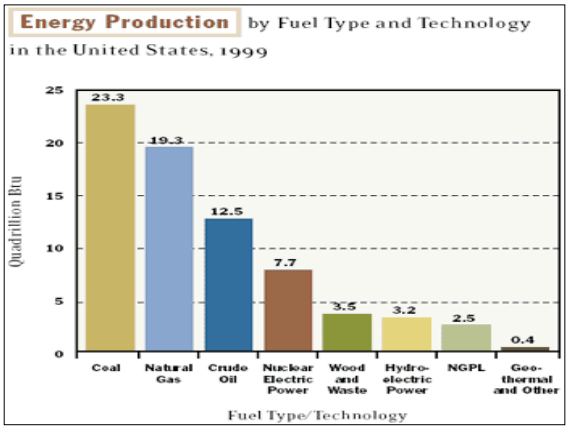
Energy Production & Consumption





U.S. Energy Needs

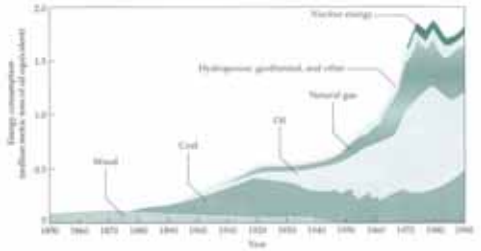
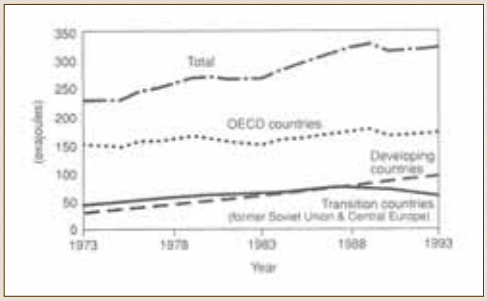


Figure 23.1 **Changes in energy sources and demand in the United States since 1850.**

Energy Consumption



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Alternative Energy Sources

- Solar
- Geothermal
- Wind
- Biomass
- Oceans

- Health Implications?
  - Good
  - Bad

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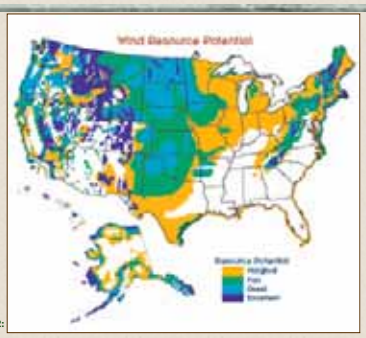
Wind Power Potential



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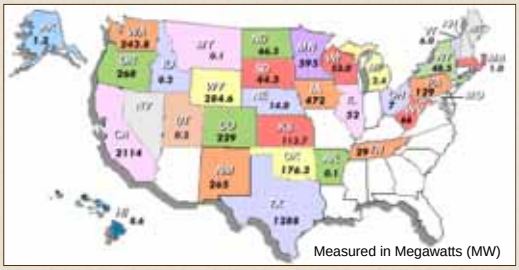
Wind Power Capacity



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Questions

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Course Paper

- General Outline:
  - The class will select a topic to work on from a limited list
  - Each student will pick a different stakeholder group to represent in their paper

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Potential Topics

- Genetically modified foods
- Vermiculite mining, Libby Montana
- Norovirus on cruise ships

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Stakeholders

- Protagonist
- "Victim"
- Government
- Citizen's Group
- Trade Association

For Example: PVC

- Protagonist
  - E.g., Manufacturer of vinyl chloride, B.F. Goodridge, Louisville, Kentucky.
- "Victim"
  - Workers in the B.F. Goodridge PVC plant
- Government
  - OSHA
- Citizen's Group
  - Louisville PTA
- Trade Association
  - Chemical Manufacturers Association

Paper Contents

- Identify who you are, i.e., your name and the stakeholder group you are representing.
- Describe the problem from the perspective of your stakeholder group.
- Present the argument(s) of your stakeholder group.
  - Be sure to support your arguments with evidence – data, facts, opinions of experts, etc.
- Step back from your stakeholder's position and critically assess their argument.
  - What are the strengths of their position? What are the weaknesses?

Mechanics

- The papers should be 10-15 pages in length, including references and bibliography.
- Text should be double spaced.
- Cover page, stapled in the upper left hand corner – no covers, binders, etc..
- Graphics are encouraged, but be sure to properly reference them.
- Bibliogrpahy and references – use any accepted style manual (Chicago, MLA, etc.). But be consistent!

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Questions

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Next Lesson

No class on Monday

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Radiation

Noise

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