

Reminders

- Due Today
 - 1 page individual summary on presentation
- Quiz 3 on Thursday
- Presentations due next week
- Journals due in two weeks, next Thursday
 - Check your email for zip archive of all in-class activities
 - Make sure you have all of them completed in your journal
 - Grades depend on organization, completeness as well as quality
 - **NO LOOSE SHEETS**
 - Each journal entry starts on a new page
 - Each entry includes header: Class number, date, main topic
 - **Highlight each header**
 - Attach any in-class activity handout for the entry
 - Include Table of Contents at the beginning

Agenda, Class 19, June 11

- 1:30-2:00
 - Slides: Natural Resource – Energy
- 2:00-2:50
 - Video: Renewable Energy Basics
- 2:50-3:20
 - Work on Presentation 2
- No in-class activity for today

WASEEM - 4



Renewable Energy

Energy

- **Necessary Resource** like food and water
 - Modern way of life
- **Supply**
 - Conventional focus on increasing supply
- **Demand**
 - New focus on decreasing demand

- *US energy demand is not based on true need*
- *US leads the world in energy waste!*
 - Costs over **\$130 billion** annually
 - Same as what 2/3 of the world's population consumes!
- *According to **Amory Lovins**, unnecessary waste in the U.S.*
 - **\$300 billion** per year
 - **\$525,000** per minute!



U.S. - Our Lifestyle

Over 40% is wasted

- ***inefficient*** energy production
- ***inefficient*** transportation
- ***inefficient*** heating & cooling systems
- ***Inefficient*** appliances
- ***inefficient*** buildings!



Increases the demand unnecessarily

This is an opportunity!

- ***The low hanging fruit to mitigate global warming is to **conserve and increase efficiency*****



Why Focus on Reducing energy waste?

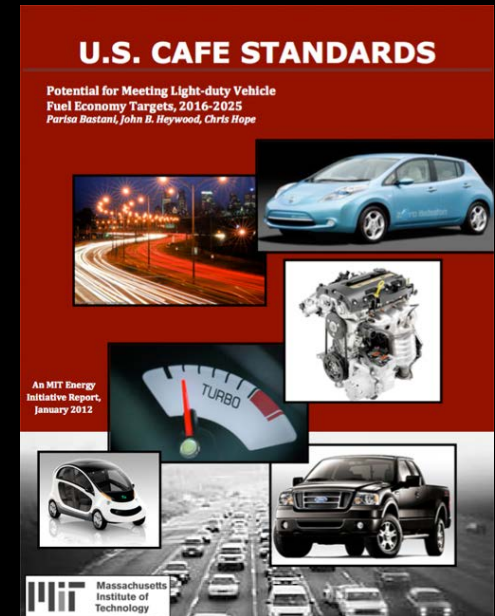
- ***It is an economic & environmental bargain***
 - Save fossil fuel
 - Buy time for phasing in alternatives
 - Lessen oil, water or immigration wars
 - Save other critical natural resources like water & land
 - Can be done now: no new technology
 - Create jobs
 - Increase productivity
- ***Quick and Easy way to Mitigate GLOBAL WARMING and CLIMATE CHANGE***



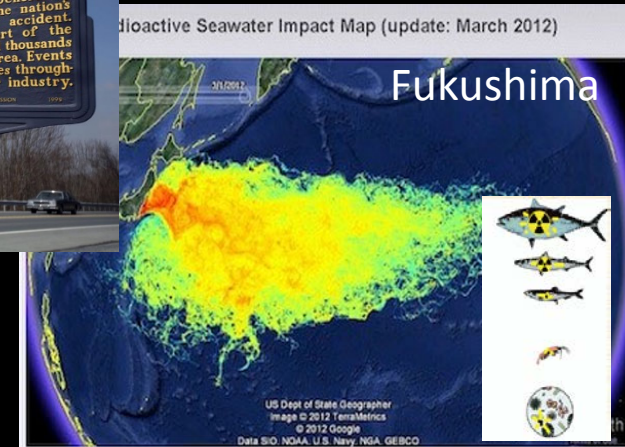
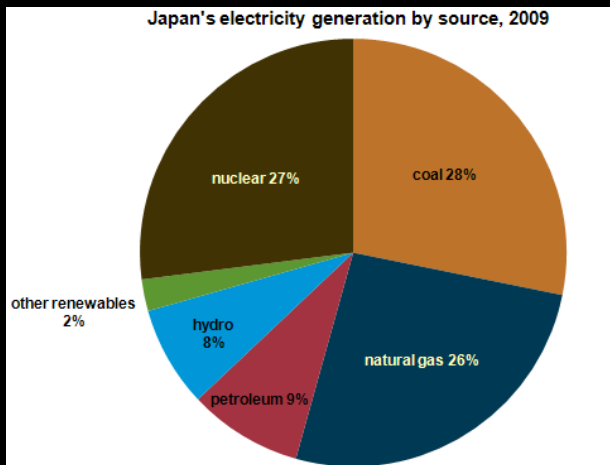
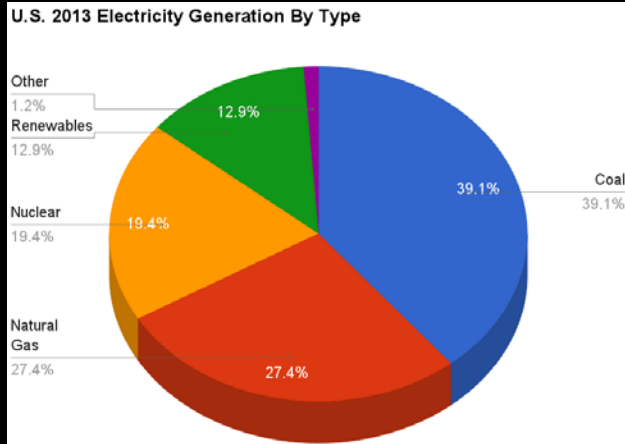


Energy Efficiency

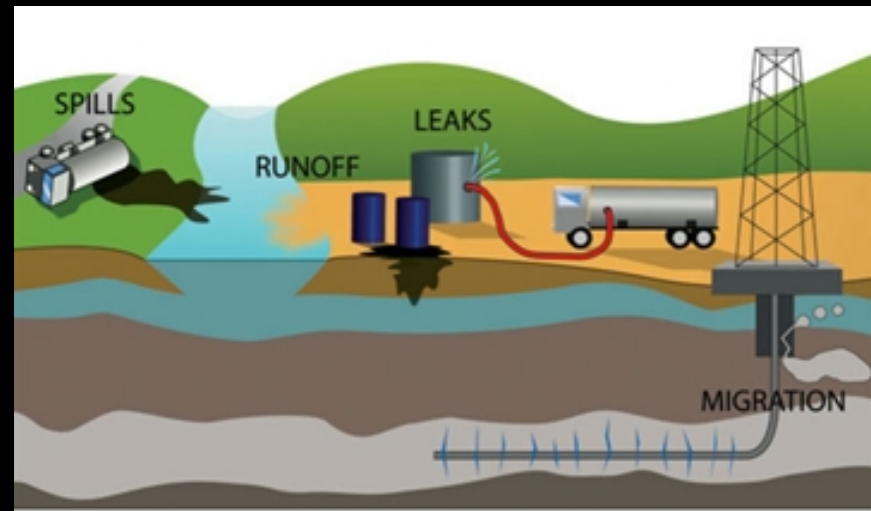
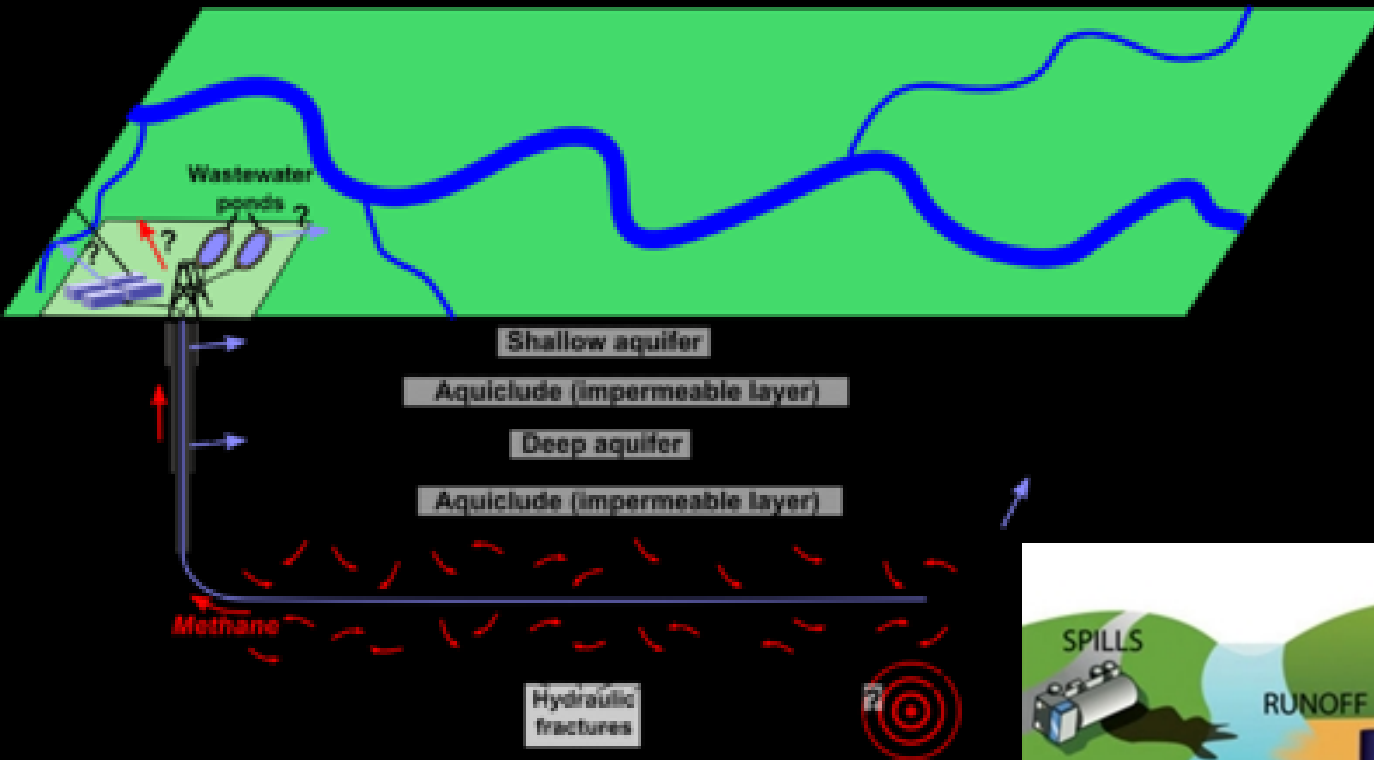
- Increase in CAFE Standards for automobiles
- Strengthen building codes
- Energy efficiency investment for government buildings
- Incentives for greening existing buildings
-



Energy Sources: Conventional, Non-renewable



What is Fracking?



(Riha & Rahm, Framework for Addressing Water Resource Impacts from Shale Gas Drilling (2010))

Fracking Companies are not required to disclose the chemicals used in their operations

Renewable Energy

- What is alternate energy?
 - Alternate to finite source conventional energy
 - Non-fossil fuel energy, Non-nuclear energy
- What is renewable energy?
 - Renewable in human time scales
- What are the different types of renewable energy?
 - E.g., hydro-electric, solar, wind, geothermal, wave, tidal, biofuel
- What are the pros and cons of each type of renewable energy?

Renewable Energy Basics

Video: Renewable Energy Basics

[Modern Marvels: Renewable Energy](#)