A Convenient Fruit: The Impact of Biofuels on Our Energy Future

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Biofuels of the Developed World

- "First Generation" biofuels: biofuels made from sugar, starch, or vegetable oil
- Bioalcohols: fuels such as ethanol derived from the fermentation of sugar/starch
- Biodiesel: produced via the transesterification of oils and fats. The product may then be added to petroleum diesel
- Bioethers: serve to enhance octane ratings in gasoline, as well as improve engine performance
- Biogas and syngas: used to produce methane
- Refined combustion leads to clean fuel burning

Biofuels of the Developing World

- Primarily solid biofuels are used in the developing world
- Examples: wood, grass trimmings, garbage, agricultural waste, manure, nonfood plants
- Combustion systems are inefficient, leading to high levels of pollutants
Pros and Cons of Biofuels

- Goal of biofuels is to be carbon neutral
- Fuels can be readily produced and simply refined
- Most industrial infrastructure can handle biofuel processes
- Increases energy security

- Food vs. fuel
- Land usage for agriculture vs. land use for natural ecology
- More efficient forms of fuel burning
Political Status of Biofuel Development

- International Energy Agency has target global transportation fuel to comprise of 25% biofuels by 2050 (currently 2.7%)
- US political opinion on biofuels is more regional than ideological
- US legislation mandates an increase in biofuel utilization till 2050
Conclusions

• Biofuels are a feasible alternative energy source
• Most of the infrastructure required for biofuel development exists
• Cleaner than traditional fossil fuels, easier to develop than most other renewables

Thank You For Listening! Questions?

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