

Shale I Frack or Mine: Comparing Natural Gas to Other Fossil Fuels

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Abstract

This research explores the benefits and drawbacks of using and obtaining fossil fuels, namely natural gas, coal, and oil. Hydraulic fracturing, also known as fracking, is a controversial process on the forefront of the present day pursuit for clean energy. This paper details the fracking method and any environmental repercussions involved, including the possibility of contamination of groundwater. The three fossil fuels are compared several ways, including volumes of proven reserves and the amount of carbon dioxide emissions. Economic prospects and profitability of natural gas and coal are examined, taking into account the cost of extraction and cleanup. Shale's potential as an energy source for natural gas is discussed, as well as complications with storing and transporting natural gas. Natural gas requires completely sealed high-pressure pipelines and storage tanks; otherwise, methane and other trace gases could leak. Benefits and disadvantages of the energy hybridization known as coal bed methane are reviewed. Coal bed methane is coal that has absorbed natural gas during the decay of organic material. Coal mining methods are mentioned in comparison to the impacts of fracking, specifically in environmental context. The use of fossil fuels in the future and ideas for increasing energy efficiency are pondered in the conclusion paragraph.

Keywords: Fracking, natural gas, energy