

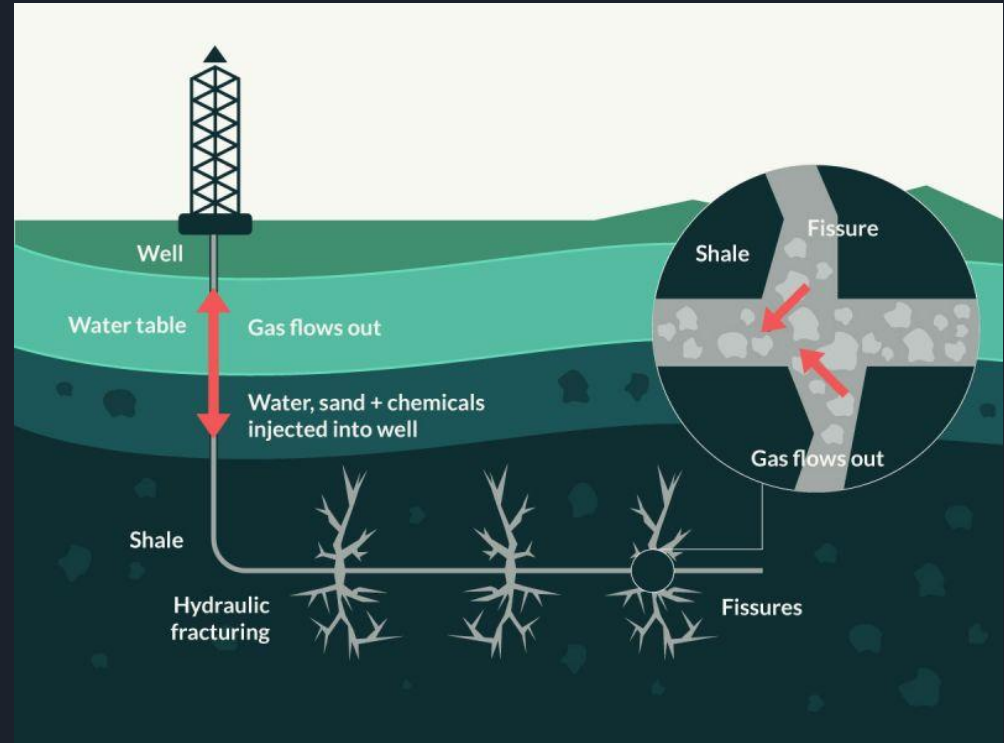
Why Hydraulic Fracturing is Necessary for the United States

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Andrew Morgan

Debate 1
FANR 1500
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What is Hydraulic Fracturing?

- The process of injecting liquid at high pressure into subterranean rocks to force open existing fissures and extract gas

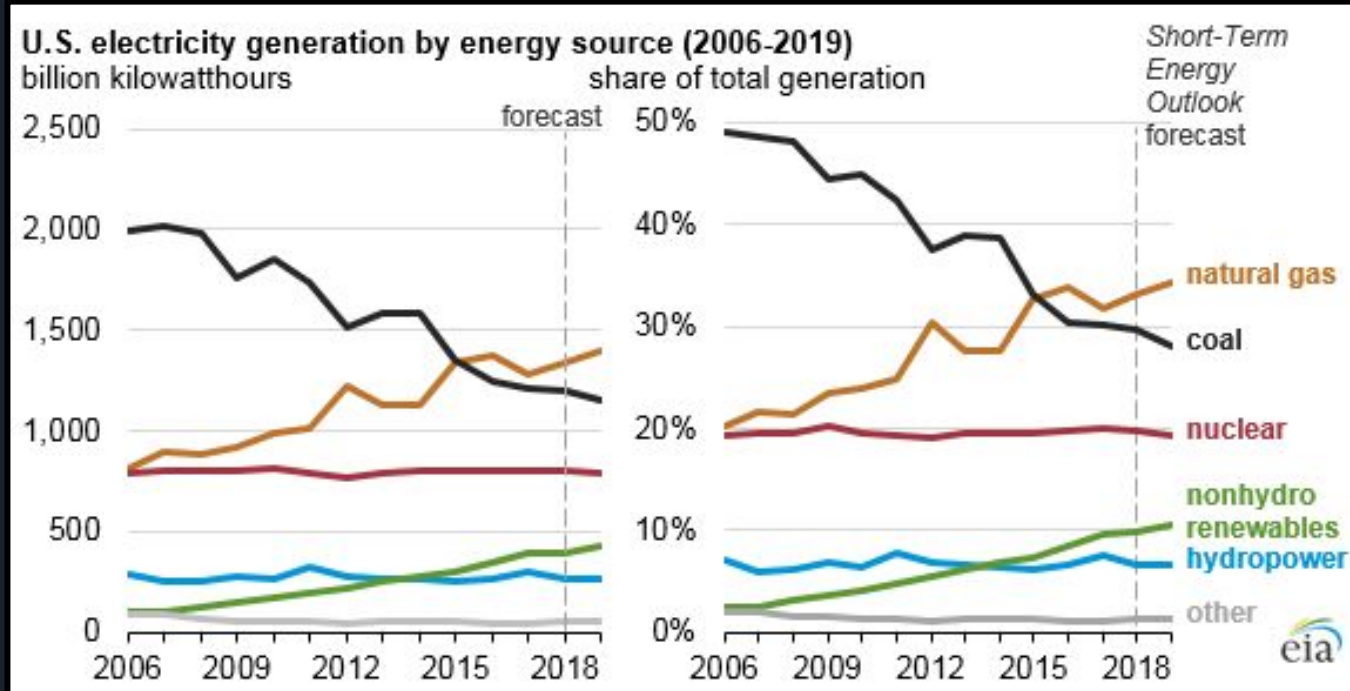




Three Key Benefits

- **Excellent Energy Production To Carbon Emissions Ratio**
- **Stimulates Economic Growth**
- **Energy Policy Supportive of Economic Self-Reliance**

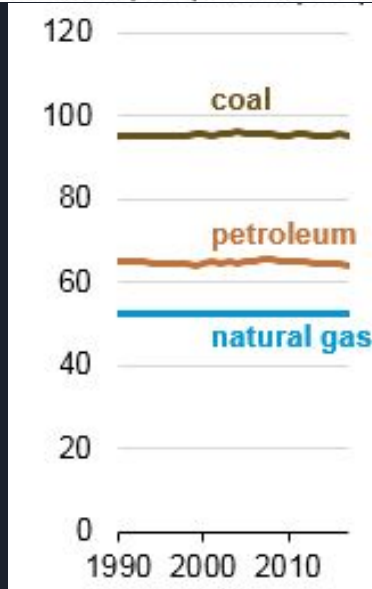
Argument 1: Energy Production v Carbon Emissions



Hodge, EIA (2018)¹

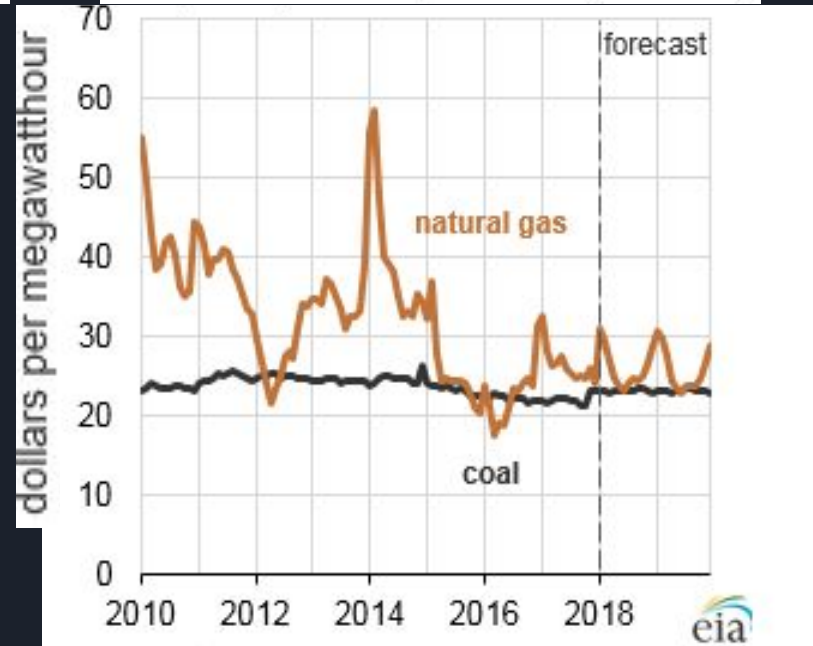
Argument 1: Energy Production v Carbon Emissions

Energy-related CO2 intensities by fuel (1990-2017)
million metric tons per quadrillion British thermal units



Goren, Lindstrom, EIA (2018) ²

U.S. average fuel cost of natural gas and coal
delivered to electric generators (2010-2019)



Hodge, EIA (2018) ¹

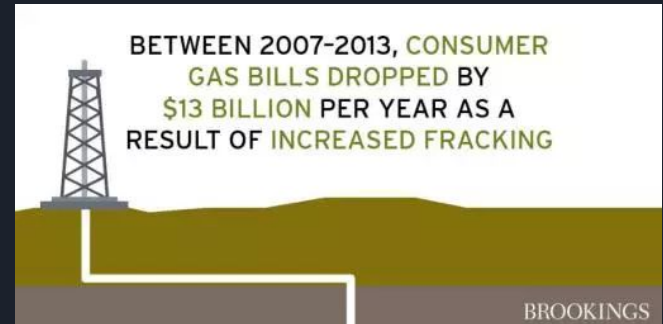


Argument 1: Energy Production v Carbon Emissions

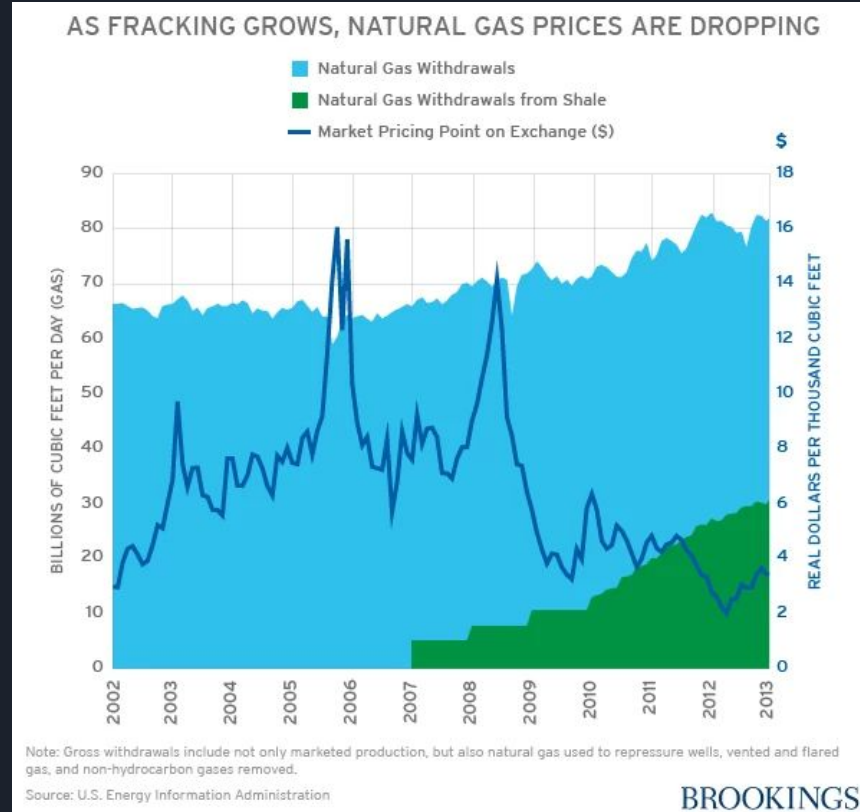
- Natural Gas Production Majority Source at 33%
- Technological Improvement Means More Efficiency
(Natural Gas \approx 25-30 dollars/MW hr)
(Coal \approx 23 dollars/MW hr)
- Carbon Intensity
Natural Gas: 52 (MMmtCO₂/quad Btu)
Coal: 95 (MMmtCO₂/quad Btu)

Argument 2: Economic Growth

- Cheaper prices for consumers
- Job creation
- Lower dependence on foreign oil

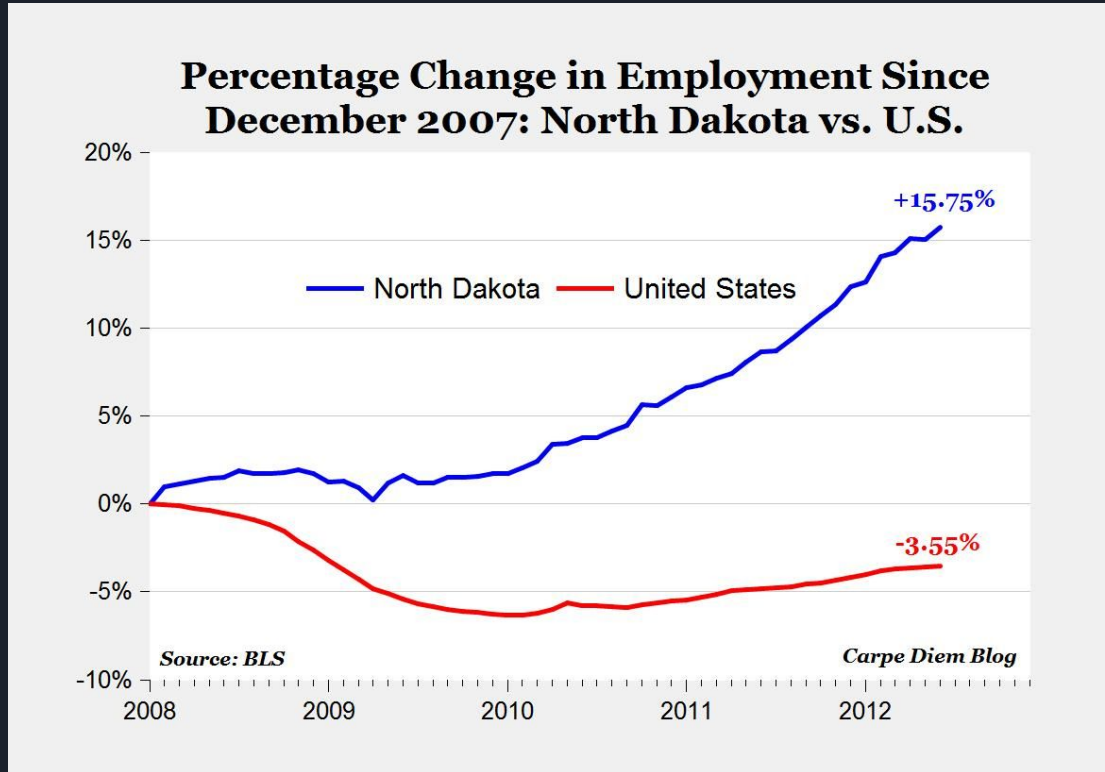


Argument 2: Economic Growth



<https://www.brookings.edu/blog/brookings-now/2015/03/23/the-economic-benefits-of-fracking/>

Argument 2: Economic Growth



<http://mjperry.blogspot.com/2012/07/oilman-harold-hamm-on-americas-premier.html>

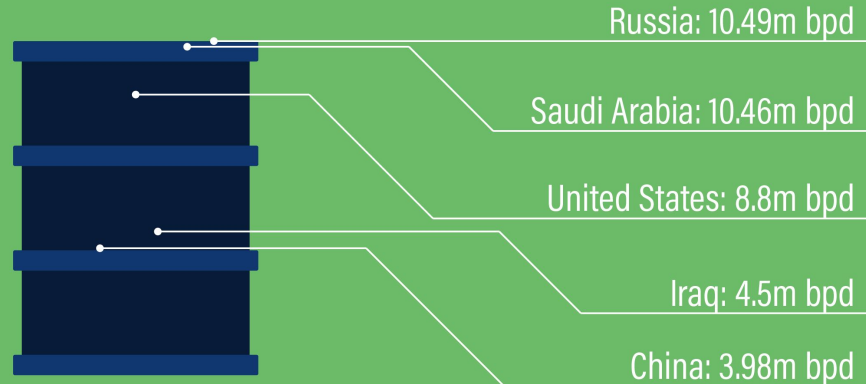
Argument 3: Energy Policy

- Self-reliance
 - Increasing population
 - Possible industry disruptions

Joint Organization Data Initiative
(2015)
<https://www.fluenta.com/news/top-five-oil-producing-countries-will-top-table/>

TOP 5 OIL PRODUCING COUNTRIES

Total Crude Oil Production in December 2016

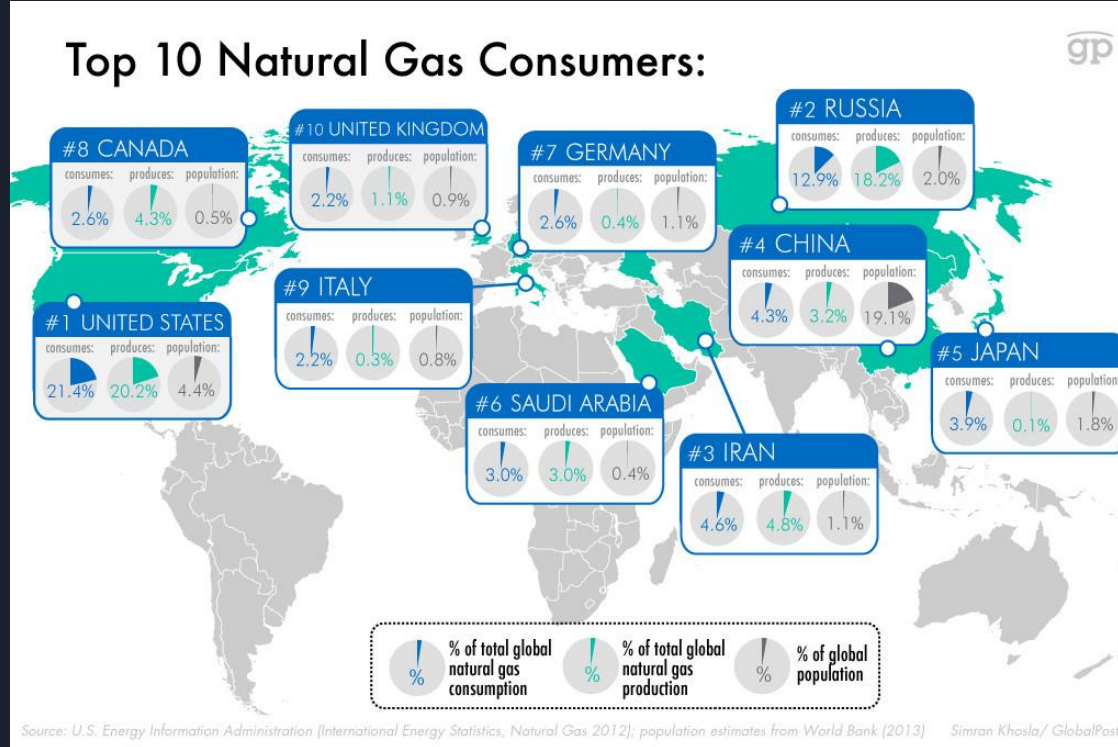


Source: Joint Organisations Data Initiative (JODI) via Bloomberg.com

FLUENTA

Argument 3: Energy Policy

Top 10 Natural Gas Consumers:



U.S. Energy
Information
Administration (2012)
<https://imgur.com/yUX7Kkn>

A Clean Burning Way To Keep America Relevant





References

1. Hodge, Tyler. "U.S. Energy Information Administration - EIA - Independent Statistics and Analysis." EIA Forecasts Natural Gas to Remain Primary Energy Source for Electricity Generation - Today in Energy - U.S. Energy Information Administration (EIA), 22 Jan. 2018, www.eia.gov/todayinenergy/detail.php?id=34612.
2. Goren, Eliza, and Perry Lindstrom. "U.S. Energy Information Administration - EIA - Independent Statistics and Analysis." Energy-Related CO2 Emissions from Natural Gas Surpass Coal as Fuel Use Patterns Change - Today in Energy - U.S. Energy Information Administration (EIA), 17 Aug. 2016, www.eia.gov/todayinenergy/detail.php?id=27552
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5. JC Findley, Painting, Artist's Website <https://jc-findley.pixels.com/featured/all-american-oil-pump-jack-jc-findley.html>
6. Friends of The Earth, Nonprofit Website <https://friendsoftheearth.uk/climate-change/fracking-facts>