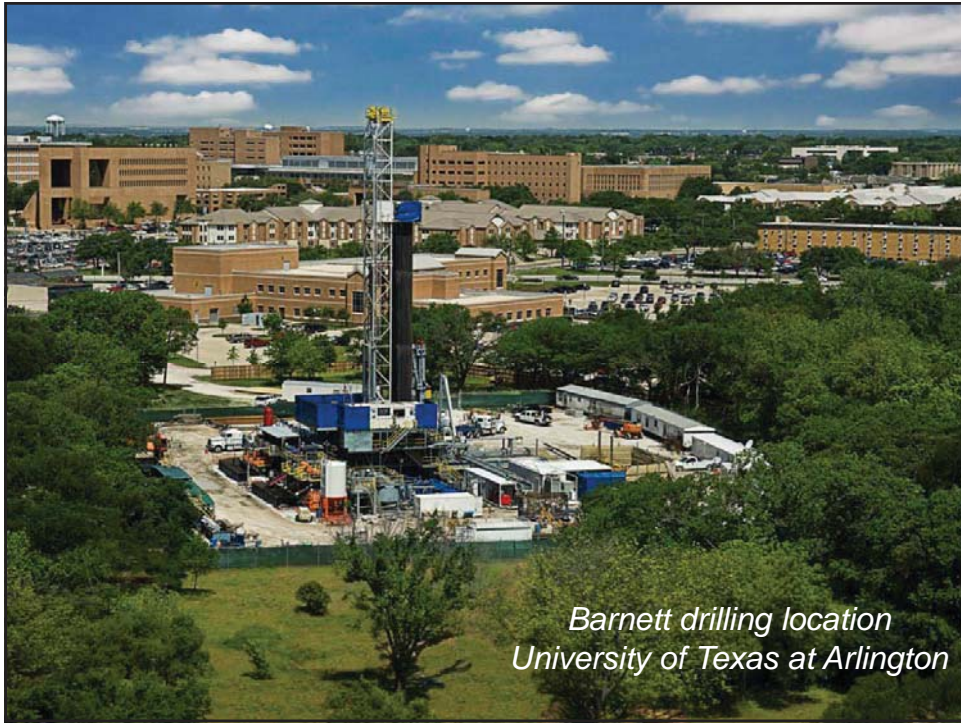


# SHALE GAS EXTRACTION: COST AND BENEFIT

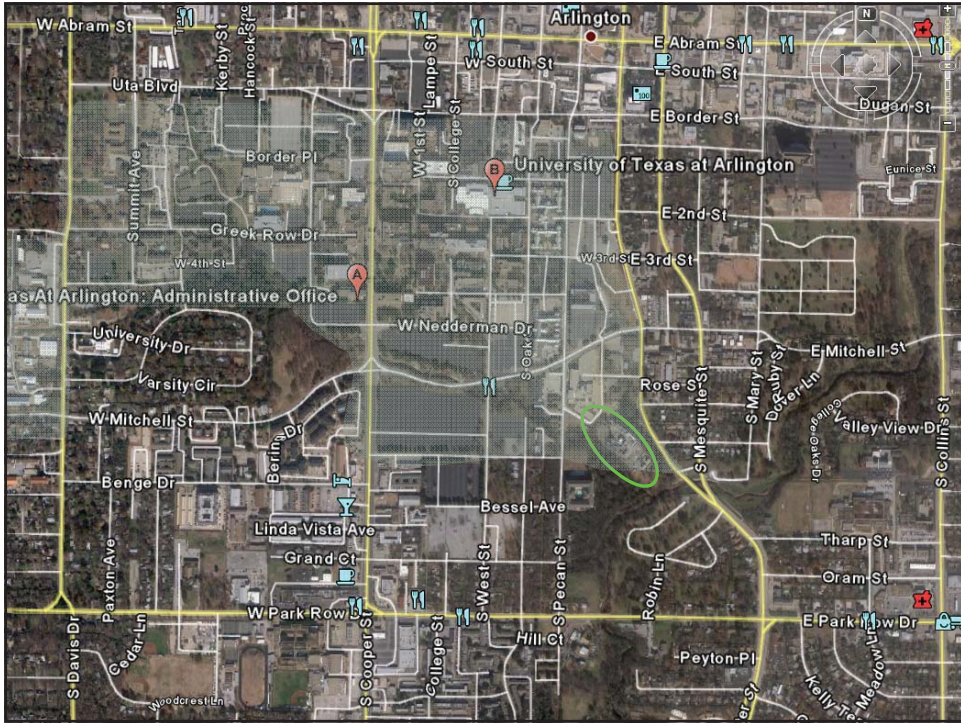
Aviezer Tucker  
The Energy institute, UT Austin

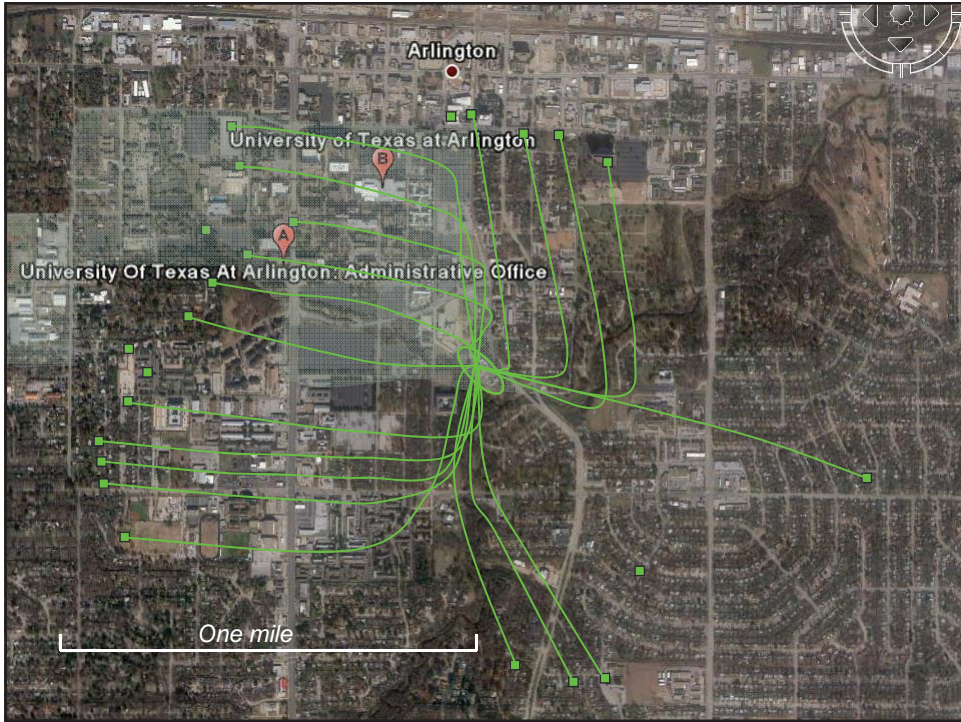
## European hydraulic policies

Country	Policy
Poland	Enthusiastic Support
Ukraine, Lithuania, Estonia, Hungary, Serbia, Slovenia, Sweden, Denmark, Spain, Portugal, Greece.	Open for bids
United Kingdom	Macro-Political Enthusiasm
Germany	No Federal policy
Baden-Wittenberg	No Licenses
Lower Saxony	Granted Licenses
Ireland	Contested
Romania	Flip-flopping, now open for bids
Czech Republic	Two years moratorium
Bulgaria, Netherlands	Indefinite moratorium
France	Illegal



*Barnett drilling location  
University of Texas at Arlington*

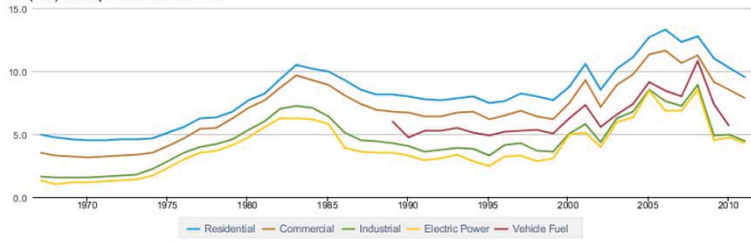




# US Gas prices

25. U.S. Natural Gas Real Prices by Sector, 1967-2011

Real (2005) Dollars per Thousand Cubic Feet\*



U.S. Energy Information Administration, Annual Energy Review, Table B.8.

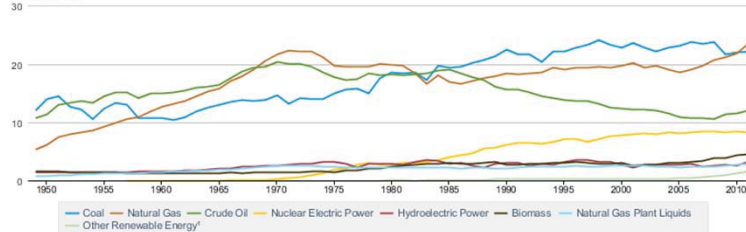
\* In chained (2005) dollars, calculated by using gross domestic product implicit price deflators. See "Chained Dollars" in Glossary.

Adjusted for inflation, natural gas prices in the different sectors of the economy generally rose and fell in unison. Because residential and commercial natural gas prices were based on higher per unit charges for lower usage, they were higher than industrial and electric power sector prices in every year from 1967 to 2011. From 2008 to 2011, real prices fell 25 percent in the residential sector, 31 percent in the commercial sector, and 50 percent in the industrial and electric power sectors.

## Gas overtaking coal

10. U.S. Primary Energy Production by Major Source, 1949-2011

Quadrillion Btu



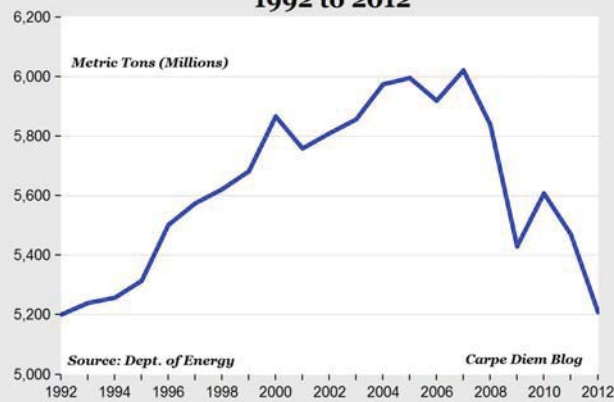
U.S. Energy Information Administration, *Annual Energy Review*, Table 1.2.

\* Geothermal, solar/PV, and wind.

Since 1949, most energy produced in the United States has come from fossil fuels—coal, natural gas, and crude oil. Coal, the leading energy source at the middle of the 20th century, was surpassed by crude oil and then by natural gas. By the mid-1980s, coal again became the leading energy source produced in the United States, and crude oil declined sharply. In the 1970s, electricity produced from nuclear fuel began to make a significant contribution and expanded rapidly in the following decades. From 2001 to 2011, biomass production rose 72 percent. In 2011, natural gas production exceeded coal production for the first time since 1981.

## Environmental benefits

U.S. Energy-Related CO<sub>2</sub> Emissions  
1992 to 2012



Source: Dept. of Energy

Carpe Diem Blog

## Insufficient Explanations

- Not Technological or Scientific: Identical Independent Variable.
- Legal/ property rights explain only difference with the U.S and
- Center/ periphery tensions explain internal tensions in Ukraine, Bulgaria and New York State, but only there and in opposite directions.
- Economic benefits explain Netherlands vs. Poland and Ukraine, but not France.
- Lack of popular understanding of price elasticity and sensitivity to energy independence.

## No political trust leads to Fear

- Thirst
- Hunger
- Disease
- War



## How to build rational trust?

- Engagement with Civil Society
- Transparency
- Good governance
- Accountability
- Deliberative democracy.