

## **“Fear of Fracking”**

### **Outline of comments for panel on Consequences of the Development of New Energy Sources**

**Jeff Frankel, Professor, Harvard University**

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1. Shale gas and other unconventional sources are already a big deal.
  - a. Whether you measure the impact on the US in terms of output, energy mix, jobs, international trade {Javier Blas' net oil imports slide}, OR GHG emissions {Jim Hamilton's 1<sup>st</sup> slide}, it is already large, and growing rapidly.
  - b. The shale boom was unexpected. A few short years ago, industry was so sure we would be net importers of natural gas that it invested heavily in LNG terminals for this purpose.
  
2. My view: it is quite a good thing, overall.
  - a. Especially for the economy
    - i. Short run: Jobs, at a time of high unemployment. (If the economy were at full capacity, I would be taking the opposite side of the jobs claim.)
    - ii. Medium run: “Re-shoring” of manufacturing to North America.
    - iii. Long run: Lower vulnerability to future oil shocks.
  - b. But also for national security.

- c. And even for the environment... despite the opposition of many environmentalists, who seem to have 3 sets of fears.
- i. They worry that shale gas & oil will **displace renewable** energy sources. But the fact is that GHG emissions can't be reduced without cutting coal (or, perhaps, with carbon capture and storage, if it turns out viable), and that *shale gas is already doing precisely that in the US*. {JH slides: Natural gas is replacing coal in US electricity generation; and US GHG emissions have unexpectedly peaked.} If renewables or fusion or something else can take over after 2050, great; but natural gas is a bridge, which we need to be on now. Gas also beats coal and oil with respect to local air pollution.
  - ii. They worry about **local risks** (to water supplies, methane leaks...). I am not in a position to make an informed judgment about these risks.
    1. On the one hand, opponents often fail to compare them to the risks of coal, conventional oil, LNG, & nuclear, which are substantial.
    2. On the other hand, it is not enough to say that these risks should be low if the new deposits are developed appropriately. We need high-quality environmental and safety regulation, with an emphasis on enforcement, to make sure that happens (unlike the sort of lax regulation that gave us the Deepwater Horizon disaster).
  - iii. Particularly in Europe, some have a fear of new and unfamiliar technologies, which goes under the name of the "**precautionary principle**," and which often forgets to compare the worst-case risks of the new technology with the known downsides of the old technologies. (E.g. GMOs vs. pest-vulnerable crops. Or Viagra vs. powdered rhino horn).

3. The most interesting lesson of the shale revolution: importance of the price mechanism
  - a. Background. There were – are – 2 schools of thought in polarized US politics
    - i. “Drill here, drill now!”
      1. Continue subsidies to oil (tax breaks, opening up leases on federal lands at artificially low prices)
      2. Relax health, safety and environmental regulations.
    - ii. Command-and-control environmental regulations to overcome “barriers” to adoption of technologies that would allegedly save money while saving energy,” so e.g., Kyoto GHG targets won’t cost anything.
      1. Mandate renewables, zero-emission cars, fluorescent bulbs, low-flow plumbing fixtures...
      2. Technology will save us. Each engineer has his favorite: fuel cells, ethanol, wind power, solar power, wave power, CCNG, CCS, many more...
      3. Who knows which will work and which will not?  
Shale gas did not even appear on these lists.
  - b. In between, sensible economists say, “get the prices right, and then let the market work.” Start by abolishing fossil fuel subsidies, and then ideally go on to tax carbon (or impose tradable permits).
  - c. The lesson of the fracking boom?
    - i. Superficially it might seem to support “Drill here, drill now.” And it is true that it shows the virtues of the market and American entrepreneurs and tinkerers.
    - ii. But we want to think about the implications for policy. Energy policy must take into account the three externalities:

macroeconomic stability, environment, and national security. Federal subsidies did not bring about the fracking revolution. Nor did relaxation of environmental standards. Nor, on the other hand, did mandates.

- iii. The shale deposits were known, and the technology had been around. What changed? The price of oil went above \$70/barrel, so it became profitable. (More recently, as the US price of natural gas has fallen, the gas part of the fracking revolution has slowed.)
- iv. The important inference for policy, as I see it, is that **if carbon is priced appropriately**, taking into account environmental and national security externalities, **the market will respond appropriately**. Government mandates and subsidies for specific technologies or specific energy sources are not needed. The best technologies will reveal themselves, and often they will be things that weren't even on our lists.