



## A glimpse through the smoke and mirrors of shale economics

By John Dizard

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There is a grim argument in the energy industry over how much it really costs to produce natural gas from shale rock. The advocates of favourable shale gas economics seem to be winning, for now. That means energy bankers are kept busy selling interests in shale assets.

You would think this is an easy question to answer. Industry or government accountants could add up commonly agreed numbers for the nation's additions of gas reserves from shale, total the bills of shale gas exploration and production companies, and divide the one figure with the other, discounted for net present value. You would be wrong. The data and analytic methods are not commonly agreed.

This is disturbing. If more shale gas can only be produced with much greater difficulty, at far higher prices than believed, the clean energy future will be far less sunny than we see in all those advertisements and conference programmes.

You might think the buzz-killers at the shale party would have been refuted by the raft of multibillion-dollar shale property buy-outs and joint ventures announced in recent months. I don't agree. If the future of the industry is that good, why are the principals selling out? Can't they finance themselves from operating cash flow?

The answer is: no.

The shale advocates will also point to the "strip" of futures prices, which have some liquidity for three years or so, and to the high rates of drilling for shale gas. These tell an encouraging story, if you're a consumer or in the political class. Today's spot price is around \$4.50 per mcf (thousand cubic foot). Three years out this creeps close to \$6. Horizontal drilling rigs, of the sort used to tap shale rocks, are pretty busy, accounting for about 550 of the 700-odd gas rigs operating in the US. Therefore, the reasoning goes, a transition from dirty old coal power will be inexpensive and seamless, just like on television.

A couple of weeks ago, I quoted Ben Dell, an analyst with Bernstein Research in New York, as estimating the shale gas industry really needs a price of \$7.50-\$8 to break even on its all-in costs of finding and producing the stuff, which would be a 60 per cent price rise. Not easy for many people, or industries, to pay these days.

More people have written to me on this than on any other topic over the past year. Sceptics egg me on. Industry advocates forward consultants' studies talking of "learning curves" and \$5 gas as far as the eye can see. There are not many neutrals.

So I worked people in the energy service industry, and gas producers to try and refute Ben Dell's numbers. I could not. My industry sources' numbers all converged close to \$8 per mcf. They do not believe the producers are covering their all-in costs.

This does not mean the company officials are telling outright untruths. However, the "costs" to which they refer, outside of regulatory filings, are not entirely inclusive, and gas reserves developed with these costs are generously estimated.

For example, as a Texan gas man described the now-hot Marcellus gas fields in Pennsylvania: "One company was saying they can develop reserves there for a little over \$1.15 per mcf. If you ask them, they say it costs them \$3m to drill and complete wells that average 3bn cu ft of reserves, produced over 40 years. Those reserves are calculated on the basis of high initial production rates that decline rapidly. There is insufficient data to have an accurate estimate for the assumed life of the wells. You can't check any of this, because unlike elsewhere in the US, the state does not release official monthly production numbers for three years.

"There is a ton of sleight of hand going on here," he alleges. "The 'costs' don't include the cost of the land, the seismic survey, the operating costs, and other expenses." Remember, though, that no one with a competent securities lawyer ever needs to tell a lie.

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"What we can't figure out is why the industry continues to drill as much as they do with prices as low as they are," says a senior executive at one of the big energy service companies. He's not selling stock, though. He just sells equipment and services to people who do.

Here is one possible answer: the shale gas exploration and production companies leased a lot of acreage in the recent boom that needs to be proven as gas-laden within a short time to be kept on the books. They drilled with investors' and lenders' money to do that, and squeezed their suppliers to stretch out the budgets.

Now they're selling the semi-proven acreage. The majors, which can't seem to explore their way out of a grocery bag these days, at least in the onshore US, needed those elastic "reserves" to replace politically risky hydrocarbons in geologically better locations. They, and the remaining independent producers, will be bailed out by gas at \$10 an mcf - double today's level - or higher. Then the service industry will be able to raise prices to cover its full costs.

Don't tell the political people. Not that they'd listen.

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