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Tech Talk - Some Thoughts on Current and Perceived Oil and Natural Gas Supply

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For most of this past year, these posts have reviewed and then discussed data on the state of different reservoirs of oil and gas that ultimately provide the power we need and use every day. However, as we come to the end of 2011, it seems as though there is a gloss or spin applied to stories about the state of global energy supply, which implies that concerns about future energy supply are overstated. Instead, the impression is left that there will be, in the immediately foreseeable future, no return to shortages. So this post will be a more general view of the topic, less concerned with absolute numbers and references, but seeking to suggest that these perceived words of wisdom are like the promises of a return to $30 oil that we heard only three or so years ago, likely to fade into oblivion once they have served their immediate purpose.

It should be noted up front that there are considerable differences between the supplies of natural gas becoming available, and those of crude oil. Natural gas reserves are still increasing; I wrote just recently of the realization that exists in Azerbaijan that the gas produced from the Shah Deniz field will have a hard time competing in the global marketplace in three years because of the arrival of natural gas from the Levant Basin. The relatively low prices for natural gas in the United States brought about by the development of wells in the gas shales such as the Barnett, Haynesville, and Marcellus, and their initial high productivity, will continue to make it difficult to see much increase in price. Yet this comes at a time when the price that natural gas is sold for in America is around $3.50 per thousand cubic feet (kcf) or $124 per thousand cubic meters (kcm). That price is often insufficient to totally cover the costs of its production and return a profit to all the investors, with some indications that a profitable price would need to be closer to $6.00 per kcf. The low price of natural gas relative to world prices, however, means that it helps to keep American industry competitive, since fuel costs are usually significantly lower here than elsewhere.

China continues to show foresight in acquiring fuel since their agreement with and the creation of the pipeline from Turkmenistan now gives them natural gas at a competitive price ($280 per kcm - $7.93 per kcf) relative to the $400+ per kcm that Russia is charging Western Europe, though that price will also be vulnerable to supplies made available as the Mediterranean fields come on line.

The bent of recently appearing stories seem to imply that the United States is moving toward significantly greater crude oil production, and thus a greater independence from foreign suppliers than will actually be the case. Folks such as Dr Yergin are projecting production of oil from the shales around the country as rising to some 2.9 mbd by 2020 and being sustained through time – neither of which is likely since the Bakken in North Dakota may well start declining and be significantly below 600 kbd within four years, and the likelihood of new developments bringing in more than this on a sustained basis are not great.

The emphasis on such a possibility, however, removes some of the pressure and concern in the short term over the health of the global supply situation, and the concurrent dependence of the United States on foreign fields and suppliers. One need not be (as perhaps the argument goes) so worried about the time needed to bring Libyan production back to 1.6 mbd. Optimistic reports talk of Libya reaching 1 mbd, yet still leave a concern that without a stable government and infrastructure, it will be a little difficult to reach those earlier production levels. And the promises that Iraqi production will rise to levels far above 3 mbd may be more dependent on political stability in a country that isn't showing much at the moment. Any thought that the Arab Spring would bring swift changes in the governance of the countries involved, and leave oil exports to the world sustained at previous levels, appear also to be less than realistic as countries such as Egypt begin to head into the second cycle of that revolution. The Syrian government is currently blocked from exporting (and thus producing) a third of their normal level, which has taken 100 kbd or so from the market, and the situation with Iran continues to fluctuate.

Now there are some political benefits to being able to project that the world is going to have more than sufficient oil for the next few years, among them the distraction from the less than healthy state of the alternate fuels and energy industry. Exxon noted in their recent annual report that they see little significant impact from solar and wind energy on the overall global supply of power over the next forty years. Were the nation still fixated on where we are going to get our power over the next decade, then the collapse of Solyndra due to poor market support, and the bankruptcy of Range Fuels because they could not produce cellulosic ethanol at the scale needed to have any impact at all, would raise worrying questions as to how we plan to cope with shortage. The current optimistic state of mind, of course, also makes it less of an imperative to approve the Keystone pipeline, which may now not be approved.

Because of this lack of concern, we see the Administration moving ahead to restrict further the use of coal-fired power stations through EPA enforcement of tougher emissions standards, and the corn ethanol subsidies appear to be very rapidly on the way out, which may impact the volumes of ethanol (now over 900 kbd) coming to the market in the future. But if the United States has become a net exporter of fuel, though mainly diesel, why should we worry? Perhaps because this is such a small fraction of the overall total that it is insignificant, even though it makes a nice headline.

The overall picture of crude oil supply to the United States, in reality, has hardly changed at all. Yes, demand for gasoline is down as cars are being driven less these days, and fuel economy changes have some small effect, but the economy is not robust (nor is that of Western Europe) and sustained high fuel prices are not going to help with recovery. At the same time, demand in Asia continues to increase, and more nations in the Middle East and elsewhere are shipping oil to China in agreements that will still be in place were the United States to continue to recover and suddenly need additional oil to sustain that recovery of growth.

Current complacency and spin will not make those agreements go away, nor will additional oil appear by magic to assuage American demand. The only question that I have is whether the current spin can be maintained through 2012. It is certainly unsustainable through 2014, and what impact the realization of reality might have, were it to become obvious by, say September of this year, as the election enters its final phase, is an ongoing puzzle.

We live in interesting times indeed, and I hope that you all have a Prosperous and Happy Year, as we sail into that future. I look forward to commenting on some of these issues as we move through those times.

Happy New Year, folks!