The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

The Newsweek Special Edition on Energy

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For the past week I have been in the United Kingdom, beginning in South-West Scotland, where the weather was not kind. I was struck, driving along beside the dams of the Galloway Hydro Scheme with the central dam spilling, and rain sheeting down, by the limits that there are on some forms of renewable power. Here, with fields flooded (all the way down to the Pennines) the limited capacity of the system to store energy above a certain point is a bound that is also found in systems such as wind farms which generally produce power between two limiting wind conditions. Seeking options in a Glasgow hotel for things to do, the front desk suggested either the bar or a movie in one's room. And while this is really the best of seasons for Hunting the Haggis we chose, instead to take a day in Edinburgh before taking the, surprisingly un-crowded, train down to London. Our train was only slightly delayed by track-work to repair weather-related problems, which were not as bad as elsewhere.

The vast numbers of folk trying to move through London's airports this weekend were providing a good reason to show up at least two hours before departure, and though we were ready for the shuttle two-and-a-half hours before departure at the local hotel, the problems the shuttle had with traffic made it just barely possible for us to catch our plane. As we headed across the waiting lounge, however, the thought of a ten-hour flight caused me to stop and snatch a copy of the recent Special Edition of Newsweek, dealing with the Energy Issue. Since I just got back, I am not quite sure how much of this has already been covered, but perhaps I can provide comment to some of the articles in the issue.

The plane had not even taken off before I realized that the magazine did not really see an energy supply problem. The Editor in Chief notes that it "will take you on a tour of the startling changes underway, including the new geopolitics of oil, and how the imminent rise of natural gas will redraw the balance of power once again."

The first article "What lies below?" is by the ENI vice president Leonardo Maugeri, who has written for Newsweek before and about whom we have commented earlier. I had assumed that as the Senior Vice President for Corporate Strategies he would know something about oil development. However one reads in the article

> Now doomsday forecasts are back, predicting the end of oil in this decade or the next. The verdict of the new catastrophists may appear more convincing because they use statistical and probability models that appear to penetrate the mysteries of our planet's subsoil. In fact, they do no such thing. In sum, what little is known about the world's underground resources justifies a positive view of the future.

It then goes on to note:

> While the mainstream view is that oil resources are finite, no one knows just how finite they are. And to complicate matters further, we are witnessing a minor revival of interest in an old Russian theory that oil can be born of chemical reactions in deep inner Earth, not of fossils decaying closer to the surface. This holds the dim but intriguing prospect that oil might be a renewable resource.

Yup, here we have a Senior VP of a major energy company giving credence to abiogenic oil formation, an idea criticised in some detail by Richard Heinberg among others. He goes on to describe more conventional oil formation in a way that seems to indicate a lack of understanding of the process.

> Even the standard fossil theory leaves many mysteries. It traces oil's origins to organisms dying and decomposing, to be covered through many millenniums (sic) by layers of sediment and rock, and gradually filtering deeper into the Earth, until they hit an impermeable rock barrier, somewhere between 2,100 and 4,500 meters down. There, pressure and high temperatures trigger chemical reactions that turn the organic sediments into oil and gas.

The impermeable rock barrier actually comes into play after the sediments have been buried deeply enough that they have been transformed into oil (shallower) or natural gas (deeper and hotter), and as the fluids then start to percolate upwards, rather than downwards. If the impermeable rock, overlying the migrating fluid, is shaped such that it can form a trap for the hydrocarbon, then an underground pool is formed, that can later be found and tapped. Mr Maugeri has a similarly poor understanding of the capabilities of modern 3-D seismic accuracy, which lack allows him to blandly assume that since only the US has been widely explored using exploration wells, that there is still a lot of unfound oil out there just waiting for an oil rig to come along and find it.

The final part of his argument about our "rolling in oil" deals with the limited amount of the oil-in-place that we now recover. While the basis of his argument is sound - we leave a lot of the oil in the rock in place after the well is considered exhausted - and while, for example, mining the oil deposit might recover all of it (vide the oil sands of Alberta) the technology to economically do so is, I would suspect, at present no further along than, at best, lab scale. Thus I find his final comment "But this is a new oil age, not the end of oil as we know it. Not in this century, anyway," to confirm that he is more likely one with a corporate management, rather than a geological background, and not really credible.

Moving on through the rest of the magazine I was struck by the lack of concern in the "debate", for example Fareed Zakaria notes

> There are only five countries that matter in the world of oil--Saudi Arabia, Iran, Russia, Iraq and Venezuela. In none of these, with the possible exception of Saudi Arabia, are serious efforts and investments being made to expand the supply of oil. Russian production is growing at less than 3 percent a year. Iran is flat, Iraq is in chaos and Venezuelan production has dropped 50 percent since Hugo Chávez took office.
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> What all these nations need is government that would invest the oil windfalls in expanding production and supply--but that would take 10 to 15 years to bear fruit. And all these dysfunctional regimes are too busy buying off their populations with cheap

> subsidies. Unless these governments cease to behave as islands of corruption and dysfunction, they will slowly but surely sow the seeds of their own long-term decline. . . . . There's an even bigger shift underway, from fuel to electricity. In 1950, 20 percent of U.S. economic output came from industries powered by electricity. Today that number is 60 percent and rising fast. All the growth sectors, from technology to services, are powered by the grid, not gasoline. What will feed this grid--coal, nuclear power or new technologies--is another large subject, but one thing is certain: it will not be oil.

He makes no mention of the fact that the current contender is natural gas, and thus he can conclude his essay with the note that "After a century and a half, oil will be put in its proper place."

The Secretary of Energy was given a page to list the Administration answers as: Develop cellulosic ethanol, harness the power of nature, build a hydrogen economy, power up the hybrids, use our own natural resources, clean up coal, get real about nuclear power, (and nuclear waste), modernize our power grid and conserve. Nothing exactly inspiring or illustrative of any new initiatives that might be anticipated.

Owen Matthews had an interestingly more realistic view of Russian future production, pointing out that they are not making the investments needed to sustain production.

> The immediate threat: Russia lacks the capacity to pump oil fast enough to sustain exports at a time when domestic demand is accelerated dramatically, to 4.8% in 2006, up from an average of 2% in the previous five years. . . . . Aramco plans to spend $25 billion by 2010 on opening new wells and raising production. Meanwhile Russia needs to spend about that much every year for at least the next decade just to replace the oil and gas it is now pumping.

Despite those concerns the article concludes that Russian exports will keep world prices down and that, as a result reduce the imperatives for change.

Daniel Yergin anticipates that all these changes will lead to major investments in new technology. In contrast to our ENI vice-president he sees

> Around the world, the "digital oilfield of the future" is becoming the digital oilfield of the present. The large-scale conversion of natural gas into high-quality diesellike fuel is getting closer.
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> Renewables have captured the public's imagination and are coming into their own. Wind power is the one that is closest to becoming conventional. This is not just the result of market forces. The development of renewable resources is being driven by mandates and subsidies of the European Union and of the federal and state governments in the United States, and by similar programs in countries like India and China. But it is working. . . . . When it is all added up, there has never been so much activity in new energy technologies. If it stays at this pace, expect dramatic results.

The Newsweek issue went on to talk about programs for coal liquefaction, nuclear power and the

need to find an alternative source for plastics.

I brought it home, and will slip it into my library, so that, perhaps five years from now, I can look back and see how right they all were. Perhaps you might want to do the same. But, unfortunately, in the meantime I suspect that it has just continued to suggest to the general public that there really is no problem. And so, again, realistic solutions will likely not get enough funding, despite Dr Yergin's predictions - from the other side of the fence I can tell you that the optimism he anticipates is flowing into new projects is not visible at the levels or covering as much of the territory as he thinks is there.

Oh! It may be that you might find this a bit bleak, particularly the bit on Scotland, so I will close instead with a picture that the Engineer took of the younger members of the party on the Southern Upland Way at the beginning of the visit, I was just the driver and so did not do the 12 km they did. Perhaps it is a bit prophetic?