The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Houston ASPO Day 2 part 1

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This is the fourth segment on the ASPO Conference and follows a report on the Workshop day, the first morning report, and the rest of Thursday. We pick up on Friday morning, which began with a talk by Peter Tertzakian on the impact of resource constraints. He began by showing the rate at which the electric light was adopted into American homes, noting that essentially 100% was not reached until the 1980's from inception in 1890. Initially the rate of change was very slow. To make a change there has to be a compelling alternative at a cheaper price, and yet as energy consumption has grown there has been a pattern. First the economy grows, then pressure starts to build up, then there is a breaking point, with the introduction of "a magic bullet", and the cycle restarts. We have reached a point where the cycle has reached the breaking point – and now we look for the magic bullet. He pointed out that this occurred early in Japan in the 1970's, and that they made the switch and by adding LNG and nuclear they have been able to stabilize oil consumption.

Oil, however, has many attractive properties, so why should we now change from it? From the 1908 arrival of the model T car growth has led us to congestion, urban growth and commuting times that have increased more than 20%. And change is not necessarily productive, after buying fluorescent lights, he now leaves them on longer.

The problem is one of scale, with few realizing not only the size of the current problem but also that to come. In India Tata Motors are about to introduce a car that will cost a Lakh (100,000 rupees or $2,500) which can be anticipated to become an enormous success with their growing middle class, and concurrently a large fuel demand generator. Within the $65 trillion world GDP the largest growth rates are in the developing countries.

In the beginning getting oil out of the ground needed only a simple hole drilled, now we have the complex structures required, for example, to drill wells off Sakhalin Island, and now Russia is literally at the North Pole. There is $20 billion being invested in the tar sands, don't they have anywhere better to go? And the answer is No! Reserve estimates have been built on a recovery factor that is more political than technical. Yet to get us out of this problem we must realize that time is a critical value. Yet if the data on oil is bad, on Natural Gas it is even worse. And these raise questions as to how good is the futures market? Demand destruction in the market is what's also happening to the U.S. dollar.

He cited several breakthrough technologies that are helping or needed: better control of the water:oil interface; short lateral development with controlled hydrofracs; and the potential of

subsurface combustion. But in the end he feels that we should step back and let the market work.

Part of the problem is that those of opposing sides of this debate are rude to one another. We must learn to talk to one another and allow some technical exchange. We need some form of "Energy Ethics," and he left us to consider the "ticking bomb of depletion."

The last magic bullet was nuclear, but it only captured 10% of the market and we must judge biofuels, wind and solar against this. For those in China that used processed coal briquettes as fuel, natural gas is a tremendous step forward, and so demand has grown 8 bcf/day/year outside the US. And so we will move from Peak Oil to Peak Energy. The next magic bullet will likely be a change in lifestyle, since to balance we must change the demand side of the picture.

He was then joined in a panel that included Roger Bezdek, our Alan Drake, and Justin Ward of Toyota, who each made a presentation before answering audience questions. (Questions were sent up on cards, which gave a much better control and did away (almost) with audience statements and comments. The panel theme was how are we going to cope with this "perfect storm."

Beginning with a comment that we will see a shake-out in the auto industry, Roger Bezdek noted that conventional wisdom is that we will see untrammeled growth into the foreseeable future. Passenger traffic is growing faster than the GDP. China and India expect to have 10-12% growth over this period. This is all being threatened as energy costs rise above labor costs. EIA project that the amount of aviation fuel being consumed is rising at a rate that, if continued, may well be half demand. If this is the canary in the coal mine, it is still remarkable healthy. Fuel price has tripled, yet demand still continues to rise.

As GDP rises demand also rise, but remember that this works both ways. If peak oil is in 2008 then it is optimistic to assume that GDP will only drop 1%, and a recession occurs with a 2% drop. Thus nations will start to see, instead of a 150% rise in revenue, a 50% cut. As a result excess capacity will develop, and the bonds for airports will fail. This will cascade through the tourism business costing millions of jobs, and as gas becomes less available who will be given priority in access to liquid fuels. (Fear not he felt confident we would still, with the right amount of cash, be able to get fresh strawberries in February). The Government should initiate mitigation measures, but with a ten to twenty year lead time, it is now too late.

Alan Drake , began by discussing the commitment of Switzerland, a country that went through the Second World War without oil, to developing rail use. They still walk, or use electricity since it takes 1 btu of electricity to do the work of 20 btu of diesel. The talk discussed some of the benefits of the transition from road transport to rail, but these are better covered in his posts on this site, one of which I have linked to with his name. He is now working with the Millennium Institute as they evolve their models and scenarios for the future. He covered the French plan to produce new trains within the next four years, and it is a country where all but 5 of the cities over 100,000 population are putting in light trams. In 2012 one of these towns will have more light rail than Houston. But he pointed out that there was a country that had gone through this before, and transformed itself – it could do it again, and that was the United States.

Justin Ward of Toyota talked about their 200-year plan, which includes the fact that they have a housing division. Change is driven by the growing population of the world, and the globalization of that market. The short term path to mitigating GHG is to switch vehicles over to hybrids, and to work on the cradle-to-grave generation of emissions. He discussed the difference between the Volt and the Prius . The challenge in both cases is to improve battery technology, and to speed the charging time. But remember that the way in which the power arrives at the socket is important

and thus, in counting emissions one must also recognize that while electricity use in Frnace may be good, in China it may be less so. The hybrid is an enabling technology that will lead to the eco-car. And remember that, 9 years after it was introduced, the Prius has only 0.2% of the market.

In order to compress the Question and Answers that followed I am just going to try an catch the high points (or the ones I could hear and write down) and slightly re-order the answers. For certain trips it will be more efficient still to fly than to drive. We can recycle batteries through a number of existing centers. By moving freight from heavy trucks to railways, one could save 25 mbd of oil. And while the railways in the US have looked at electrification there are only two majors left and with little competition there is no incentive to change. Yes there is a need for investment in exhaust cleanup, but it remains too expensive to make the switch to electricity at this time.

In regard to the collapse of airport bonds, this is merely a warning flag, and the collapse of the sub-prime market is a small precursor to the damage that Peak Oil will do. William McDonough (thanks mdsolar) is building 6 cities in China to house 800 million folk. This indiates the need for growth in City planning. We cannot continue the growth nor ignore the investment in our current infrastructure. (Though some malls will go bankrupt). A quarter of the US population want to live in a transportation oriented community. With the Tesla the power electronics is the best part of that program. But the key problem remains the battery and there remain concerns over its size. Most batteries run in the 50-80% charge range which works well, but deep cycling (driving say 200 miles) would cause more damage and shorten battery life. (At this point James Kunstler objected to our unwillingness to consider switching from a car-centric society.)

It was time for a break. And after the break the new panel moved on to discuss the National State and Local Energy Policy Responses under the guidance of Debbie Cook who had been one of the highlights of the Cork ASPO Meeting .

(Small apology – I had to attend to other things and so my notes in this session aren't as good as usual, my apologies, but just another reason to check out the posted presentations).
The discussion was led off by John Kaufman of the Oregon Department of Energy, who had headed an Energy Task Force and who discussed this. He stressed the need to maintain cohesion and to maintain a sense of community and cohesion as he went through a list of eleven items. He also suggested that you take the short time remaining that tourism is viable to visit Oregon, but remember to leave afterwards.

Roger Duncan of Austin Power, the utility company, talked without a power point (so see you're definitely going to have to get the DVDs.) He felt that the relationship between the City and the utility was one of the most progressive in the country. They were able to reduce demand sufficiently in the city that they could close a coal-powered plant without needing to replace it. They are now working to eliminate the need for a second 700 MW plant. They do this with more green power programs, promoting among other things the plug-in hybrid . There was an example of this in the foyer outside the meeting, and the battery size issue did not seem to be a problem, in the brief look that I had of it. The plan is to have these widely available in a couple of years.

Austins plan is to install 100 MW of solar and to undertake a zero or compatible energy home program. These houses, fitted with solar on the roof, should, over a year, have net zero energy requirement. The city fleet should be off petroleum by 2020, and they are looking at introducing wind. In looking at the future there is a growing need to communicate and to bring the community into the discussion. We are also seeing some politicians trying to one-up each other, and doing so promise things that require a rewriting of the laws of physics. There is a need to prioritize, and to look for local solutions, since for example, some of the things Austin does are

unnecessary in Seattle, where the power is hydro. He noted that the cost of new power plants is now at a staggering level, and that overall they have not been able to reduce their carbon footprint because they still need the power.

Senator Mary Whipple then talked about issues at the state level, pointing out that it many cases it is the states that are making the running. They use policy, rules and regulations and funding to drive change, but it often has to be a compromise in order to get things done. There is an increased use of RPS legislation , though in Florida this can be done by executive order. RPS exist in 25 states with the targets for renewable energy percentages ranging from 25% in 25 for IL, MN, OR to 20 by 20 for CO, CT, DE, HI and NM to 20 by 2010.

She also praised the LEED Program which is raising building code standards. Other initiatives include tax credits, arranging for decoupling so that utilities just don't make more money from selling more power, and rebates from selling hybrids or making conversions.

Instead of the video from Congressman Bartlett , his energy advisor John Darnell talked about Federal policy. This is not a hot topic in Washington, and won't be without public awareness and pressure. We are like the frog in the pot in that the slow rise in prices hides the fact that we are being boiled. We need real leadership to define the problem, since the response to "we need more . . ." cannot continue to be, "let's pass this legislation to provide it!" We can't produce our way out of this mess. We are reaching a teachable moment. The quickest solution at the moment is conservation, but we need planning. He mentioned the hope for the future that is illustrated with the Solar Decathlon where colleges compete in installing solar powered houses on the Mall in Washington. (Darmstadt won).

Elizabeth Jones of the Texas Railroad commission talked about the commission role, noting that it was the pre-cursor of OPEC, and now-a-days has nothing to do with railroads. Oil however plays a powerful role in Texas politics., a place with 350,000 welss. Taxes (4.6% oil, 7.6% natural gas) go into a "rainy day" fund, that sometimes has to be used. It also funds R&D. Natural gas is still viable to fuel vehicles and Texas produces 6 tcf/yr. The latest impact has been the production from the Barnett Shale which even holds producable gas under Dallas/Fr Worth airport. They are recovering 1.7 bcf/day from 5,477 wells in a formation that is expensive to produce.

Debbie Cook closed the morning presentations and started by giving a different quote from James Schlesinger than the ones used earlier. Ho pointed out that the public must be hit over the head repeatedly with a 2x4 if one desires to get its attentions. It is hard to overcome the inertia of the status quo. She googles "Peak oil" in the Portland paper and got 127 hits, in the LA Times not one. We must sell the problem, and the best way is not to use peak oil, but rather the economics of the situation. There were 1.2 million households disconnected because they could not pay their utility bill. Her city has a bill of $4 million a year for electricity, $1 million for natural ga and a vehicle fuel bill of $1.5 million (excluding waste management (Numbers corrected thaks to Debbie's correcting post below). And in California 10% of the energy bill goes just to move water. There are lots of ways to save money, including using sewage to make methane. The city did an Energy Audit and found that it could save $1.38 million with cool roof and window insulation being the major contributors. But "Life is a series of Presentations," and she challenged us to go out and talk to folk, and particularly elected folk.

It was then time for lunch, and it was a real pleasure to have the Prof join us for that, at our table. This was the first time we had actually met and was a great deal of fun, but that is another story . . . This one is already long enough and so I will break and return tomorrow with the last segment, and on Tuesday with my wrap.

The comments that have been made by those who were there have been very helpful, so please continue to add, criticize and comment.

HO