The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

ASPO-USA Conference, First Evening

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The initial report on the conference papers was getting a bit long, so I split it into afternoon and evening parts, and the second follows.

Again, there were three sessions in the final afternoon part of the program and I chose to go to the one chaired by Ron Swenson on Energy Alternatives. The first speaker was Charlie Hall who pointed out that the neo-classical economists and those who advocated different political theories had found it easier to justify their claims in an environment where oil became increasingly available to support GDP growth. However we are now entering a period of oil supply decline, when perhaps the "biophysical economics" theories will gain more credence.

Largely his talk covered the considerations of Energy Cost on the production of fuel, and with rising cost and renewables not being viable in parts of the USA, he wondered if our best days were behind us.

The change in energy cost can be seen from oilfields that once produced oil but now produce water with a small oil content. The energy cost has therefore to be paid by an increasingly small fraction of the volume pumped. There are two impacts as the energy costs per unit of energy go up: the first impacts the industry, while the second impacts the consumer. As greater portions of income are required to meet fuel bills (travel, heat etc) then the amount available for discretionary spending is reduced.

Bill James talked of the need to go from the principles of Government Directives driving research to more properly taking advantage of "the nature of invention." Cell phones have gone from non-existent for the common man in 1984, to the point where they are now ubiquitous. He noted that we don't need "know-how", but rather "know-what." Based on the per ton cost for moving freight, driving to use $40 worth of gas in a car tank could be done on a train for a cost of $1.12. Yet we continue to pay to use the car. Increasing oil prices cut family discretionary income by $2,000 a year in the last three years. He quoted Edison's lines:

> "Sunshine is spread out thin and so is electricity. Perhaps they are the same, but we will take that up later. Now the trick was, you see, to concentrate the juice and liberate it as you needed it. The old-fashioned way inaugurated by Jove, of letting it off in a clap of thunder, is dangerous, disconcerting and wasteful. It doesn't fetch up anywhere. My task was to subdivide the current and use it in a great number of little lights, and to do this I had to store it. And we haven't really found out how to store it yet and let it off real easy-like and cheap. Why, we have just begun to commence to get ready to find out about electricity. This scheme of combustion to get power makes me sick to think of--it

> is so wasteful. It is just the old, foolish Prometheus idea, and the father of Prometheus was a baboon."
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> "When we learn how to store electricity, we will cease being apes ourselves; until then we are tailless orangutans. You see, we should utilize natural forces and thus get all of our power. Sunshine is a form of energy, and the winds and the tides are manifestations of energy."

He feels that the next 12 months will be critical to facing the problems of peak oil, but that it is so far advanced that innovations must come.

While families might plant Victory Gardens, one of the major expenses ($10,300 a year on average) is for transportation. Yet in commuting one usually has to swap time and inconvenience for money if one changes to public transport. A bus, for example, will average, in town, a speed of 8 mph, and light rail only 18, while a car gets 24 mph on average. This he used as a lead in to the discussion of the Jpods concept a small, personal light rail commuting vehicle that can carry individuals, under computer control around a network. As he noted "rollercoaster mechanics in an internet network." The pods will be small and light, in contrast with the heavy frames of current vehicles, thus requiring less energy to move, and which can be provided by overhead solar panels. While this is largely still conceptual (though a prototype was shown at the ASPO Conference in Sacramento 2 years ago), he noted the system in Morgantown installed after the 1975 oil shock, and which has run 110 million passenger miles without injury and 99% reliability. That system is now seeking to expand. Podcars themselves have become of sufficient interest that there is now a conference devoted to their use.

Carey King was the last speaker before the reception. He stressed the importance of ensuring that an analysis of energy costs be comprehensive. Adding different elements that are not always considered can significantly reduce overall EROI values. The example he gave pointed out that, for example, a wind turbine might have an EROI initially set at 30:1. But as one included the energy required to build the turbine, to run it in the field, and to manage it from the corporation headquarters then this number could easily fall toward 10. If one then includes other costs (which have an energy component) such as debt financing etc. the value continues to fall. Thus the final number has, for particular installations, fallen to a peak of 13:1 and a low of less than 1:1. This is not something that is just peculiar to wind, natural gas may start with an EROI of 30 and lose 30% of that when quality adjusted and service included. These charges become even of more impact when the raw fuel is converted, such as for example when coal is burned to produce electricity and where, unless the heat is otherwise used, it must be disposed of giving a 33% energy conversion efficiency.

Following the reception, the Keynote session for the Conference was chaired by Tom Whipple who welcomed delegates and introduced Congressman Roscoe Bartlett to give the Overall Introduction to the Conference.

Congressman Bartlett has been a staunch voice for the community since I started coming to the ASPO meetings. I was fortunate to hear him at the meeting in Denver in 2005 and his remarks have remained on target and of concern – to us, if not his colleagues, since.

He was glad to note that Admiral Rice was the first speaker since the JOE Report recognized the reality of the situation with its statement:

> By 2012, surplus oil production capacity could entirely disappear, and as early as 2015, the shortfall in output could reach nearly 10 MBD.

He used the report to emphasize that China will not reach the levels of oil production anticipated in the general community by 2030. He noted that, within a decade, it is likely that Iran will be an oil importer. He noted that OPEC with 75% of the remaining reserves, has 42% of existing production; the Former Soviet Union with 12.7% of the reserves has 16.8% of present global production; and the US, with 2% of the reserves, has 8% of the production.

China has already in place a "Post Peak Oil" strategy. It includes conservation, domestic supply, diversification, environmental impact issues, and international cooperation. It already buys oil from all over the world, including that still in the ground, and has a major blue water navy under construction to protect those interests. They are graduating seven times as many engineers as we are. They know you cannot rebuild exhausted reserves.

Admiral Rice was, until last week, the director of Strategy and Policy at the Joint Forces Command. They put out the JOE report, under the command of General Mattis. Admiral Rice recently took over from General Mattis. Since then Admiral Rice has received considerable push back on the contents of the report including comments on climate change; peak oil, China and Russia – and since these came from both sides, he felt that General Mattis had gotten it about right.

The problem that the Armed Forces face is that of the reliability and continuity of the logistics of supply, particularly to forward troops. It can cost up to $400 a gallon to get that fuel to outposts in Afghanistan. But it is in the primary purchase of that fuel, and the cost to the country, that he sees the greatest threat. When we spend $386 billion on overseas oil, 39% of which comes from dangerous or unstable regimes who funnel that money for use against us, there is a problem. We pay Venezuela $60 million a day, enough for 2 modern fighter aircraft, and they have bought several. China is buying the fuel, resources and refineries they need to ensure their supply and to provide safe means to bring it to China.

Russia having rebuilt its economy on oil and gas income, is now aggressively rebuilding its armed forces. Our military recognize that they must change, because an overly great reliance on oil means that if a tanker sinks a fleet cannot move, or aircraft fly (unless nuclear powered ships). And so there is a move to include renewable power in facilities. This includes solar at Nellis AFB, and geothermal at China Lake. The intent is to get half the power from renewable sources by 2020. But, while the military knows and recognizes the problem, it does not know how to carry this message to the rest of the country.

Dr Michael Klare was the final speaker, and discussed the problem of energy security and conflict, topics on which he lectures. He noted that we are in an intense, unrecognized, struggle for power and wealth. The most recent significant change in this has been that China has become the #1 consumer of energy in the world. The USA led for the last 100 years, but have now been overtaken. And on our part having exhausted our own reserves, we are now trying to exhaust everyone else's.

While China and the USA both now consume around 100 Quads of energy, by 2035 the US will increase demand to 115 Quads. China will increase power consumption, at present trends, to 180 Quads. They currently get:

- 62% of their energy from coal.
- 19% from oil.
- 10% from renewables.
- 5% from natural gas.
- 3% from nuclear.

He sees the continued, or perhaps increasing, dependence on coal as being disastrous because of the climate change effects. He does not see how they can import 10 mbd of oil in 2035 when the global supply will be less than it is today.

As a result conflict appears inevitable. We must however hope that they will increasingly rely on renewable sources, but even there we must chase and beat them (they are already leading producers) to remain competitive and to ensure our future, and our children's futures. It is essential that we accelerate change to renewable sources.

Questions from the floor included one from Bianca Jagger on how we could get the public to adopt the military view (though how widespread the JOE report thinking is within the military remains in doubt).

Tom Whipple noted that ASPO-USA has changed its directors and is moving to Washington D.C. just so that it can have more influence, but it was Congressman Bartlett who realistically noted that we will need a major crisis for that to happen.

Unfortunately many of the "questions" in the remaining moments became statements of different viewpoints rather than questions to the Panel. So I will report back later on the second day of the Conference.