



ASPO VII - first day

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The VII International Conference on Oil and Gas Depletion was the first in many ways: the first after the death of Ali Samsam Bakhtiari; the first after record oil prices; and the first after serious economic difficulties hitting the OECD. Right from the beginning there was a feeling in the air that circumstances had changed and a new era had arrived.



Crossposted at the [European Tribune](#).

For the background of each speaker please visit [the conference's website](#).

This year's conference took place in the cosmopolitan city of Barcelona in Catalonia, The city itself is a living example of the arrangements in urban planning we might have to undertake to answer Peak Oil. Throughout the days spent there I felt quite comfortable, in a place worth living and caring for, even if expensive in some aspects (well, public bicycles are free for half an hour).



The typical "ruler and triangle" Barcelona neighbourhood. The blue P sign marks places where a public bicycle can be picked up or left.

The conference took place at the city's World Trade Centre, by sea side, in a well equipped theatre that even provided simultaneous translation, allowing for addresses in Catalan, Castellán

and the obvious English. Just outside the hall there was a suitable location for the usual sideline discussions during coffee breaks, complete with a display of posters and brochures.

The first day started with the usual opening ceremony, this time hosted by the Catalan minister of Innovation, University and Enterprise. Then followed Kyell Alleklett with a welcoming address. He remembered Ali Bakhtiari, and how important he was for the start up of ASPO, and the risk he took in associating with the organization. He stressed that the concept of Peak Oil is yet not well understood by all and told us about [his bet with BP's Tony Hayward](#), that world oil production in 2018 will be below today's rate. Going on with his address on "Peak Oil and Economic Growth in Africa", Kyell pointed that without Oil, a country cannot have political strength. Production is growing in sub-Saharan Africa, and will reach a peak over 7 Mb/d, but the West and China are taking that resource away. He concluded that we should be helping Africa use that Oil and not stealing it away.



Ali Bakhtiari

Carlos de Castro, from the University of Valladolid, presented an approach to modelling the future of the world's energy and economy using systems dynamics. He pointed out that both geologists and economists are looking at the problem considering a restricted set of variables, thus having a limited view. All the main variables considered by these two groups must be taken into account as well as the feedbacks among them. Two different scenarios were laid out. In the first (the optimistic one), the world would enter a long plateau in energy supply after which coal, fusion and a few other new sources would put growth back on track. Carlos stressed that such period of energy use stagnation coinciding with strong population growth is unprecedented. He went on to the second scenario where an additional linear feedback was included from GDP to alternative energy; in such case world energy usage enters an irreversible decline.

Following was Salvador Pueyo from the Catalan Institute for Climate Sciences who presented an "Epidemic" model of Oil Depletion. He recalled how the logistic is based on Verhulst's model of population growth, for which the Plague of the XVII century is a classical example. He made the equivalence of the biologic [SIR framework](#) to oil production: the Susceptible population being Oil in the ground; the Infected, oil in production; and the Removed, old oil fields. He quoted TOD several times, where a discussion about the correctness of this approach has remained for more than three years, specifically [this post by Khebab](#). He then applied the Linearisation method (which corresponds to the assumption that the growth rate increases linearly) to several regions, avoiding an assessment of the world.

After a coffee-break came Jean Laherrère and Jean-Luc Wingert showing how the world's liquids production will evolve in the face of serious economic constrains. Jean showed his familiar comprehensive graphs. First he noted important inconsistencies with publicly available data (especially with BP's), and then went on to forecast an unconstrained peak liquids by 2015 with 2 Tb for the Conventional Oil ultimate (excluding extra-heavy) and NGPL following the Natural Gas profile. But Jean thinks that a bumpy plateau is more likely than a clear peak, and we may already have entered such a plateau 3 years ago. Then came Jean-Luc to present two scenarios based on Jean's assessment of reserves and flows, but this time considering economic constrains in light of previous crisis: the 1980s world crisis and Argentinian crisis. In case of a Hard crisis production falls visibly but later rebounds strongly, possibly surpassing the previous maximum; if that's the case, it is possible that Peak Oil might fade into obscurity for some years. In case the crisis is not so severe (the Soft scenario), production a less pronounced fall is expected, possibly resembling the "bumpy plateau".

At the end of this talk Jean declared that this was his last address at an ASPO conference. According to him, it is now time for new generations to emerge, and hence his presence accompanied by a younger ASPO member. Jean-Luc is certainly a worthy receiver of such

responsibility, but I don't think Jean will stop drawing graphs.

To finish this first morning came Mariano Marzo to address Gas Supply Security in Spain. This state is the 7th largest importer of Natural Gas in the EU (representing 32% of internal consumption), and the 3rd largest importer of LNG (68% of consumption). Spain is expected to be the fastest growing consumer of Natural Gas in the EU for the next 5 years, with most of this additional demand officially expected to be met with projects in North Africa and the Middle East that do not yet exist (and require many billions of dollars to take shape). But even with those projects, world re-gasification capacity will almost double liquefaction capacity for the next decade, casting serious doubts over such expectations. A shift in priorities is needed in Spain where an Energy revolution will have to take place.

After lunch the first address was by the Hon. Edward Schreyer, who dispensed with the traditional slide presentation. It was a different effect, showing that words can be at least as moving as nicely crafted graphs. Mr Schreyer started by exemplifying: according to the NAFTA agreement, Canada is not obliged to increase its energy supply to the USA, only to maintain the level of supply of the previous three years. Energy supplies to the USA have been growing simply because of Canada's greed. He went on to explain why the House of Commons has such name. It should be the place where the Common Property and Common Resources should be defended and managed; unfortunately the "infinitude" of the early New World shaped the psychic of the North American people making such task now difficult. The closing remarks where a call to reason of the leadership: the EIA/IEA scenarios that are optimistic to the point of irresponsibility, must now come down to reality; every country not working for harnessing all the renewable energy sources possible is being irresponsible.

I was supposed to close the morning session, but technical difficulties prevented so: I use OpenOffice but the pulpit's laptop only had Microsoft software; when I loaded my presentation some fonts where not being rendered. Fortunately, Mariano Marzo was kind to change places with me and Chris had brought his laptop so we could set all the text bits to plain Arial. My address didn't deviate much from the material presented [here at TOD](#). The main update was the inclusion of preliminary assessments for Nigeria and Iraq, which even though optimistic, do not change the overall picture. Due to the fast depleting time available for speakers, I gave the presentation faster than would be advisable, and my English abandoned me a few times. Still I think the message got through: Exports have already peaked and nothing seems capable of changing that picture. For most states of the EU Oil has effectively peaked.

Then came Andrew MacKillop in his unique style. He showed that the OECD countries are the most vulnerable to depletion due to their high Oil and Gas intensity. Up to now, market-driven growth as failed to deliver Renewable Energy alternatives. Andrew claimed this was due to more and more money being spent on buyouts and asset refinancing, casting doubt on the usefulness of these alternatives. He proceeded to present what he called an energy Bretton-Woods agreement, a new international Framework with new institutions, e.g. an International Energy Fund substituting for the International Monetary Fund. He would conclude that the OECD needs NegaWatts, not MegaWatts.

I had to skip Chris Skebrowski's talk, so I could give a few interviews, but Chris provided a few notes:

Chris Skrebowski is a regular contributor to ASPO conferences. His message is familiar to many and growing every more convincing. A very best case scenario of a global peak is in 2011-12 at around 93 mbpd. This represents a geological potential coupled with the world's oil companies making investments and working as hard as is plausible. A global depression changes the situation.

Skrebowski presented the following international picture:

- OECD production peaked in 1997 and has now declined by 2.2 million b/d (10.4%)
- Non-Opec, non-FSU production peaked in 2002, has now declined by 771,000 b/d (2.15%)
- North America/Mexico peaked in 1997
- North Sea - UK/Norway/Denmark peaked in 2000 now declined by 1.6 million b/d (25.4%)
- Around 28 significant producers in decline
- About 35% of global production from decliners

Followed by the corporate picture showing how production from the top 5 majors peaked in 2004: Chevron 2002, Shell 2003, Total 2004, BP 2005 and ExxonMobil in 2006.

Dozens of new projects started up over the last few years, bringing 2.5 mbpd of new oil the market in 2005, 3 mbpd in 2006 and over 3 mbpd in 2007. However during this period global flows remained flat. Skrebowski suggested an underlying decline rate of the fields already in production of 4.5% or around 3.7 bmpd. The important point to note is that this figure is three times the demand growth – depletion of supply is the main story in the global demand supply balance, not demand. This amount is also greater than all non-conventionals, and Skrebowski said the decline was increasing at 0.3-0.4 mbpd. per year.

Echoing Luis' point on exports, the international trade in oil peaks before global production. Looking at where oil is used and therefore where impacts are felt and responses needed, road transport sticks out. 55% of oil is used in road transport (compared with 25% in other transport, 10% for heat and 10% in non-fuel application). These simple numbers really frame the problem as one of road transport; there is hope in significantly reducing the vehicle miles driven whilst dramatically improving efficiency.

And then came another oil drummer, Ugo Bardi, to talk about the future of Mining. Ugo presented a comprehensive pictorial version of his posts on mining: Earth is a special planet where its geological activity created deposits of ores. By Mining, Man has been able to move ores from highly concentrated deposits to dispersed deposits. We don't face the risk of running out of minerals, but are facing the prospects of running out of energy to cross the [Minearologic Barrier](#). Worldwide production of many metals is presenting maxima in profiles that seem to follow bell shaped curves. These kinds of curves can be justified assuming that part of the mining process profits are invested to increase production. Ugo ended with an interesting quote: "Energy is the ultimate raw material".

Closing the final session of the day came Marcel Corderch with an address entitled "The Nuclear Illusion". He started by showing a set of graphs depicting the growth of Nuclear power in the US: ordering of new reactors stopped in 1973, and after that year no new reactor was commissioned from scratch and completed. The Three Mile Island event had no visible impact on the US Nuclear program: apparently what killed Nuclear in the US was the first Oil Crisis. At the moment no reactor vendor is offering price stability, and hence the difficulties in growing the installations worldwide. Then came some numbers of a hypothetical Nuclear program: a Nuclear reactor has a mean life of 40 years and reaches break-even energy-wise in 7.9 to 14 years of operation (numbers from US academia), resulting in an EROEI around 3:1. If a program is put in place with the build up of 1 new reactor per year during 20 years, break even only arrives after 27 years (up front energy invested compounds). For a larger program with 20 new reactors per year during 20 years (totalling 400), the break even moves back to 32 years.

The day closed with Dick Lawrence summarizing the ASPO-USA conference. [TOD covered it with several posts](#), so I'll just say that as with this conference, the work provided by TOD is highly regarded.

This was a gloomy day, with most graphs pointing downwards. Jérôme was an especially frustrated man: "Why complicate? Wind works," he'd say often. In spite of being one of those responsible for the gloomy numbers, I shared that same frustration; a dinner among friends discussing the future was just the perfect finish for a stressful day.



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