



## ASPO VII - second day

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After a rather gloomy day of forecasts of conventional energy supplies, the second day was more promising: alternative energy was the main dish. Economics and Finance would also be on the table. It was a heavily scheduled day with some Q&A sessions omitted to make room for all the speakers.



*Crossposted at the [European Tribune](#).*

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

Victor Brenstein opened the day with an address on Peak Oil and its implications for Politics in Latin America. It was a different perspective of the geopolitics of Oil. Being a part of the world where social injustice is profound, Energy has a greater social dimension in Latin America. "So far from God and so close to the US" is a popular saying in Mexico that expresses many of the problems the region faces today. Victor went on to say that the US has always considered Latin America to be its backyard, something well exemplified by the creation of Panama, a buffer around a vital commercial route. Oil Nationalism is part of the Latin American ideology. Because of this, defending a country's oil is equivalent to defending its sovereignty. Mexico nationalized its oil industry back in 1916. In the 1990s, the US tried to liberalize the energy market in Latin America under the concept, "We will sell it for you." This was to a great extent a failure.

Then came Colin Campbell with his traditional talk "A Turning Point to Mankind". There was nothing really new in it, but it is always a pleasure to hear Colin, who is an excellent speaker. He manages to capture the audience's attention with humorous easy logic associations like "Draining a barrel is different from milking a cow, the former will eventually dry out". He pointed out that it was cheap energy that afforded the Flat-Earth Heresy and then moved to the discussion of reserve growth due to economic reasons in the West and for political reasons in OPEC. He then summarized three tools that help us to better understand Peak Oil: the Creaming Curve, the Parabolic Fractal Law and Hubbert's Linearization Method. Colin finished by stressing once more that the date of peak is not that important. More important is the vision of the long decline that follows. We have a huge challenge ahead, but he showed that part of the answer is possibly not in the physical plane.

Next was an address many looked forward to, entitled "Speculation and the Energy Market" by Luca Barillaro. He started by giving some numbers: the amount of contracts that are traded every day at Nymex is about 300 thousand with the other exchanges (ICE, etc) trading around 250 thousand contracts; this means that paper oil exceeds physical oil by a factor of five. A trader can acquire one contract by paying just 8% to 10% of its value, using what is called margin. In day trading, this value can be as low as 3% to 5%; thus the equivalent of one day of the world's oil consumption can be traded with just \$400 million. The up tick in oil prices from \$90 to \$147 was

unnatural and disruptive. Commercial companies hedging their business (e.g. airlines) got scared away; since last August the market has been in forced liquidation, with speculators selling and commercials buying. Then Luca went on to show that in the last 3 days of trade each month, the number of contracts goes down to 2000 per trader, and speculation moves to the months ahead. Luca pointed that in Europe it seems that everyone is now liberal and Liberalism the only way of thinking. We indeed need free markets, so that companies can hedge their businesses, but we also need new rules to avoid volatility, caused by reduced position limits and higher margin requirements. He finished by saying that in the end it was Speculation that brought depletion to the spotlight.

And then came Jérôme to talk about Wind Power. This has been the energy source of choice in Europe during the last few years, and has now reached 40% of new installed capacity. Investment in Wind has now surpassed any other energy source in Europe. Although there are at present some growth constraints (demand has overwhelmed supply), in a few years the sector should be increasing by 1.5 GW to 2 GW of new installed capacity per year - just in offshore Europe alone [thanks for the correction Jérôme]. Wind now makes economic sense (it's not about emissions or sustainability), and promises to be a major part of the answer to fossil fuel depletion. The details of Jérôme's presentation can be read [in this post](#).

Charlie Hall addressed EROEI and Economics. He started by explaining that the study of Peak Oil and resource depletion in general has been going on for many decades. Contrary to popular belief, the scenarios laid down by the seminal work [The Limits to Growth](#) have proven correct. So far Economic Theory has worked because we pumped more and more oil from the ground to make it work; Economics as conceived today is not a science based on hypotheses tested against facts. He then explained how the traditional Cobb-Douglass function of Growth is missing Energy, by considering solely Capital and Labour. Charlie left EROEI to the closing part of his address, stressing that markets do not increase efficiency, with all the major energy sources used by mankind following declining EROEI paths identified decades ago. All development has been done by simply applying more energy to our societies; once that influx stops growing, declining EROEI will immediately translate into declining discretionary spending, as more and more energy is used to maintain ageing sources and/or kick starting new ones. Charlie's presentations are always fun and interesting, keeping the audience close to him and usually ending with the picture of a man trying to push a big round rock over a hilltop with "Neoclassic Economics" written on it.

Next came another interesting address with a good amount of humorous content, Biofuels by Mario Giampietro. He started by showing some examples of the Biofuel Folly, advertisements for [corn stoves](#) (that are actually more efficient than using ethanol in internal combustion engines), and a man that proposes to go around the world on [a boat powered by diesel synthesized from human fat obtained by liposuction](#). He showed several flow charts comparing the amount of energy and time used by society to produce food now and in the past: right now we are able to produce about 67 kg of food per hour, whereas before the Industrial Revolution that figure was about 1 kg per hour. Another interesting figure he presented related to sugar cane ethanol: using data made public by the Brazilian industry, EROEI can be calculated at 2:1, casting serious doubts on much higher figures presented in the past. So why the Agro-fuel Folly? Mario presented three main reasons:

- they are an easy solution;
- there are many non-experts in the field;
- they are the last hope of the agonizing Industrial Agriculture.

Over our long History, Mankind has learned how to make food with oil. Making oil with that food is thus a very bad idea. After all this talk about food, it was a good thing that we headed for lunch.

The afternoon session started with an important address by Bob Lloyd entitled "The Growth Illusion". Mankind is not addicted to Oil but to Growth. Even if we make the transition to

Renewable Energy, Growth will stop and there is no solution to this problem in the physical world. Unfortunately, Growth has long been promoted as the solution to all of our problems, especially by free markets; but Economic growth implies growth in resource consumption, which is not a given. The concept of Sustainable Development is itself a blunder (no growth is sustainable); to be sustainable we have to become poorer--people simply don't like it. People accepted the Growth Folly because [the human brain was not conceived to cope with today's problems](#) (we evolved as hunter gatherers.) Homo Sapiens haven't had the time to evolve to cope with the scientific problems posed by Peak Oil and Climate Change. There might be a genetic pre-disposition towards growth: breed to grow population and gather resources to increase the probability of breeding. Bob ended with a disturbing assertion: the reptile area of our brains might be actually leading us to collapse, because it is at those times of distress that that area of the brain works better.

And then came José Luís Garcia from Greenpeace-Spain to talk about an Energy Revolution that would take Spain to 100% Renewables in 2050. After Bob's address this presentation seemed like an anti-climax, or maybe as an immediate example of the problems he had previously raised. Early in the presentation José Luís told a startled audience that Spain can generate 50 times its present energy demand from renewable sources. Soon after, I stopped taking notes. There were no references to such problems as declining EROEI, how to run the present Transport system with electricity or load balancing, just the good old businesses-as-usual scenario: grow baby grow. For an institution with such influence and self imposed responsibility towards our future, Greenpeace seems to have little contact with reality.

Next came a presentation that I very much enjoyed: Gonzalo Piernavieja came to show how the Island of El Hierro in the Canaries is planning to address peak oil. The island has a population of about 10,500 and presently generates its electricity with oil products, but now wants to completely phase out its oil use by 2015. The task is not huge, and is made easier by sustained winds that buffet the island, allowing for more than 4,000 hours of base load. A handful of turbines will be erected on a favourable plateau and backed by a set of two cascading water reservoirs, connected by a pipeline allowing for back-pumping. It is an interesting microcosm of the arrangements we can make in the short/mid term in the face of fossil fuel depletion. But the plan also displayed a major weaknesses in coping with peak oil: as far as I could understand, the plan doesn't deal with Transport. Naturally on such a small island, there aren't many miles of roads, but the connections to the outside world all rely on fossil fuel, whether the transportation is water-borne or air-borne. As with the Canary Islands, many other islands face similar challenges. Those near us include the Madeira Islands, the Azores, and even the Mediterranean Islands--they can become very vulnerable places. Their main industry, Tourism, will likely implode and possibly force a re-structuring of their entire economy.

Richard Meyer came from Germany to address the Potential of Solar Power. This was another presentation that was probably too much on the bright side of things, but had interesting content. Richard sees plenty of options in Renewable Energy to cover the demand gap left by Peak Oil. He primarily addressed three forms of solar power: Photo-Voltaic, Solar Heating and Cooling, and Concentrated Solar Power. For each one of them, he showed examples of development and installed infrastructure. There was no direct mention of EROEI, economic feasibility, or the traditional concerns with raw materials. In Portugal, solar heating has been commercial for decades and probably hasn't grown more because cheap Natural Gas came along in the early 1990s; solar cooling is just now entering the market, and the return on investment is attractive (four years to break even with subsidies). As for Photo-Voltaics, a panel is not yet able to pay for itself during its life-time without subsidies. In certain aspects Solar seems to be still an immature energy source, luckily trailing Wind just a few years back along the growth curve.

With the Conference coming to an end, Juan Requejo came to bring a Geographic dimension to fossil fuel depletion. He started by remembering that during the hauliers' (truckers) strikes in July it was possible to bring the Car Manufacturing industry to a halt in just two days. This is an

example of an era that is now ending in which all decisions were made on an economic basis (e.g. just-in-time); a new era will emerge where all decisions will be made on a net energy basis. He went on to show several examples of present urban layouts; among them were pictures contrasting the incredible long distances of North-American suburbs with the Chinese high-rise "in-urbs". These are two extreme examples of highly energy intensive infrastructure created by urban plans that won't last without fossil fuels. New cities are needed based on old pre-automobile villages built on a de-centralized energy generation infrastructure.

And to finalize the conference, came one of the hosts, Pedro Prieto. He talked about Spain's experiences with Solar and Wind, and the implications these experiences have for the rest of the World. He started by noting that what we call Renewable Energies today are in fact non-renewable systems capturing renewable energy. The renewable infrastructure being built uses a great deal of fossil fuel inputs that need to be taken in account. He then addressed Wind, which is unpredictable and hard to balance on the grid. While Spain is the second most mountainous country in Europe (after Switzerland), it has little pumped-storage potential to deal with a massive scale-up of wind energy. He also cast doubts on the ability of the non-developed world to reach our standards in renewable energy. Since this was the last presentation of the conference, the audience perhaps needed to end on a more optimistic note, but Pedro raised important questions. The most important point he made was that we won't make the transition away from fossil fuels by simply concentrating on electricity generation. Some sectors are still heavily reliant on fossil fuel products (e.g. Transport, Mining) and industries like Wind in turn rely heavily on these fossil-fuel dependent industries. The Energy Policy for the XXI century will have to reach many (all?) sectors of our society in an integrated, coordinated manner.

A special announcement was scheduled for the end of this last day. Pedro called Jean Laherrère and Colin Campbell on stage and Dániel brought out two wooden boxes. As he offered the boxes to them, Pedro told a story:

I was in Bagdad in 1990 when Saddam Hussein ordered the distribution of "air-raid early warning systems." I became very curious to know what those systems were. So here we present you with two "Peak Oil early warning systems" commemorating the 10 years passed since the publication of your seminal article in Scientific American.

Jean and Colin opened the boxes and took from them two golden bells.

After all the laughs, the final item on the schedule came: the projection of the movie [Petroapocalypse Now?](#) I didn't enjoy it much. The content was good, with many interviews, including our own Jeffrey Brown ([westexas](#)) and Fatih Birol (a lucid man that should be at an ASPO conference one of these days), but the format was terrible. It was very high speed, with each interviewee saying just one or two sentences at a time, and all accompanied by a soundtrack taken from a 1980s video-game. A theme like Peak Oil must be laid down in a way that leaves room for the spectator to reflect on the consequences of what he's being told, and to re-assess many of his concepts about life. "The End Of Suburbia" probably set the standard too high in this task, and will be hard to be out-done.

The day was drawing to a close; the following morning I'd have to head back home and to regular life.

But there was still time to share a rare evening with a set of wonderful people concerned with our common future.



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