



2011 ASPO-USA Conference: Day 2

Posted by [Jonathan Callahan](#) on November 16, 2011 - 4:43pm

Topic: [Miscellaneous](#)

Day 2 of the ASPO-USA [Truth in Energy conference](#) continued the wide ranging discussion about our current energy predicament, the reasons society isn't talking about it, and potential ways to begin preparing for a world with increasingly scarce liquid fuels. (See also the [Day 1 Summary](#). Presentations are collected [here](#).)

Interim Observations

Bob Hirsch, author of the 2005 [Hirsch Report](#), opened the conversation by narrowing the focus. According to Hirsch: "We don't have an energy problem in the short term. We have a liquid fuels problem." In the longer term, Hirsch believes there are renewable solutions. But the current production plateau has been going on since 2004 and he anticipates decline will start in 1-4 years. He believes rationing is difficult, and that we may have to resort to X-to-liquids as we have a huge investment in equipment that requires liquid fuels. Electrification of transportation is a longer term solution. Bob anticipates a shock as we experienced in 73 and 79 along with panic, shortages, inflation, recession and unemployment. When peak oil enters public consciousness, Hirsch argues, climate change will fade in importance for many people.

Navigating a New Energy Reality: Concepts and Principles

Robert Rapier writes the [R Squared Energy Blog](#) and gave his assessment of the current energy predicament. We're currently stuck at ~ 85 mbd of oil production (EIA all liquids). In the last few years, the US used 1.5 mbd less oil but China and India used 2.2 mbd more. Note that US oil consumption is 23 bbl/person/year while China's is 2. Robert expects much higher prices going forward. He noted that Peak Oil continues to be ridiculed and that most people are convinced there's a solution out there. Unfortunately, EROEI is in decline globally for fossil fuels and many bio-fuels have an EROEI of only 2:1. This is so low that we will not replace oil with bio-fuels. Rapier believes that CO2 emissions will continue to increase despite our best efforts because of demand in the developing world.

The Post-Peak Economy

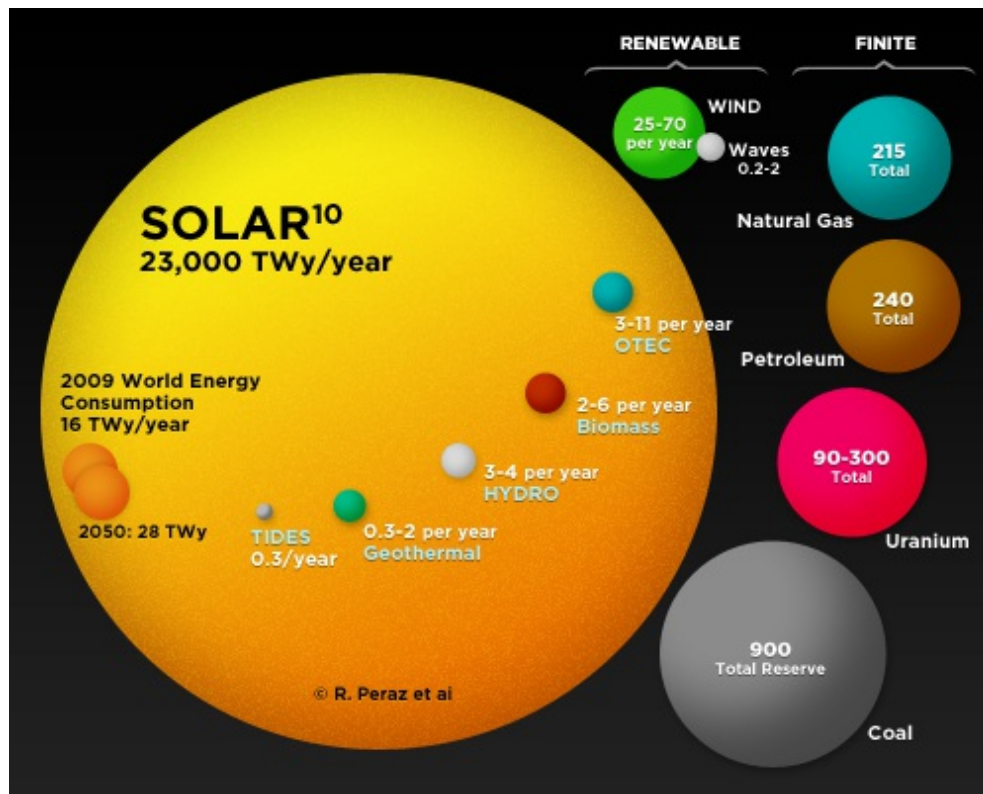
Jeff Rubin spoke for a second time and described how we got out of the 2008 oil shock with the largest fiscal stimulus in post war history. The only hope to pay off that additional debt is with growth which we will not see because we are already back at \$100 oil even without growth. He explained that debts denominated in dollars are really denominated in oil and that unwinding existing fiscal deficits will require draconian measures and result in a non-growing economy. The current oil shock is not a shock according to Rubin -- it is the new reality. He anticipates high unemployment, closing borders, minimal government stimulus and reduced government services. A world with no growth in oil consumption is a world with no growth. If China grows at all (and he believes it will) US and OECD economies must shrink. Bottom line: We are in a zero sum world.

Senior energy analyst Charlie Maxwell spelled out how peak oil production will arrive over a series of years: 2012 for non-OPEC nations; 2013 for top 50 oil companies; 2014 for conventional oil. At the moment, he sees 1.5 mbd of heavy, sour crude that is not coming to market because it is awaiting refineries to be built. Population is obviously a key issue. Reviewing a few countries that are past peak he believes that Russia has the geology to produce 13-14 mbd but not the institutions or infrastructure; Mexico could grow a little from its current level but lacks the institutions to pull this off; the UK is done; Norway could grow a little; Colombia can grow some. He believes that energy conservation and efficiency should be counted just like energy. In his opinion, energy efficiency is the next big investment opportunity: "Efficiency innovation will be our Saudi Arabia in the end."

On the natural gas front, Charlie anticipates prices for gas to go up slightly in the next year or two hitting \$6 around 2016. Natural Gas export terminals Louisiana will reduce the existing arbitrage of \$4 in the US, \$11 in Europe and \$14 in Asia. Rigs in the US are currently moving to liquids rich plays and this will reduce overall dry gas production. Current \$4 prices will cause some small companies to go under as 45% of natural gas produced is currently by "ma & pa" operators with little financial buffer. As these close, the winners will be the mid-cap, high tech companies.

Living on a Renewable Energy Budget

Ken Zweibel is head of George Washington University's [Solar Institute](#) and has been working on solar PV for 30 years. Because solar is such a HUGE resource, solar PV and the electrification of transport has to be part of our long term solution, he says. The following graphic from his talk sums up the argument about total available resources:



China is currently the world's largest producer of PV modules and has grown incredibly rapidly. Capacity is currently 2x demand. Ken described 20 GW of PV installations in 2010 continuing the 50% compounding growth rate we have since 2001. In Germany, solar PV now accounts for 10% of midday peak in the month of February. According to Ken, modern PV systems have a 1-2 year payback on an EROEI basis. Given that solar PV output degrades so slowly, today's panels may

stay in service 50+ years. A huge advantage of solar PV over other solar systems is the very low operations and maintenance costs which can be as low as 1¢/KWh. Addressing transportation, Ken pegged the cost per mile to run an electric vehicle as essentially the cost per KWh which can be as low as 15 cents/KWh in desert places. As the solar industry grows, the biggest challenges include up front cost and storage during overcast days and nighttime. Luckily, there is a PV module price learning curve -- they keep getting cheaper and cheaper. Ken summarized with the following points:

- Solar is a huge resource.
- Prices are continually dropping.
- Current payback times are acceptable.
- The entire industry is currently experiencing massive growth.

Dave Murphy spoke next on Energy Return On Investment. By his calculations, EROI for oil has gone from 100 in the early days to 10 in current deep water wells. He emphasized that EROI by itself is cannot determine whether one source of energy is better than another: coal has an EROI of 80 while hydro has an EROI of 40. Is coal twice as "good" as hydro? Dave described how net energy to society starts declining dramatically around EROI=9 and how bio-fuels are well below this number. He believes we need to carefully separate the energy used for construction *vs.* energy used for O&M when evaluating resources. Solar and wind have high embodied energy compared with fossil fuel production facilities but lower O&M costs from an EROI point of view. Dave also talked about a new article in Energy Policy that looks at different energy resources in terms of "doubling time," which is the time it takes to use the output of a particular resource to create enough energy to create energy for new infrastructure to theoretically double the output of the resource. The doubling time for wind and solar are much longer than for oil and coal, a direct reflection of the high embodied energy in production facilities.

Angelina Galetiva spoke again about the prospects of moving to 100% renewables, adding new information to the points she made on the first day:

- If we are to move toward renewables, we have to involve stakeholders: jobs, enviros, energy planners, politicians, *etc.*
- We need to have more communication between stakeholders.
- It is important to establish policies that encourage innovation.
- The feed-in tariffs in Europe were successful because of Transparency, Longevity, Certainty and Consistency.
- Legislation can drive capacity and bring down costs.
- "Nothing is more valuable than the Negawatt."
- Critical areas for development include: program integration, R&D, bio-fuels, education and outreach, legislative initiatives, cross industry alliances.
- EVs make an excellent energy storage/backup system.
- Greensburg, Kansas claims to be 100% renewable.
- [Marin County](#) bought their grid back from PG&ESF so they could include more renewables.
- [Sonoma County Energy](#) aims for 100% renewables by 2020.

She encouraged everyone to begin making the transition to renewables in their own lives and ended her talk with "Whose Job is it Anyway?":

This is a little story about four people named
Everybody, Somebody, Anybody, and Nobody.
There was an important job to be done.
Everybody was sure that Somebody would do it.
Anybody could have done it, but Nobody did it.

Somebody got angry because it was Everybody's job.
Everybody thought that Anybody could do it.
But Nobody realized that Everybody wouldn't do it.
It ended up that Everybody blamed Somebody
When Nobody did what Anybody could have done

Guy Dauncey closed out the session with an impassioned plea for moving to renewables to save the planet from impending environmental catastrophe. His climate scenarios were a little extreme for my taste but I resonated with his call for some leadership on energy issues. He believes a sense of defeatism is preventing people from making the necessary changes in society and compared this with sports teams. In a successful team you don't accept defeat, he said. You are either determined to win or wondering how to become more determined to win. Passive observers don't need that determination. But we aren't passive observers. We're playing the game whether we like it or not.

As moderator, Ron Swenson summarized the session by saying: "There are people who make it happen, people who watch it happen and people who wonder what happened."

Keynote: The Future of Food

The keynote speaker was Wes Jackson of [The Land Institute](#). He called our attention to another non-renewable resource that often gets taken for granted: "Soil is more important than oil," he said, emphasizing: "The day will come when we stop treating soil like dirt." He explained that the Pleistocene scraped nutrients off the Canadian shield and dumped them in the corn belt states of the US. His most memorable idea was that Western (US) institutions are based on assumptions of "a poor people in an empty land that is rich in resources": the Homestead Act, Land Grant Colleges, Experiment Stations and the Extension Service all start with this same premise. Now we are in the opposite situation but our institutions have not changed. According to Jackson, one of the problems with modern agriculture is that high energy usage destroys cultural and family information by reducing the number of people it takes to farm. He believes one has to be raised to farming.

At the Land Institute they are attempting to prevent large scale erosion of topsoil by breeding perennial varieties of grasses so that fields do not need to be plowed. Grasses account for 70% of human calories with rice, wheat and corn in the top positions. The Land Institute has developed "Kernza", a perennial wheat whose root structure is 10+ times bigger than annual varieties. Now they are working on perennializing sorghum, sunflowers, upland rice and corn. Wes called agriculture the #1 threat to wild biodiversity and believes we need to re-examine the ecosystem concept in our search for solutions. For 100 years we have been looking smaller and smaller towards cells, molecules and even atoms for solutions. Going in this direction we end up with plants that have been genetically engineered to be [Roundup Ready](#). Instead, he suggests we should be looking at the larger scale toward organisms and ecosystems for solutions. Given that 80% of agriculture is grains, the Land Institute's goal is to create perennial varieties of grains that will help conserve topsoil. He believes we could build agriculture that is more like a natural ecosystem were it not for the many institutional barriers.

At Ground Level: Adaptation for Local and Regional Economies

Aaron Newton is the "local food systems coordinator" for Cabarrus County, North Carolina. In 2008 this county created a Central Area Plan that protects agricultural areas. It is a *de facto* growth management plan that was created by Republican lawmakers. In 2008 they asked farmers in town hall style meetings what was needed to support local agriculture in the county

and created the following list: 1) an incubator farm to train young farmers; 2) a local slaughtering facility; 3) a food system assessment (more information); and 4) a food policy council (ongoing group meetings). The county began a "locally grown" advertising campaign and coordinated with the Piedmont farmers market and other existing organizations. They established a local food purchasing policy within county government (10% local purchasing). His list of key elements for any similar endeavor include: 1) collaboration (diversity + communication); 2) startup funding with a transition to self-sufficiency; and 3) local management and participation.

Peter Kilde works in community services in western Wisconsin and spoke about the impact of peak oil on low income families: poverty affects 46 million americans and 16 million children (1 in 4). Peak oil is intimately tied to poverty as social service agencies shift from sharing abundance to managing scarcity. He believes the future of housing is the future of existing buildings. His agency has adopted the following agency programs: 1) deep retrofit to convert existing housing down to net zero energy use. 2) low income woodlot owners pilot program; 3) Family Table Cooking Club for head start and new mothers groups.

John Michael Greer of [The Archdruid Report](#) spoke next, reading one of his well crafted epistles. He spoke of the lessons of the 1970's Energy Crisis, of WPPS and of thorium reactors and how we should be re-imagining options that include renewables, solar, wind, *etc.* Conservation has been far more effective than energy production, he believes, with lifestyle change the easiest, quickest and most effective thing to do: "weatherize before you solarize". He reminded us that prediction is problematic, that markets are delusional, and that energy policy is too important to be entrusted to Smith's invisible hand.

Naomi Davis is a Chicago community organizer and gave her listeners what can only be described as performance art. A gifted storyteller, she imagined herself coming back from the future to explain "how Chicago became a city of villages". Her time traveler persona described in lyrical fashion how our whole system problem needed a whole system solution; how her communities "put the 'neighbor' back in 'hood'"; how this whole system solution allowed people to walk to work, walk to shop, walk to play, walk to learn; how commerce flourished in commercial deserts with the advent of bartering, micro-lenders, home businesses, circulating dollars inside neighborhoods; how self sufficiency reigned with local energy production and transportation; how people converted waste into wealth and fed themselves from the village farming cooperative. Perhaps most importantly, she described how people joined story circles to create community and imagine a better future for themselves.

What Naomi's performance lacked in technical details and mathematical rigor it more than made up for in creativity, passion and raw energy. I think that's why she was so well received. As the Peak Oil message that is at the foundation of ASPO becomes more mainstream, some of the creativity and passion and energy associated with delivering that unwelcome message has become diluted. Hopefully, performances like Naomi's will strike a chord and encourage future ASPO speakers to strive for a healthy dose of inspiration to go along with the careful analysis that ruled the day.

That ended the second day of the conference. A third day had a few more presentations and a lively round-table discussion on how ASPO can better communicate concerns about peak oil and what policy actions to suggest. All-in-all it was a very stimulating meeting and I can heartily recommend attending in the future if you wish to meet with other folks from all walks of life who think this issue should be at the top of our national agenda.

Take Home Messages

- We don't have an energy problem in the short term. We have a liquid fuels problem.
- The current oil shock is not a shock -- it is the new reality.

- Energy efficiency is the next big investment opportunity.
- Solar is a HUGE resource -- Just do it!
- Nothing is more valuable than the Negawatt.
- Peak oil is intimately tied to poverty as social service agencies shift from sharing abundance to managing scarcity.
- Topsoil is a non-renewable resource.



This work is licensed under a [Creative Commons Attribution-Share Alike 3.0 United States License](http://creativecommons.org/licenses/by-sa/3.0/us/).