The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Some Congressional Action on Energy?

Posted by Heading Out on April 16, 2007 - 10:48am
Topic: Policy/Politics
Tags: darpa, hr 364, nsf, sbir, us congress [list all tags]

Sometimes it is hard to grasp the size of the problem that is now facing the world. One way is, perhaps, to relate it to time. A hundred thousand seconds is just under 28 hours; a million seconds is eleven and a half days, and both are graspable numbers. A billion seconds is, however, 31.7 years, which is almost half a lifetime, and on a different scale of perception. So it is with the world energy supply, it is easy to talk about the necessary changes in individual lifestyle, or to debate whether a single power station/wind farm should or should not be built. Those issues are relatively easy to appreciate and debate. But trying to convey the problems when crude oil and natural gas supplies will drop by over a billion barrels of oil equivalent in a year carries the debate beyond the numbers that are as easy to grasp or assimilate.

This past week I was asked (outside this forum) to give an opinion on H.R. 364, a bill in the US Congress "to provide for the establishment of the Advanced Research Projects Agency – Energy." This seems to follow the earlier H.R. 507 "Expressing the sense of the House of Representatives that the United States, in collaboration with other international allies, should establish an energy project with the magnitude, creativity, and sense of urgency that was incorporated in the "Man on the Moon" project to address the inevitable challenges of "Peak Oil". This was developed by Congressman Bartlett, who began by making speeches on the floor about Peak Oil, and who joined with Congressman Udall to found the Congressional "Peak Oil" Caucus and to co-sponsor the resolution. Congressman Bartlett is a co-sponsor of H.R. 364.

So I am going to seize this opportunity to give some thoughts on research funding in general, and some possible political realities. But let me start by saying that I think that the bill is a very good idea.

The fossil fuel extraction industry is relatively conservative in regards to research, with a small percentage of their finances being directed toward the topic. Further their definition includes exploration, and much of the research that is funded is aimed purely at solving immediate problems and supply needs, rather than "out-of-the-box" concepts that could have a greater payback but which require a longer term investment. Given the competing tasks of research and teaching an industry executive last week left me in no doubt as to his belief that the second was paramount and the former not that necessary in a university department.

Collectively around the industry there is not a great deal of concern with the long term prognosis. Demand is high, and the needs for production today (and in the next couple of years) take precedence over worrying about where the barrels of oil or tons of coal will come from in a decade or so. There are not enough knowledgeable engineers being graduated from universities around

the world to work on today's issues, and today's technologies are working, so why fix something that isn't broke?

A second senior executive (it was that sort of week) discussed the political realities of the coming couple of years. There is, foregoing the collaboration that the above bills illustrate in the House, a considerable difference between Democratic and Republican positions on Energy. Bear in mind, for example, that the next President will appoint the members and heads of a number of oversight committees and agencies that regulate the industries. Given the range of opinions among the currently announced candidates, would you be willing to commit the monies now to start a new venture, while unsure that, with the advent of a new Administration, you might not be faced with a complete reversal of approval, or a wall of new regulations within two years. Better to hold off on that investment until the future gets a little clearer. Both these opinions, you may note, do not sense any concern about the supply of any form of fossil fuel within the near-term.

That having been said, there is a current effort underway in renewable energy that focuses, at different levels of intensity, on wind, solar, hydro-electric and the biofuels. But it is here that my opening comment becomes relevant. We are still at a point where the relative merits of different approaches are being debated. This debate too often spends too much energy on running down the different alternatives – not being willing to recognize the improvements that will come about through research investment – rather than understanding that it will not be too long before we need not one of these, or the other, but rather all of them. It also can assume that, because the Federal Government is backing a technology at the production plant level, the developmental problems needed for economic production have been solved. Therefore, the proponents of that ideology would argue that there is no need for investment in alternative sources, since, with enough investment, approach C will provide all the energy we need.

Unfortunately, particularly with renewable sources that rely on bio-feedstock, the impact of the recent weather on the fruit trees as well as grains shows the dangers of an over-dependence on harvests. It is an event that has occured, the effects are recognized, but the general public (and the dependent wildlife) will not see and pay the cost of the weather until the fall and winter. We must have a broad range of supply alternatives that include all potential sources being considered and developed. And given the problems that some can generate, then research should be carried out to develop a realistic solution. (Closing power plants that are needed to provide the services that sustain life is not a realistic solution). Further just because company/university A is carrying out research in sub-topic B of concept C does not mean that the real answer lies in that line of investigation. Many times it is only through going down multiple paths that the way forward can be detected. Running "lean and mean" research efforts can too often result in waste if the investigation does not initially start out on a broad investigative base.

Hopefully, from this you will realize that I think that the basic idea of an ARPA-Energy program is a really good idea. We need to have a new commitment to finding alternative ideas that are not constrained by having to live within the definitions of the existing boundaries within the Department of Energy. But, having said that, there is a concern with modeling it too closely on DARPA. (The Department of Defense version). There has been an increasing trend by Federal Agencies to believe that problems can be solved thorough funding a very limited number of Research Centers. The premise being that if enough money is thrown at a select few, that the answer will be forthcoming. This often ends up giving those that are well-connected an inside track, and generally means that those that are not, regardless of the worth of their ideas, do not get funded.

As one illustration of this during the days of the last Energy Crisis the response was to give large chunks of money to "our brightest scientists" – which were considered to be those at the Jet Propulsion Laboratory. Well, apart from a little work on lunar and Martian mining, at the time they had no idea about fossil fuel extraction, and how to enhance it. But they got the money, and so spent time trying to learn about the business, while those more knowledgeable in this particular area did not.

Now there is nothing wrong with getting bright people to take a new look at a situation – often new creative approaches can be formed – but it is inefficient and we really may not have the mindset to conceive of the silver bb of an idea that comes from a chemist in Idaho, or a minerals processing person in Baton Rouge. Thus, what I would hope would happen if the idea is brought to pass (in itself perhaps questionable), is that some provision be made to solicit and fund (say at $100,000 for a year) a broad suite of ideas. The premise being that most will be found not to work, but by encouraging creative thought, the ones that do can be winnowed and encouraged. (Along the lines of the Phase 1 and Phase 2 funding that the SBIR program follows at NSF, but with a much smaller threshold to be met for Phase 1 funding). Do I expect that to happen? Well, No! But Spring might finally be here and for an afternoon it is nice to dream.

Oh, and if you get the chance, put in a good word for H.R. 364. It would not hurt to contact your Member of Congress, your senator, or anyone in the executive branch who might listen. It never hurts.

http://www.house.gov/ (click "write your representative")
http://www.senate.gov/ (click "find your senators")
http://www.doe.gov
http://www.whitehouse.gov
http://www.usa.gov/Agencies/Federal/Executive/EOP.shtml (The Executive Office of the President, links)