



Technology moves us forward and should be recognized

Posted by [Heading Out](#) on May 17, 2008 - 10:00am

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Tags: [algae](#), [camry](#), [corn yields](#), [energy independence](#), [ethanol](#), [hybrids](#) [[list all tags](#)]

Back at the beginning of January I changed cars, and now drive a Camry Hybrid. It came with the usual displays for mpg, where the power was flowing and such, and for a month I played with looking at the different displays and then, as with most new toys, started to ignore them. However, pulling into the garage one night just over a month ago, I switched off the engine and a little “Excellent” appeared in a hitherto un-noticed final display on the dash. Now how do I confess this? Since then my driving habits have changed - more than I would freely admit - by the wish to be praised by a machine. The commute home is under three miles, and in somewhat hilly country so this requires a little effort on my part, but more often than not I now get that little glow of satisfaction from such a sign as I enter the house, generating a feeling that I am doing my part.

Well, not completely, and in terms of the greater scheme of things not even at any level of significance. The problem that we are coming to face is much larger, and more imminent than can be solved with simple small measures. Yet by touting the gains in efficiency through use of hybrid cars, or the growth rates of the solar and wind industries, one can convey to the general public that there is a considerable amount of technical progress being made in solving what “short term inconvenience” we might face as this “peak oil thingee” comes to pass and we have to live through it. The scale of the problem is glossed over, and the inadequacy of currently proposed solutions in their impact on the overall size of the problem is lost in the debate over issues that may be resolved with additional investment and time.

One of the books that I read in the various travels that have kept me from posting over the past month or so was Robert Bryce’s [Gusher of Lies](#). The book begins by pointing out the impracticality of targeting “energy independence” for the United States, despite the stated intentions of a succession of U.S. Presidents to lead us into a path that would do so. It then goes on to try to shoot down a number of the suggested benefits that have been suggested would occur if the U.S. could achieve energy independence, and this is (for me) the weakest section of the book, and almost tempted me to put it down since the chapter seemed somewhat contrived, but persevering through, the book got better.

But in the end it was somewhat disappointing because I think he missed the true problem in focusing so much on disproving the premise that the U.S. could ever become energy independent. To illustrate my point consider the following from the concluding chapter:

Instead of wasting billions of taxpayer dollars on false fuels like corn ethanol, the U.S.

should be investing in projects that will keep America vibrant. Health care costs are soaring. Public education is faltering. Entitlement spending is out of control. America's once-dominant technological lead in everything from computers to automobiles has largely evaporated. Transportation infrastructure is crumbling.

And so it goes. Although he has looked at the problem in some detail (the chapter on ethanol in particular), the imminence of the imbalance between energy demand and supply and the lack of preparedness that the world faces seems to have in facing up to this problem, has slipped by him. The implication, in the end, is that there are a lot more serious problems that have to be faced, and that energy independence, and by implication, the security of energy supply, is really a non-issue. Rather:

As oil prices continue their upward trend, oil demand will eventually start to slow, and the market will eventually reach an equilibrium between supply and demand.

Which presumes a relatively stable and still large supply of oil to meet this mythical balance.

The failure to recognize the problems that this equilibrium state will bring, and its unreality is not evident within many of the posts and comments posted here, yet I am not sure if even we adequately recognize the scale and absoluteness of the changes that are coming. The problems that arise in expanding out existing alternative technologies to levels that will have significant impact on supply are considerable. Some of the problems of scale will become evident as existing and new plants begin to operate for significant periods in a variety of conditions. Some of the initially posited benefits will be revealed as also having counterbalancing problems, as they have been with the developing ethanol industry.

However, in that regard it must also be said that we are too prone to accept today's technologies as defining the capabilities of the industry, rather than looking at what might be achieved in the future with technical advances. As a minor illustration consider that while the average yield of corn per acre is [151.1 bushels/acre](#) this has increased from an average of 84.6 bu/acre in 1988, and the record yield for 2007 was 385 bu/acre. (The web site cited also notes for those of us agronomically challenged that an acre is about the size of a football field, and that a bushel of corn is about the size and weight of a bag of dog food.) Interestingly the winner was from [Virginia](#), with his brother in second place at 370 bu/acre. And I do seem to recall having read in a comment from the past couple of weeks that ethanol yields per bushel can be increased to around 3 gal/bushel (from the assumed 2.7).

That being said, ethanol has currently passed from the high point it reached, perhaps [in 2006](#), to the point where now there is some debate about repealing some of the initial incentives. Which leaves a question as to which technology will be the next "energy source of the future."

Well, while I would suggest that wind is the current favorite, it might be worth noting that not only is DARPA funding a major study into algae (but if you are not a BIG corporation don't bother applying for money) but in the recent Time 100 most influential people in the world, the innovator in energy listed was [Isaac Berzin](#) for his work on growing algae. And in that regard I might close by suggesting that the allocation of high energy requirement for this potential fuel which [Prof. G](#) referenced the other day, may perhaps depend on how you are growing and processing it. For again, technology does not stand still (grin).

Oh, and yes I did note that the second individual cited in the Time 100 Builders and Titans section was our old friend [the Minister of Petroleum and Mineral Resources of Saudi Arabia, Ali](#)

[al-Naimi](#)



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