



Net Oil Exports and the "Iron Triangle"

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Topic: [Supply/Production](#)

Tags: [export land model](#), [oil exports](#) [[list all tags](#)]

This is a post by Jeffrey J. Brown, an independent petroleum geologist in the Dallas, Texas area.

As Matt Simmons pointed out several years ago, the critical problem with post-peak exporting regions is that we would have two exponential functions (declining production and generally increasing consumption) working against net exports. From the point of view of importers, it is quite likely that we are facing a crash in oil supplies. In my opinion, what I have described as the "Iron Triangle" is doing everything possible to keep this message from reaching consumers.

In an essay posted on The Oil Drum blog in January 2006, I warned of an impending net oil export crisis, and I used what I called the Export Land Model (ELM) to illustrate the detrimental effect on net oil exports of declining production and increasing consumption. Figure One is a simple graph that illustrates the ELM.

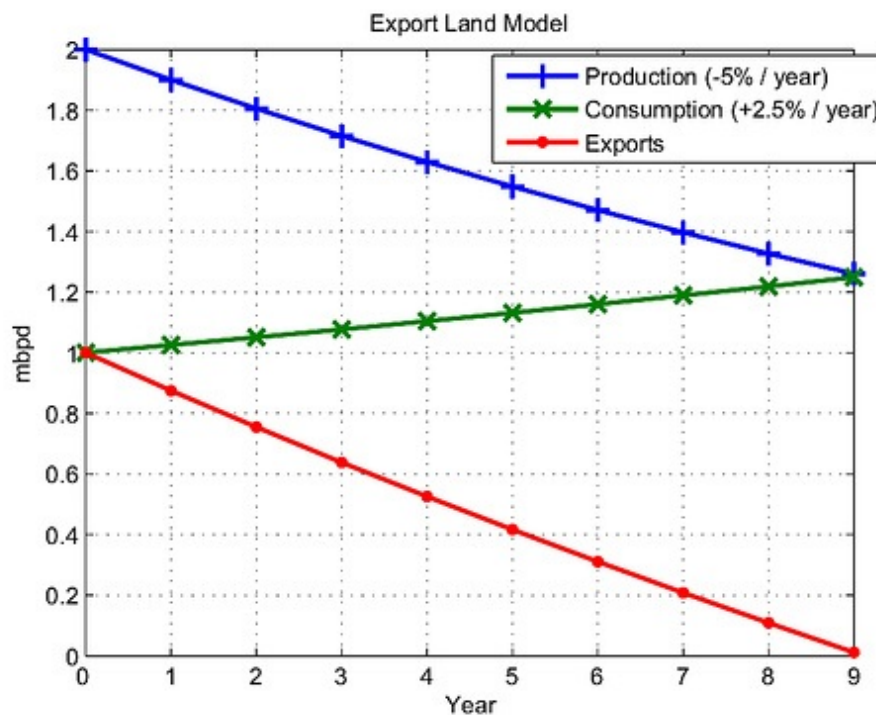


Figure One

Until recently, I had never quantified what percentage of remaining Ultimate Recoverable Reserves (URR) on the ELM would be exported. Note that the ELM is a simple mathematical model for a hypothetical exporting country, but the model is based on actual producing regions.

Also note that the percentage of production that goes to consumption at the start of a production decline has a significant effect on when a net exporter becomes a net importer.

For example, the top five net exporters, in 2006 (Saudi Arabia, Russia, Norway, Iran and the UAE), consumed about 25% of their total liquids production. Offsetting this, many of the top exporters, based on our mathematical models, are at fairly advanced stages of depletion, especially the top three (Saudi Arabia, Russia and Norway), which showed a combined 3.8% decline in net oil exports from 2005 to 2006 (EIA, Total Liquids).

In any case, the answer to the question of how much oil would be exported from the ELM follows (I based URR on Texas URR versus peak production):

Assumptions:

1. URR 38 billion barrels (Gb), peaking at 55% of URR (approximately same range as Texas and Saudi Arabia, based on the premise that Saudi Arabia has peaked);
2. Post-peak production decline rate of 5% per year (approximately the same range as Texas, historically, and Saudi Arabia, currently);
3. Post-peak rate of consumption increase of 2.5% per year (less than half the current rate of increase in consumption for top exporters).

Results:

1. Net exports go to zero in nine years (note that the UK went from peak exports to zero exports in about six years).
2. From Year Zero and Peak Exports on the ELM, only about 10% of remaining recoverable reserves would be exported.

Given the accumulating evidence for declining net oil exports worldwide, it's useful to remember what the conventional wisdom is regarding world net export capacity, i.e., basically an infinite rate of increase in the consumption of a finite energy resource base. While many economists don't have a problem with this, back in the real world an infinite rate of increase tends to be hard to sustain.

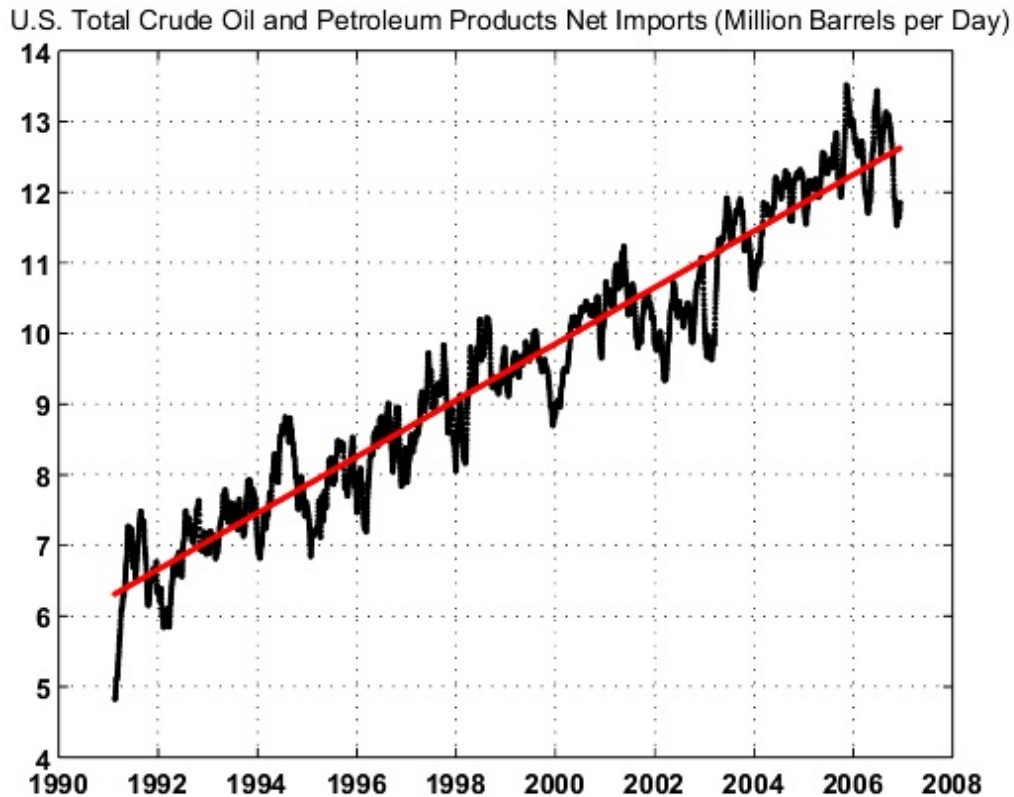


Figure Two

Figure Two shows Total US Crude Oil and Petroleum Product Imports, which have increased at about 5% per year since 1990.

In my opinion, we will see an epic collision between the conventional wisdom expectations of a continued exponential rate of increase in net oil exports, versus the rapidly developing new reality of an exponential decline in net oil exports.

My frequent coauthor, [Khebab](#), is presently working on some mathematical models for production, consumption and net exports by the top net oil exporters. Based on the data that I have seen so far, it will not be a pretty picture. I suspect that the models may show that not much more than 25% of the remaining URR in the top net exporting countries will be exported.

In regard to discussions of Peak Oil and Peak Exports, I have described what I call the "Iron Triangle," which consists of: (1) Some major oil companies, some major oil exporters and some energy analysts; (2) The auto, housing and finance group and (3) The media group.

If one resides in the oil industry leg of the Iron Triangle, and if one has concluded that Peak Oil is upon us, or extremely close, does one say, "We cannot increase our production," and thereby encourage massive conservation and alternative energy efforts, or does one say "We choose not to increase production and/or we are temporarily unable to increase production for the following reasons (fill in the blank)?"

The latter course of action would tend to discourage emergency conservation efforts and alternative energy efforts, and it would encourage energy consumers to maintain their current lifestyles, perhaps by going further into debt to pay their energy bills, and it would in general have the net effect of maximizing the value of remaining reserves.

I always find it interesting that people like Matt Simmons (who are encouraging energy conservation) are widely blamed by some critics for high oil prices, while some major oil companies, some major oil exporters and some energy analysts are--in effect--encouraging increased energy consumption.

The prevailing message from some major oil companies, some major oil exporters and some energy analysts can be roughly summarized as follows "Party On Dude!"

Meanwhile, over on the other two legs of the Iron Triangle, the auto, housing and finance group is focused on selling and financing the next auto and house, and the media group just wants to sell advertising to the auto, housing and finance group. The media group is only too happy to pass on the "Party On Dude" message to consumers.

To some extent, what we are seeing across the board, from large sectors of the energy industry to the auto/housing/finance industry, media and beyond, is the "Enron Effect," i.e., many people know that we have huge problems ahead, but their paychecks are dependent on the status quo.

The suburbanites are caught in the middle of this, although they have a strong inclination to believe the prevailing message from the "Iron Triangle." As in the movie "The Sixth Sense," for most of us the automobile based suburban lifestyle is dead, but we just don't know it yet, and we see only what we want to see.

However, it is increasingly difficult for many suburbanites to ignore reality as it slowly dawns on them that Jim Kunstler was right when he said, "Suburbs represent the biggest misallocation of resources in the history of the world." We shall probably soon see that hell hath no fury like a Formerly Well Off suburbanite who just had his SUV repossessed and his McMansion foreclosed.

At least those of us trying to warn of what is coming can try to be ready with a credible plan to try to make things "Not as bad as they would otherwise be," when it becomes apparent to a majority of Americans that we cannot have an infinite rate of increase in the consumption of a finite energy resource base. How's that for a campaign slogan?

I recommend *FEOT--Farming + Electrification Of Transportation* (EOT), combined with a crash wind + nuclear power program.

Alan Drake has written extensively on EOT issues, for example in ["Electrification of transportation as a response to peaking of world oil production."](#)

In simplest terms, we are soon going to need jobs for hordes of angry unemployed males, and in my opinion "FEOT" is a way to put them into productive jobs.

On an individual basis, I would also recommend "ELP," which is summarized in the following article: ["The ELP Plan: Economize; Localize and Produce."](#)

Good luck to all of us. We are going to need it.

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