



Is a Net Oil Export Hurricane Hitting the US Gulf Coast?

Posted by [Prof. Goose](#) on June 2, 2008 - 10:15am

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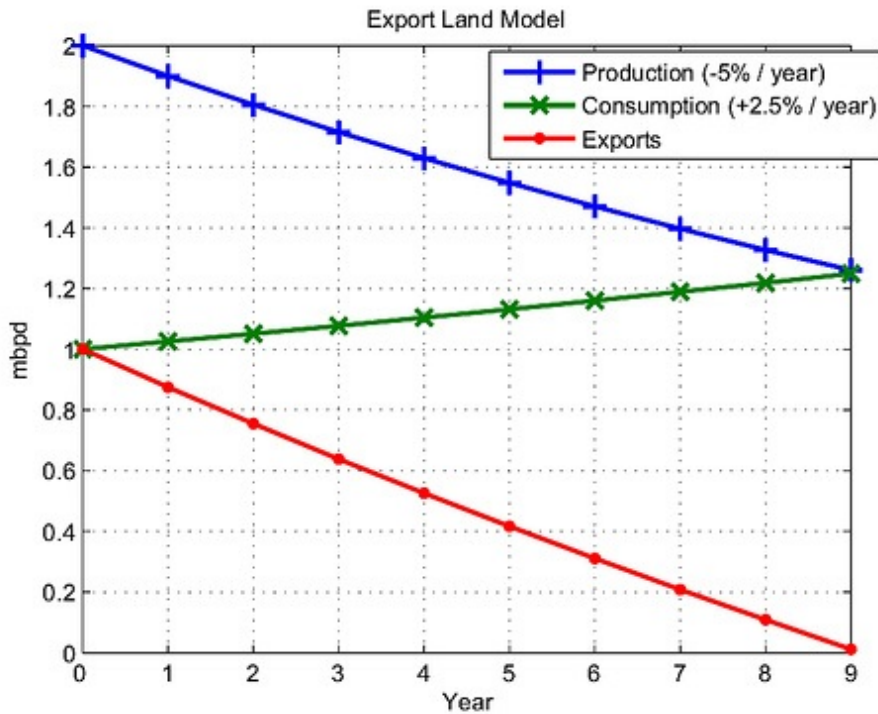
Building on prior work by many people, including Matt Simmons and Kenneth Deffeyes, and largely based on great technical work by Khebab, I have been intensively studying the Net Oil Export issue for more than two years.

The simple mathematical model I have been using to talk about our export situation is called [the Export Land Model \(ELM\)](#). Recently, data and media reports have shown that the concerns I have expressed about our export situation are growing more valid each day.

Venezuela and Mexico are critically important to the US because of their proximity to the refineries on the Gulf Coast. From what I have been able to discern, it takes an average of about five days for a tanker to get to the US from Venezuela and Mexico versus about 30 days from the Persian Gulf. Based on recent news reports, it certainly appears that the overall net export decline from Venezuela and Mexico is continuing into 2008.

So, what has happened to net oil exports from Venezuela & Mexico to the US and what effect has had this had on Gulf Coast crude oil inventories, and why am I concerned?

First, let's talk a bit about the ELM model. As an aid to understanding how rate of production declines and rates of changes in consumption affect net oil exports I proposed a simple mathematical model, [the Export Land Model \(ELM\)](#), which assumes a country producing two mbpd at peak, with a subsequent production decline of 5%/year, and consuming one mbpd, with a consumption increase of +2.5%/year. This results in net oil exports going to zero in nine years, with only about 10% of post-peak production being exported. Here is a graphical image:



Once an exporting region hits peak production and starts declining, the net export decline rate is a function of consumption as a percentage of production at peak, the rate of change in production and the rate of change in consumption. However, net export declines tend to consistently show an accelerating decline rate with time. As Khebab and I warned in a recent paper on the [top five net oil exporters](#), recent EIA data showed an accelerating top five net export decline rate in 2007, continuing a trend that began in 2006. Our middle case has the top five—Saudi Arabia, Russia, Norway, Iran and the UAE—collectively approaching zero net oil exports around 2031.

Recently, there has been increasing attention paid to the declining net oil exports worldwide, and last week the Wall Street Journal published a very important article, [“Net Oil Exporters Unable to Keep Up With Demand.”](#) Neil King, the lead writer for this article, recently obtained updated 2007 net oil export numbers from the EIA. I was particularly struck by the net oil export decline rates for Venezuela (-7.6%/year) and for Mexico (-16%/year).

This EIA website has net oil imports into the US by country of origin, through March, 2008.

http://tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_epoo_imo_mbbldpd..

The data show that combined net oil exports from Venezuela & Mexico to the US have dropped by 414,000 bpd from 10/07 to 3/08, an astounding annual decline rate of -32%/year. This decline was at least partially offset by increases in imports from the Persian Gulf.

However, as the decline in net oil exports from Venezuela & Mexico (and elsewhere) has increased, it's quite likely that the Persian Gulf has not been able to sufficiently offset the decline.

The EIA has recently reported a large drop in US oil imports and fairly large crude oil inventory declines, with almost all of the decline concentrated in the Gulf Coast area. Gulf Coast crude oil inventories have dropped by 15.6 million barrels (9%) in two weeks.

The last four weeks (ending May 23rd) of crude oil imports from all sources into the US Gulf Coast are as follows:

6.683 mbpd
6.130
5.173
4.996

So, in looking at those numbers it seems quite possible that we are seeing some real, tangible near term effects from the ongoing net export declines from Venezuela and Mexico, and it's possible that we could see some problems with refined product deliveries in the Gulf Coast area in the very near future, perhaps in a matter of weeks if the trend were to continue, and there seems no reason to expect it not to.

What would result from this? Well, first we would then almost certainly see calls to release oil from the SPR. The problem of course is using emergency reserves to offset a long term decline in oil exports from two key nearby oil exporters. Venezuela is showing a long term net export decline, and Mexico is on track to approach zero net oil exports by 2014. In October, 2007 these two countries accounted for more than 20% of total US petroleum (crude + product) imports.

At the very least, this situation may force an earlier recognition of our long term problem with net oil exports. One risk is that oil from the SPR will be used to perpetuate the myth, for a little while longer, that we can have an infinite rate of increase in our consumption of a finite energy supply.

Datamunger, in a comment yesterday, has just compiled a data table showing the last three years of total world net oil exports, showing a slow, but accelerating net export decline rate:

NET OIL EXPORTERS (EIA)

Rank '07	Name	2005	2006	2007	+/-
1	Saudi Arabia	9095.6	8525.3	7923	-
2	Russia	6756.0	6865.8	7018	+
3	United Arab Emirates	2472.8	2564.1	2548	-
4	Norway	2756.5	2542.4	2321	-
5	Iran	2666.1	2462.4	2298	-
6	Kuwait	2335.9	2340.3	2268	-
7	Nigeria	2330.2	2130.6	2040	-
8	Venezuela	2265.3	2182.6	2024	-
9	Algeria	1840.1	1842.0	1862	+
10	Angola	1210.5	1379.3	1707	+
11	Libya	1455.0	1530.0	1552	+
12	Iraq	1341.8	1437.6	1484	+
13	Mexico	1738.9	1710.5	1456	-
14	Kazakhstan	1103.9	1144.9	1193	+
15	Qatar	1015.7	1032.0	1011	-
16	Canada	794.9	1024.0	1010	-
17	Azerbaijan	326.0	521.1	723	+
18	Oman	714.1	674.4	642	-
19	Equatorial Guinea	395.1	385.0	400	+
20	Sudan	280.3	300.7	386	+
21	Ecuador	377.7	376.0	345	-
22	Argentina	321.7	323.9	300	-
23	Columbia	275.0	278.7	276	-
24	Congo (Brazzaville)	228.9	239.6	241	+
25	Gabon	253.0	223.8	231	+
26	Yemen	274.0	241.3	217	-
27	Malaysia	250.8	228.3	202	-
28	Syria	219.0	187.9	184	-
29	Brunei	200.6	208.7	167	-
30	Chad	175.3	156.6	143	-
31	Trinidad and Tobago	152.9	161.5	136	-
32	Denmark	195.9	153.8	120	-
33	East Timor	94.4	100.9	78	-
34	Ivory Coast	30.7	64.5	77	+
35	Turkmenistan	98.7	69.9	63	-
36	Cameroon	58.5	62.3	58	-
37	Vietnam	137.0	88.5	57	-
38	Papua New Guinea	14.3	17.8	15	-
39	Bahrain	16.6	15.8	14	-
40	Congo (Kinshasa)	8.7	9.5	12	+
41	Egypt	53.1	14.5	11	-
42	Bolivia	10.7	8.1	8	-
43	Tunisia	-13.1	-12.8	6	+
44	Mauritania	-20.0	11.3	5	-
Total (exporters only)		46342.2	45838.2	44832.5	
Change (year over year)			-1.10%	-2.24%	

original location: <http://www.theoil Drum.com/node/4082#comment-353705>

This seems to further edify my reasoning above. All of these factors seem to provide evidence that we face a problem with our export situation.

Two recent Khebab and/or Brown net export articles:

Declining Net Oil Exports Versus “Near Record High” Crude Oil Inventories: What is going on? (September, 2007): <http://www.theoil Drum.com/node/2975>

A quantitative assessment of future net oil exports by the top five net oil exporters (January 2008) <http://graphoilogy.blogspot.com/2008/01/quantitative-assessment-of-futur...>



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