http://crudeoilpeak.info
Crude Oil Peak
#1 in Monitoring the Global Crude Oil Peak

New M5 tunnel
Another mushroom candidate

A virtually empty tunnel (from a promo video)

Prepared by Matt Mushalik 29/1/2016 mushalik@tpg.com.au @crudeoilpeak

Contents

Introduction

My submission on the M4 and M4East

http://crudeoilpeak.info/wp-content/uploads/2015/11/WestConnex_Nov_2015_submission_M_Mushalik.pdf

covered following topics:

(1) M4 and M4East tunnel not financially viable
(2) Average Weekly Traffic (AWT) growth
(3) Huge Risks
(4) Peak oil. Where are we?
(5) Next oil change: Arab Spring in Saudi Arabia
(6) Refinery Closures
(7) No Asian Century

These points have all been conveniently ignored. I will not repeat them here. They apply equally to all phases of WestConnex. I cannot each time start from Adam and Eve.

I do not have the impression that my M4 submission was read, let alone acted upon, because the same mistakes I criticised have been repeated, if not carbon copied, in the M5 EIS. If departments and their political masters do not want to know oil facts and connect the dots with geo-political events and preparations for war, they cannot be helped. They will only learn them, when it is too late.

Insofar the minimum purpose of this submission is to document historic evidence the NSW government chose to ignore. This information will be moved to the I-told-you-so menu of my website at the appropriate time. There are already 2 items there: the Clem7 and the AirportLink tunnel in Brisbane. Number 3 will be NorthConnex for which I also wrote a submission

Geo-strategic situation in Middle East

Humiliation of US marines Jan 2016

This does not look good. Not like a global superpower which can guarantee the flow of oil through the Persian Gulf.
And Sydney is still planning and building oil dependent road tunnels? It seems the NSW government is living in La La land. And in case no-one has learned a lesson:

24/1/2016 Iran will give a crushing response to any possible act of aggression against the country, says a commander.

Speaking during a live televised interview on Saturday, Brigadier General Hossein Salami, the second-in-command of the Islamic Revolution Guards Corps (IRGC), said Iran's Armed Forces are determined to defend the Iranian territorial integrity and national interests in case of any invasion. He added that the recent capture of 10 US Marines, who had trespassed on Iran's territorial waters, was proof of the power of Iran's naval forces, describing it as a clear victory for Iran at a crucial juncture.

The IRGC commander said this incident was a determining development in the region, because it made all foreign forces face a new reality and change their assessment of the power of the Islamic Republic of Iran in defending its territorial integrity and vital interests.

“We will continue to boost our defense capability and our missiles will be updated day by day,” Salami said, adding that Iran reserves the right to develop conventional weapons in order to “defend its independence and territorial integrity.”
http://www.presstv.ir/Detail/2016/01/24/447079/Iran-US-IRGC-salami/

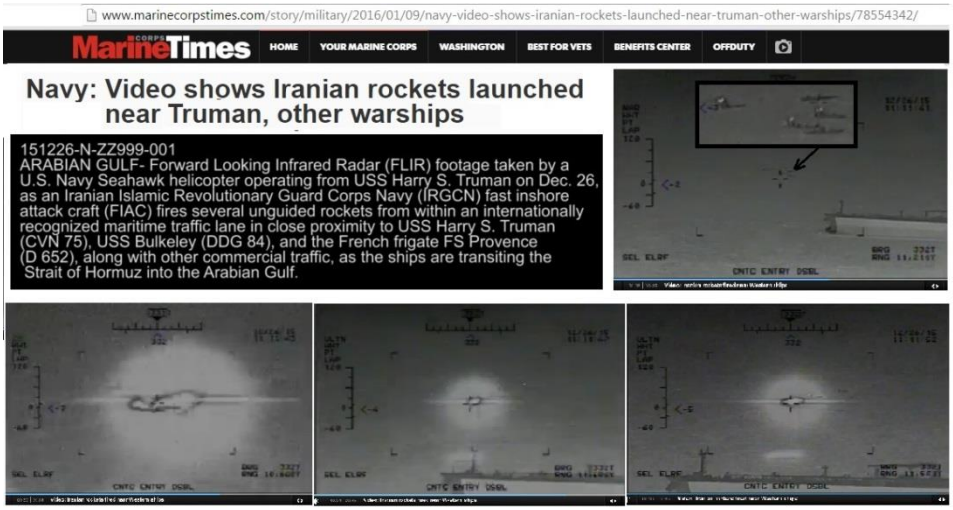
Mock-ups?

http://217.218.67.231/Detail/2015/11/29/439585/Iran-Navy-Dehqan-Sayyari-Qadir-missiles

But not this one: in October 2015 Iran test fired missiles in contravention of UN resolutions

http://www.foxnews.com/politics/2015/12/07/iran-tests-another-mid-range-ballistic-missile-in-breach-un-resolutions.html

During X’mas Iran launched rockets close to the US aircraft carrier Truman.

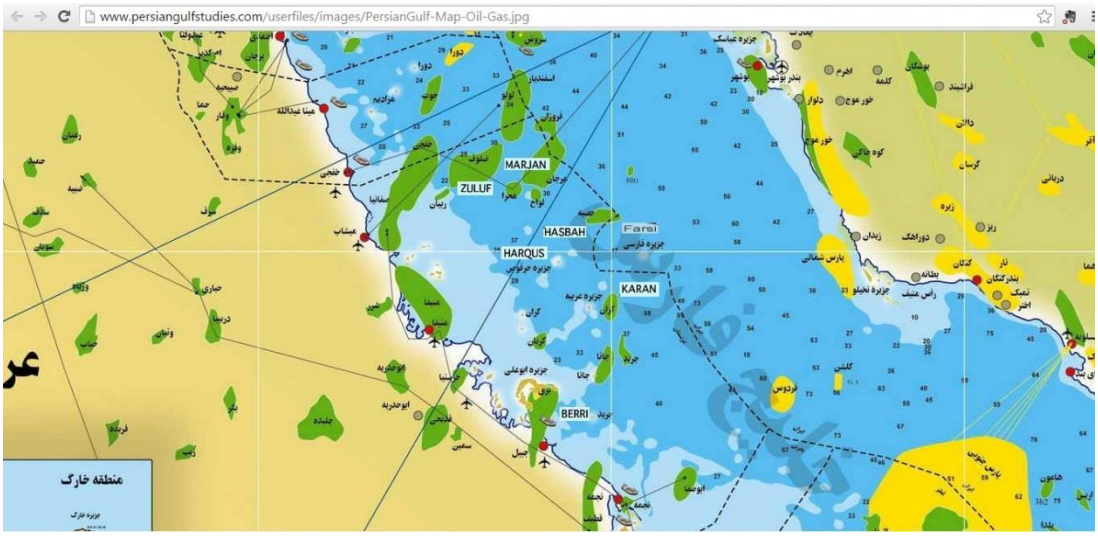


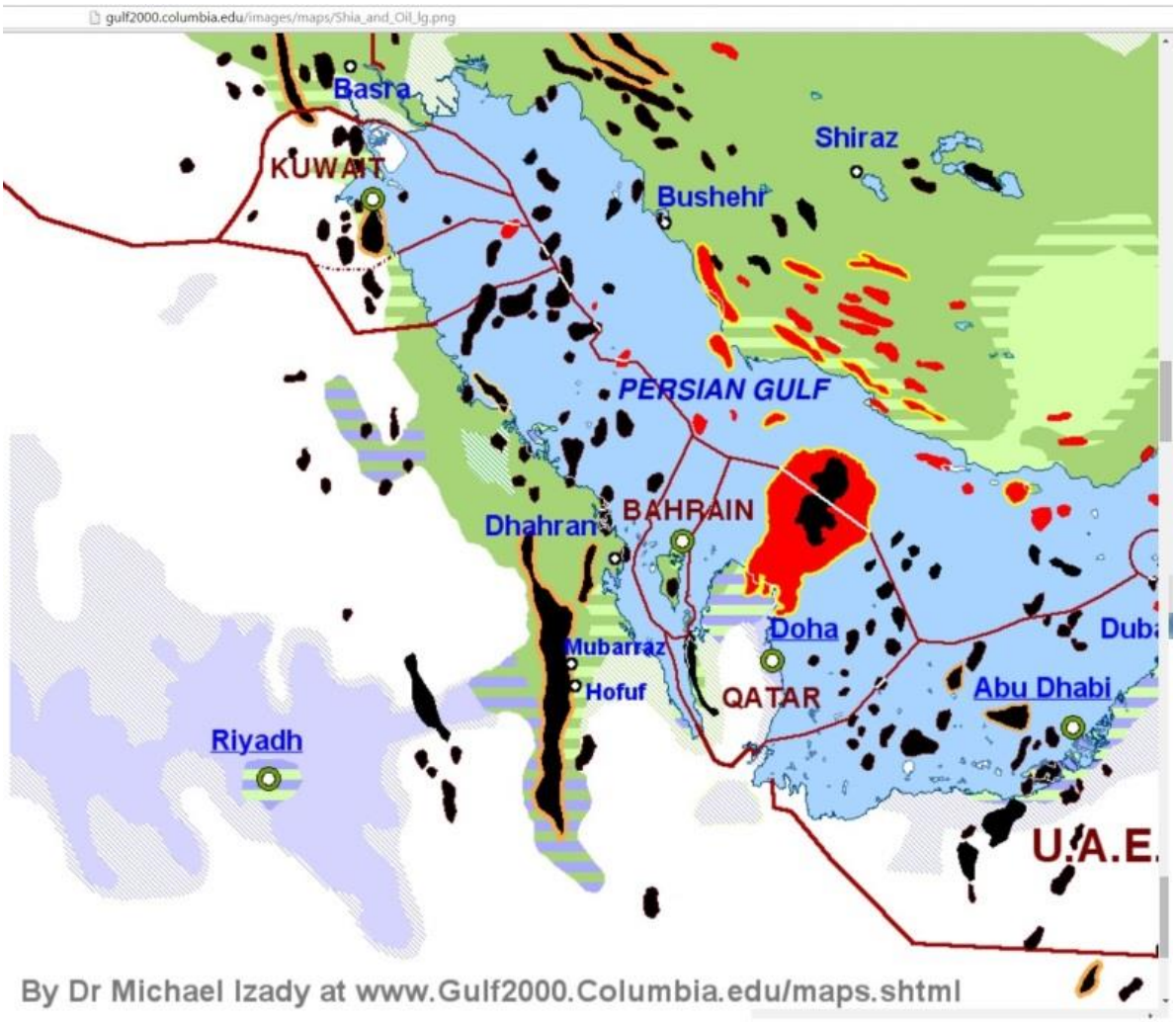
Iran unveils second underground missile, likely to irk U.S.

5/1/2016 The Iranian missiles under development boast much improved accuracy over the current generation, which experts say is likely to improve their effectiveness with conventional warheads. The Revolutionary Guards' second-in-command, Brigadier General Hossein Salami, said last Friday that Iran's depots and underground facilities are so full that they do not know how to store their new missiles
http://news.yahoo.com/iran-unveils-second-underground-storing-emad-missile-134508852.html

What comes next? The revolutionary guards are already planning the next move. Oil prices are too low.

Oil maps the NSW government doesn't want to look at:



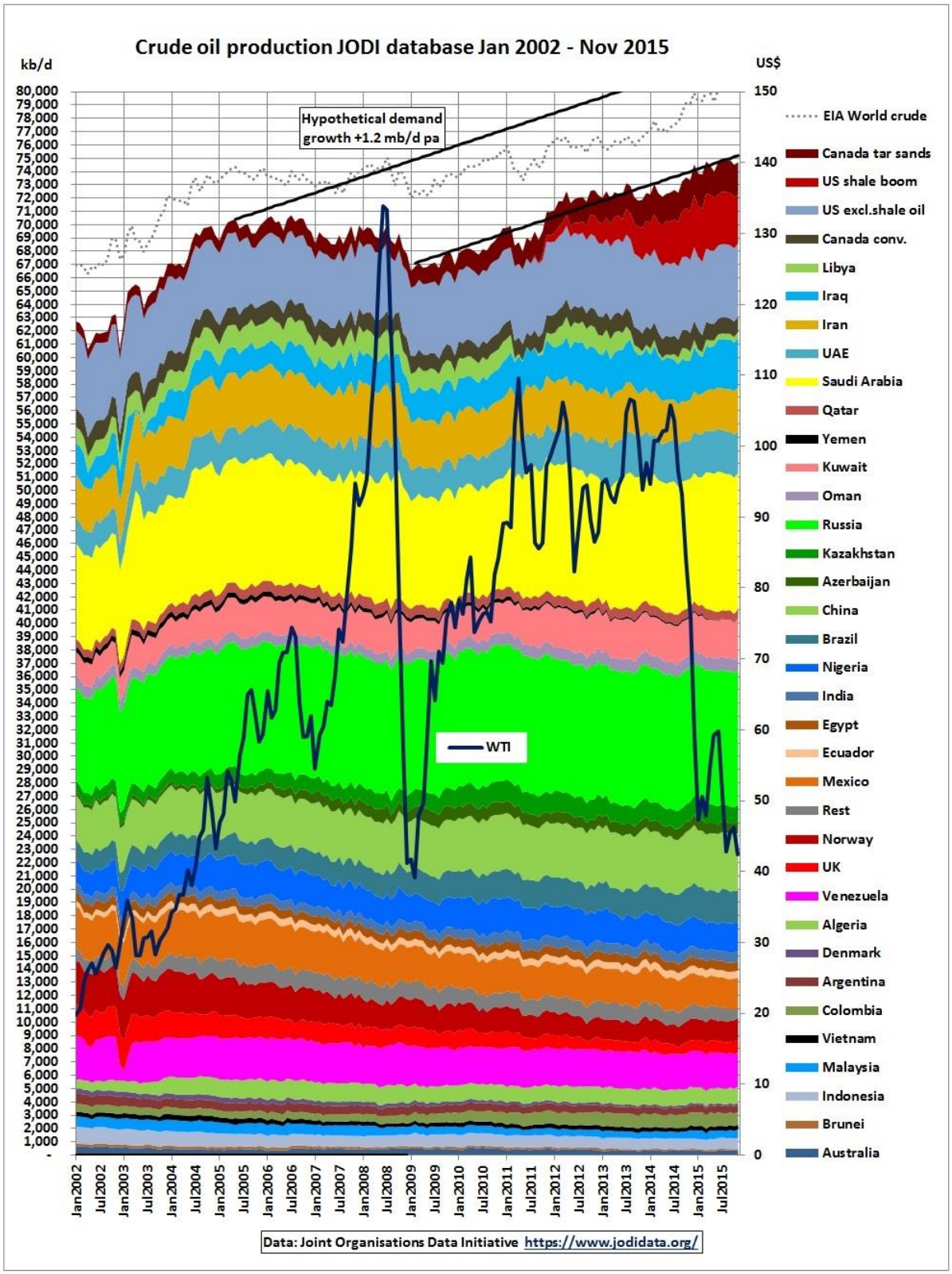


The above incident happened near the Farsi island. The above maps show the location of gas and oil fields in the Persian Gulf area and the boundaries between oil-producing countries. You look at the future offshore theatre of war as onshore oil fields are depleting.

Libya

ISIL revenge

Peak oil Update



We use JODI data (latest up to Nov 2015) because EIS data have been delayed (latest Jun 2015). JODI data are not complete for all countries so the dotted EIA curve is higher but the trends are the same.

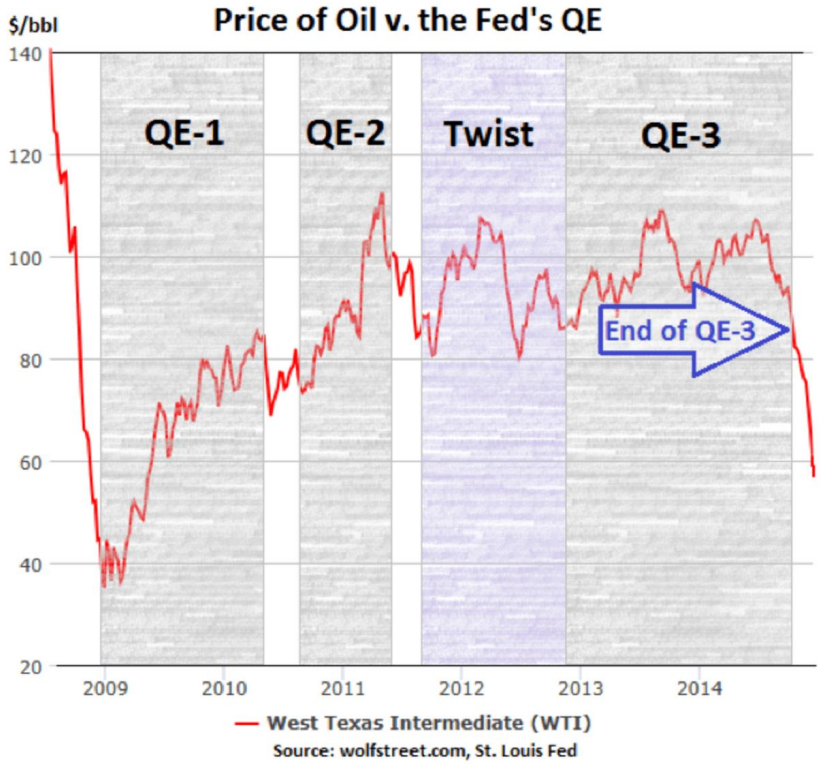
The peaking of global crude oil production is a process with several phases, NOT a single event which can be easily identified when it happens (seen only in hindsight anyway). It is very clear that peaking started in 2005. Limited production against an average demand growth of 1.2 mb/d pa resulted in a supply gap of around 4.5 mb/d by mid 2008, resulting in skyrocketing oil prices. This contributed to the financial crisis.

This reset the demand to a lower level in 2009. Stimulus packages and later quantitative easing helped to bring oil demand on its previous growth path, albeit from that lower 2009 level. Production went back to 2005 levels and prices went up, too, meaning that high oil prices were required to maintain a certain production level. Quantitative easing and cheap money resulted in investments in the US shale oil industry which was hyped up as an energy revolution – although decline rates in shale oil wells are astronomical. After drilling a $8 million well and producing it for 2-3 years, 80-90 % of the oil is gone. Cheap money and high oil prices continued, fuelling a belief that this show could go on forever and ultimately lead to the United States' self-sufficiency in oil, a myth which is still widespread in the media even today, including ABC TV.

Why oil prices are low

Then oil prices dropped unexpectedly in mid 2014. Many explanations have been forwarded:

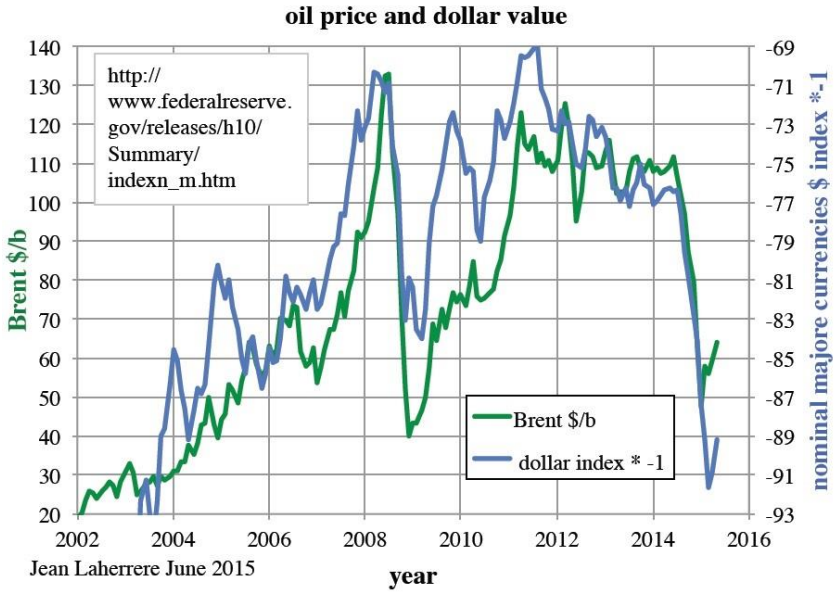
(1) The firsts drop coincided with the Federal Reserve's announcement to taper off quantitative easing, signalling that interest rates will go up. But zero interest rates were one reason why investments were done in the oil patch, under the assumption that oil in the ground would always be a safe collateral and that oil prices would remain high indefinitely to justify extracting that oil



Market manipulation article by Chris Cook, energy market analyst, Institute for Security and Resilience Studies at the University College, London

https://theconversation.com/oil-crash-is-this-the-end-of-a-long-period-of-inflated-prices-36088

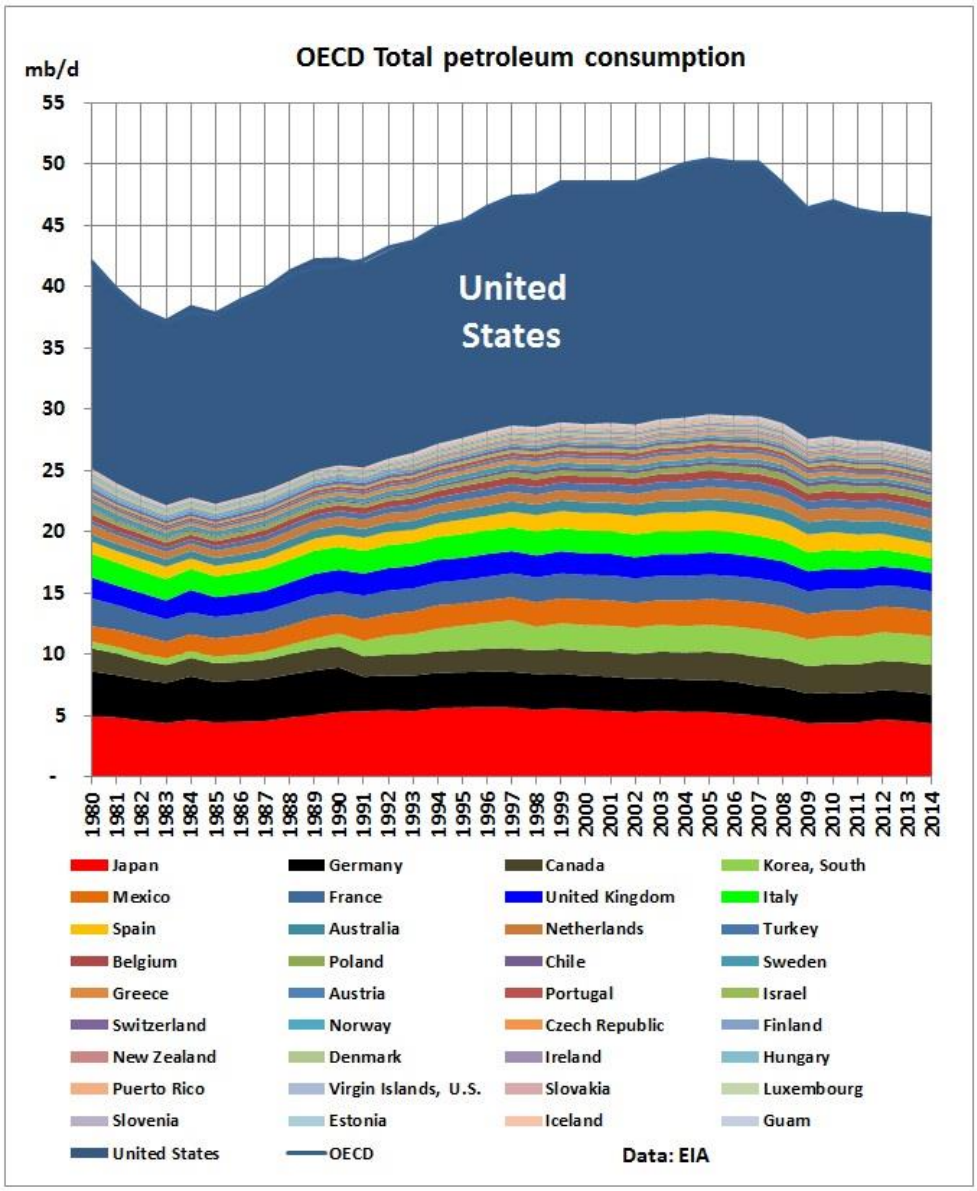
(2) At the same time, the US dollar went up. There is an inverse relationship between US$ and oil prices



(3) Continuing oversupply of expensive US shale oil, helped initially by previous hedging but most importantly driven by the need to service debt

(4) Unwillingness of OPEC to play the role of a swing producer

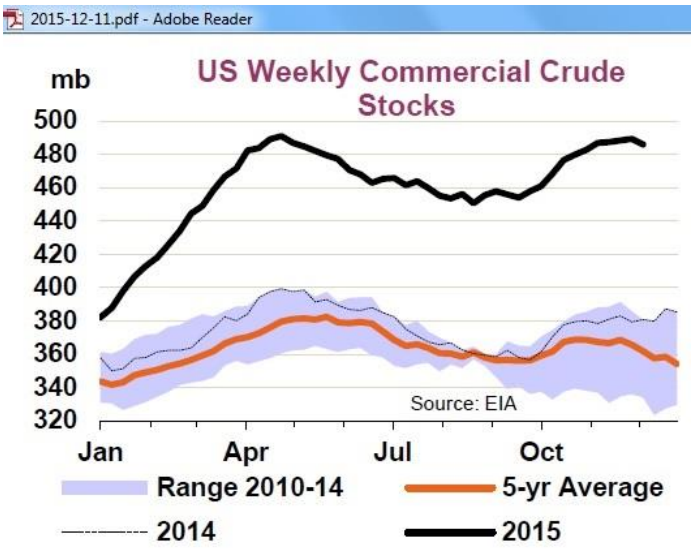
(5) Weak demand, especially from OECD



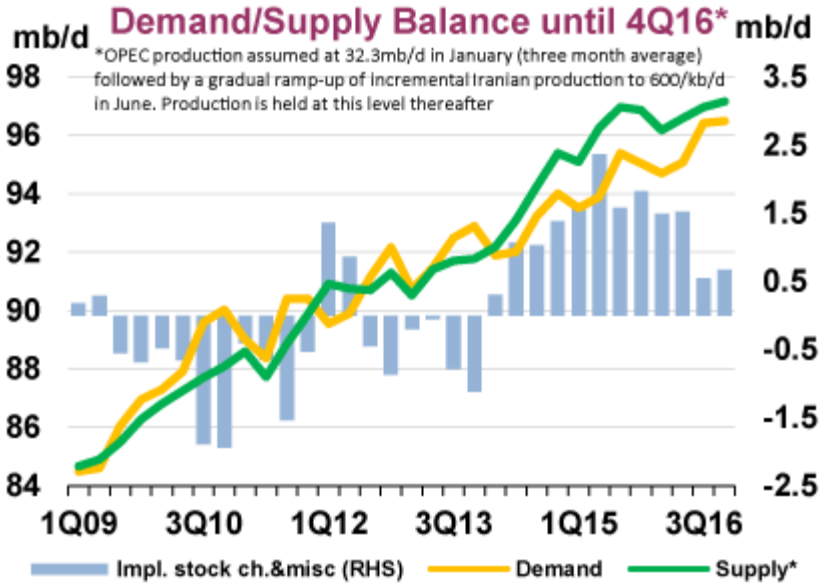
http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=5&pid=5&aid=2&cid=CG5,&syid=1980&eyid=2014&unit=TBPD

OECD consumption started to peak – you guessed it – in 2005, the year in which crude oil production started to peak. The drop in 2007 is especially pronounced in the US. It is an irony of history that the US shale oil boom came 4 years too late. Because it needed helicopter money first!

(6) Focus on inventories



(7) The latest IEA Oil Market report has discovered an imbalance of demand and supply, narrowing down by end 2016



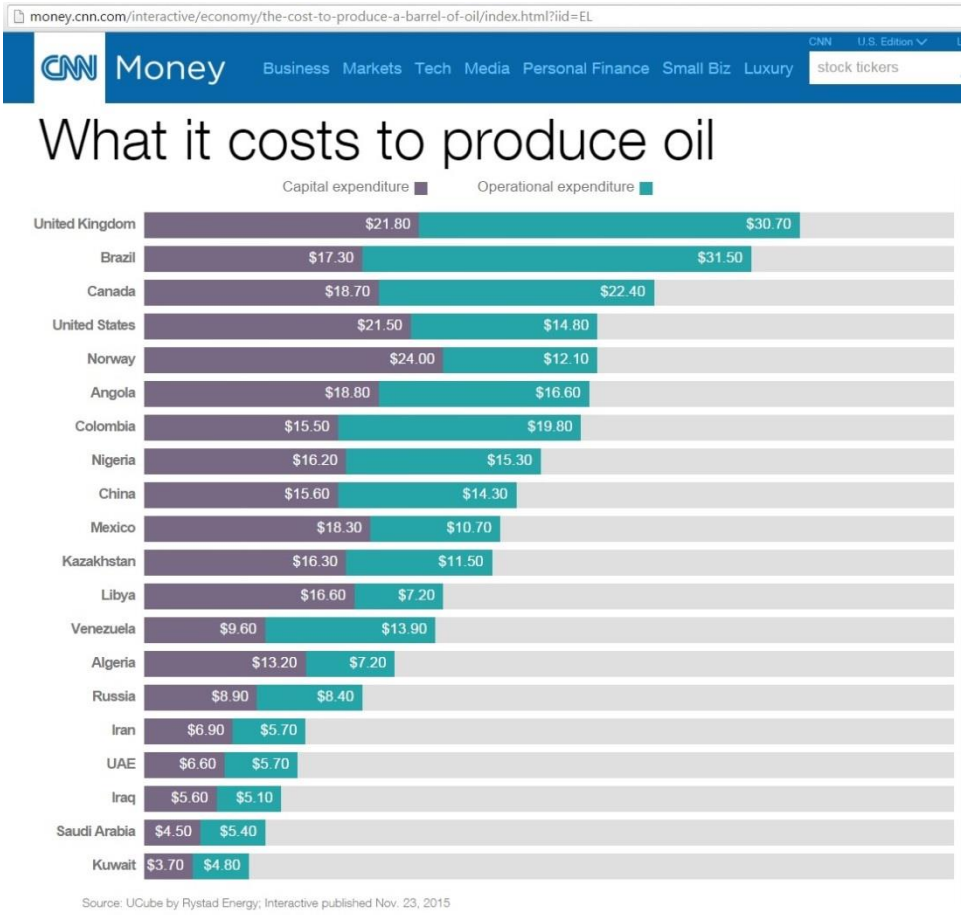
https://www.iea.org/oilmarketreport/omrpublic/

https://www.iea.org/media/omrreports/2016/0116/0116image3.png

No doubt the debate about the causes of the oil price drop will keep the commenters busy and will fill many websites and books. What matters now: what is the next peak oil phase?

What it costs to produce oil

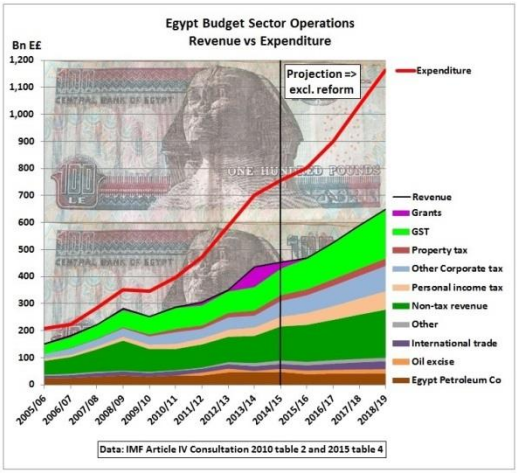
First we must understand what it costs to produce oil (many different tables available on web)

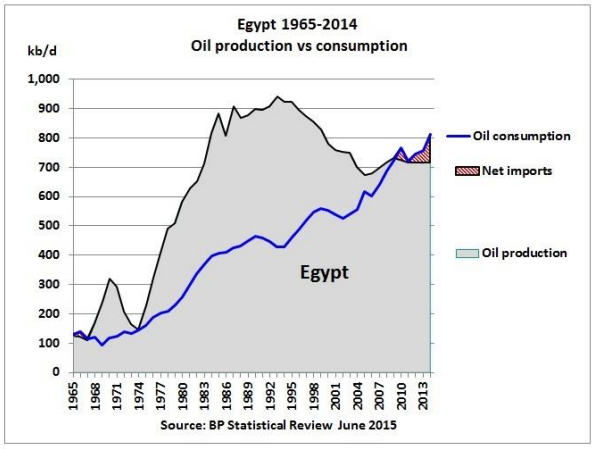


http://money.cnn.com/interactive/economy/the-cost-to-produce-a-barrel-of-oil/

Of course this is not the whole story. Many oil producing countries need oil revenues to fund their budgets and maintain their external accounts.

23/12/2015 Egypt budget and current account deficits - Can Saudi Arabia bail out Cairo?





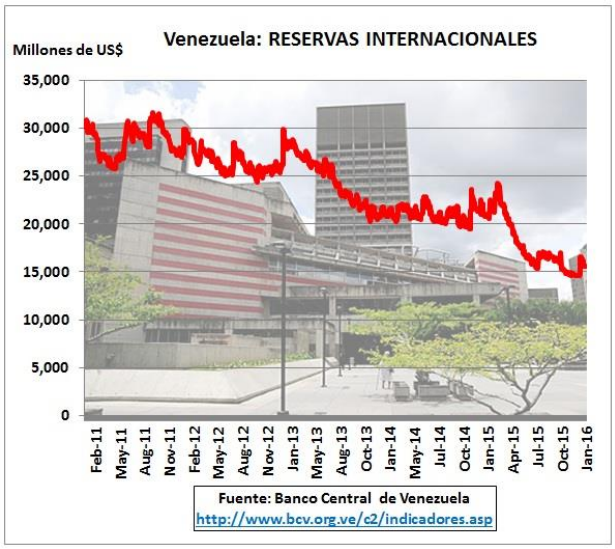
In Egypt, expenditure is far above revenue (left), now a net importer of oil (right)

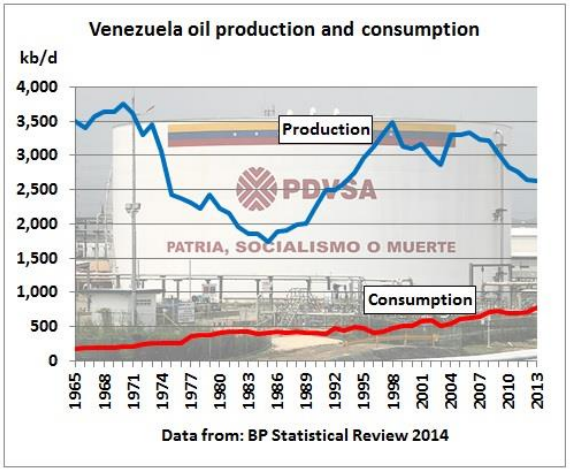
http://crudeoilpeak.info/egypt-budget-and-current-account-deficit-can-saudi-arabia-bail-out-cairo

4/12/2015 Egypt update: Net oil importer and Chokepoints
http://crudeoilpeak.info/egypt-update-net-oil-importer-and-chokepoints

4.5 mb/d flow through the Suez canal and the Sumed pipeline.

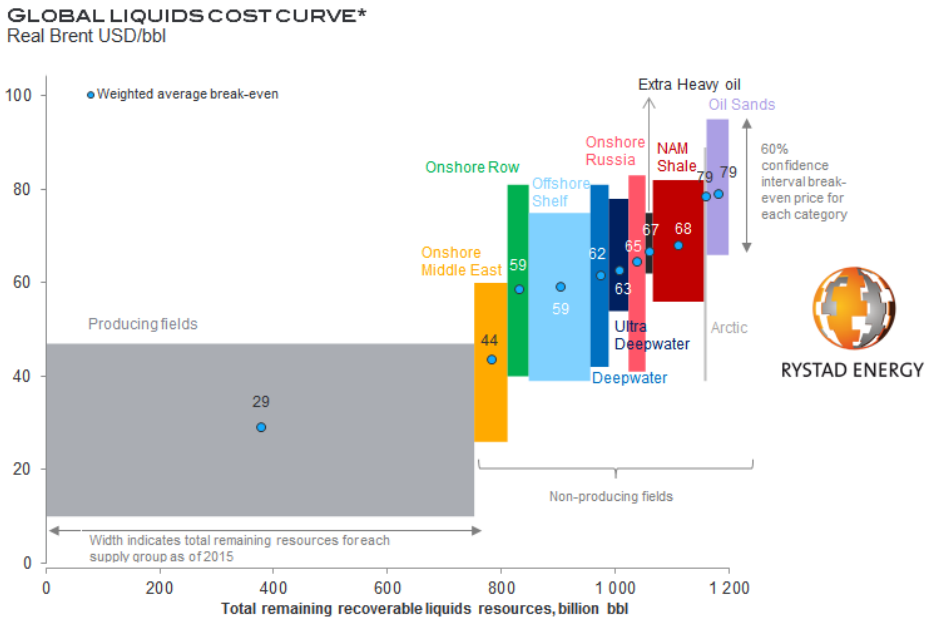
One of the next dominos is Venezuela (2.5 mb/d) http://crudeoilpeak.info/venezuela-peak





23/1/2016 IMF Sees Venezuela Inflation Rocketing to 720 Percent in 2016
http://www.bloomberg.com/news/articles/2016-01-22/imf-sees-venezuela-inflation-rocketing-to-720-percent-in-2016

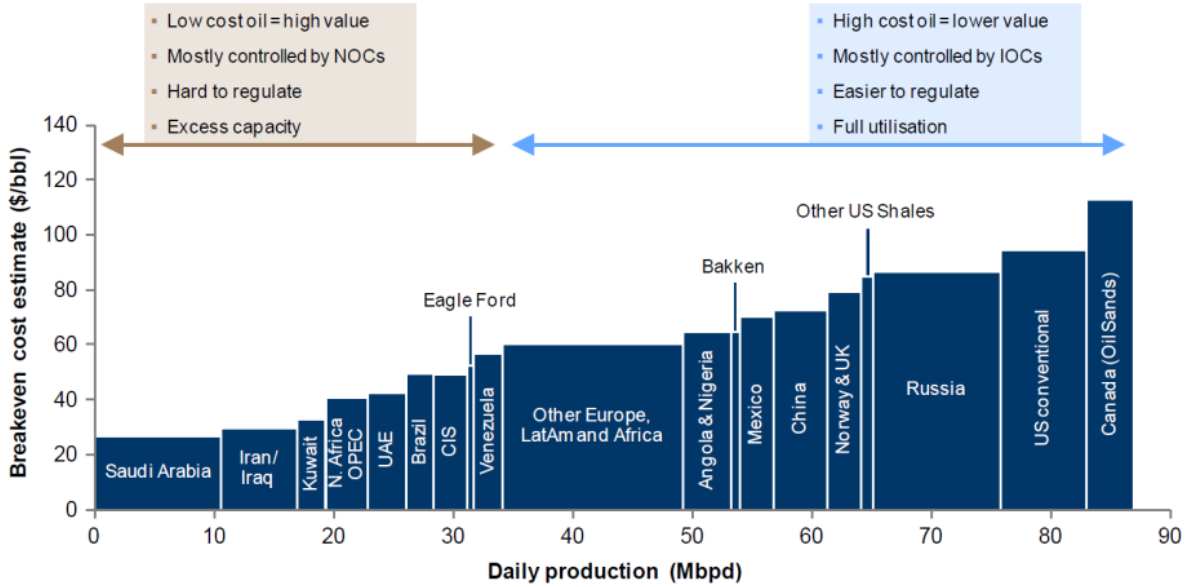
So what is the remaining oil cake to eat through? Here is a graph from Rystad Energy



*The break-even price is the Brent oil price at which NPV equals zero using a real discount rate of 7.5%. Resources are split into two life cycle categories: producing and non-producing (under development and discoveries). The latter is further split into several supply segment groups. The curve is made up of more than 20,000 unique assets based on each asset's break-even price and remaining liquids resources in 2015.
Source: Rystad Energy UCube September 2015

http://www.rystadenergy.com/AboutUs/NewsCenter/PressReleases/global-liquids-supply-cost-curve

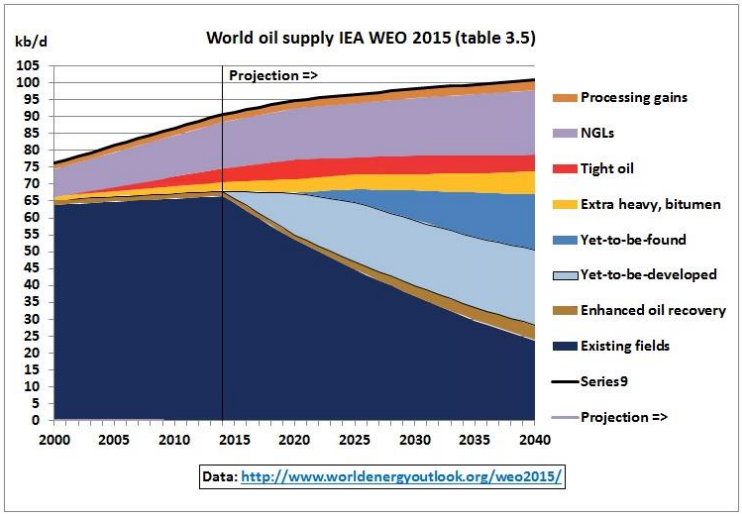
Note these are resources, not proved or probable reserves. They include crude oil, condensate and NGLs. The producing fields can't increase production



This is another graph on break even oil prices by Alliance Bernstein of October 2014. Add budget balance costs for oil producers with nationalised oil companies whose profits are used by governments. For example:

18/10/2015 Saudi Arabia's fiscal break-even oil price to be around $US 100 mark for the foreseeable future
http://crudeoilpeak.info/saudi-arabias-fiscal-break-even-oil-price-to-be-around-us-100-mark-for-the-foreseeable-future

So the era of cheap-to-produce-oil is over. Cheap oil the motorists enjoy is only good if oil companies can still make reasonable profits. With $30 oil, this is not currently the case. The main problem now is that absolutely necessary investments to offset natural decline in legacy oil fields have been shelved.



This graph using data from the IEA World Energy Outlook, November 2015, shows the decline in existing fields and how hard it will be to offset that decline.
http://www.worldenergyoutlook.org/

Note the horizontal line of conventional oil has been designed by adjusting the triangle “Yet-to-be-found”. This is of course the (hidden) peak oil scenario, with a very flat and long peak. There is no guarantee that this can be achieved. And the yet-to-be-developed area is under danger if timely investments are not done.

The IEA warned in Davos 2016 of higher oil prices in a few years’ time

World Economic Forum

The Transformation of Energy

The moderator of this session was Daniel Yergin, someone who enjoys debunking peak oil.

Davos 2016 - The Transformation of Energy

3:24
Fatih Birol: "For the oil markets what worries me the most is that: last year we have seen oil investments in 2015 decline more than 20%, compared to 2014, for the new projects. And this was the largest drop we have ever seen in the history of oil. And, moreover, in 2016, this year, with the $30 price environment, we expect an additional 16% decline in the oil projects, investments. So, we have never seen 2 years in a row oil investments declining. If there was a decline 1 year, which was very rare, the next year there was a rebound"

Daniel Yergin: "What does that lead you to?"

Fatih Birol: "this leads me to the very fact that in a few years of time, when the global demand gets a bit stronger, when we see that the high cost areas such as the United States start to decline, we may well see and upward pressure on the prices as a result of market tightness. So my message, my 1st message is: don't be misled that the low oil prices will have an impact on the oil prices in the market in a few years’ time"

Daniel Yergin: "Just to put a number on that. Our numbers at IHS, 2015-2020 **we see a 1.8 trillion dollar decline in upstream oil and gas investment**"

38:55
Fatih Birol: "...Middle East. If oil prices remain at $30 in 2016, an equivalent of 20% of the Middle East GDP will be erased. It's a big thing. For Russia, about 10% of Russian GDP will be erased if the prices remain at this level. At the same time for Europe, for China, for India it's an economic stimulus"

Yergin: "If you look at the global financial markets something is happening there"

"Birol: "It would have been worse if we were in this financial situation with higher oil prices"

Yergin: "So 2 different things going on at the same time"

Birol: "Exactly. But 2 things: one, as I mentioned, these low oil prices and the unprecedented low investments mean we are having a fertile ground in the future for strong rebound in the

prices. Second, topic of our discussion, transformation of energy, low oil prices are complicating the transformation. So we have to put this also in the context and therefore a need for governments to be very awake in the presence of low oil prices if they are serious about Paris"

Yergin: "So what should they do?"

Birol: "if they have new policies, they have to stick to them. They shouldn't get relaxed because the energy prices are low they don't have the impetus of saving money"

https://www.youtube.com/watch?v=5eBybPfZ4Lg

http://www.weforum.org/events/world-economic-forum-annual-meeting-2016/sessions/the-transformation-of-energy

Subprime oil

Of course financial and oil markets are not separate, they are linked.

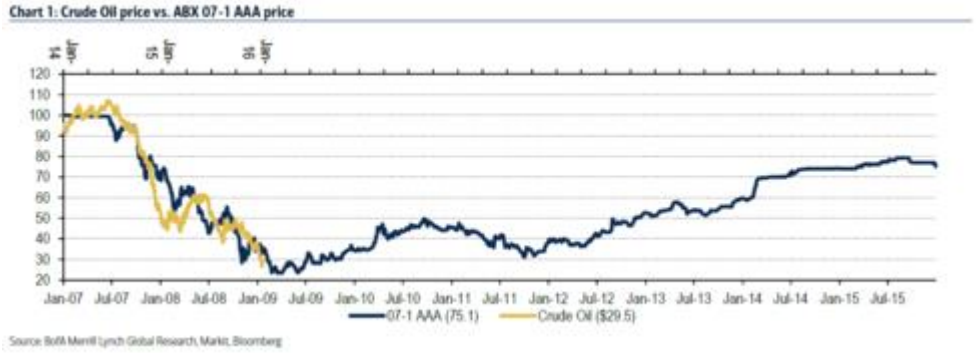
So Yes, the Oil Crash Looks a Lot Like Subprime

26/1/2016

One year ago, analysts at Bank of America Merrill Lynch drew a parallel between the subprime mortgage crash and the disorderly fall in the price of oil.

Led by Chris Flanagan, a veteran of the securitization space, the team drew attention to Markit's ABX Index, better known as the mother of all synthetic subprime credit indexes.

The pattern of the decline in the price of oil that began in mid-2014 is remarkably similar to the 2007-2009 pattern of the price decline of ABX, the credit derivative index that referenced subprime mortgages and, ultimately, the U.S. housing market (Chart 1). The ABX history suggests that oil will see more declines in the next couple of months and find a floor somewhere in the low 20s in the March-April time frame. Both the duration of the decline (1.5+ years) and the scale of the decline (100 neighborhood starting price down to the sub-30 neighborhood) are similar. Given that both housing and oil prices were fueled to spectacular heights in the two periods by massive credit expansion, it's probably more than just coincidence that the respective "bubble" bursting patterns are so similar.



Consider how things tend to work. Denial on what constitutes fair value is a big component of bubbles, on the part of both market participants and policymakers. When perceived "bubbles" burst, markets take their time in steadily shredding views of the perception of

fundamental value, as prices move lower and lower. Along the way, many will cite “technical factors” as the cause of the decline, which in some way suggests the price decline may not be real when in fact it is all too real. In the end, the technicals drive the fundamentals, as credit flees and borrowers go bust, and a feedback loop lower kicks in. Lower prices beget accelerated selling, as asset owners need to raise cash. It could be margin calls or it could be producer selling needs, it doesn’t really matter: the selling becomes inevitable and turns into forced selling.

The point here is not that oil is necessarily the new subprime crisis per se but that the recent action in the price of crude resembles nothing if not the bursting of a bubble and the sudden realization that the asset has been overvalued for too long. More worrying for oil investors will be BofAML's idea of forced selling. As Flanagan notes: "The systemic margin call of 2008 seems to be back for now, albeit to a far lesser degree."

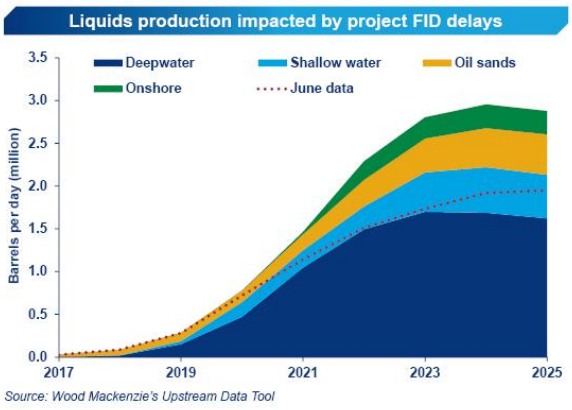
http://www.bloomberg.com/news/articles/2016-01-25/so-yes-the-oil-crash-looks-a-lot-like-subprime

Well, the world can live with vacant housing in derelict suburbs but it can’t live without oil. So the situation is very dangerous.

Threat to $1.5 Trillion of New Projects
21/9/2015
About $1.5 trillion of potential investment in new oil projects isn’t viable with crude prices at $50 a barrel, highlighting the need to reduce costs, according to consultant Wood Mackenzie Ltd.
The proposed projects, including spending on North American shale, are “now out of the money, or in starker terms, uneconomic at $50 oil,” James Webb, upstream research manager at Wood Mackenzie, said in a statement Monday. “This spend is very much at risk.”
While operators want to cut costs by 20 percent to 30 percent on new projects, supply-chain savings will only achieve cuts of 10 percent to 15 percent on average, according to Wood Mackenzie.
http://www.bloomberg.com/news/articles/2015-09-21/oil-price-rout-seen-as-threat-to-1-5-trillion-of-new-projects

Here is an assessment how much oil is lost over time as a result of CAPEX deferrals:

Pre-FID 2016: US$380bn of capex deferred

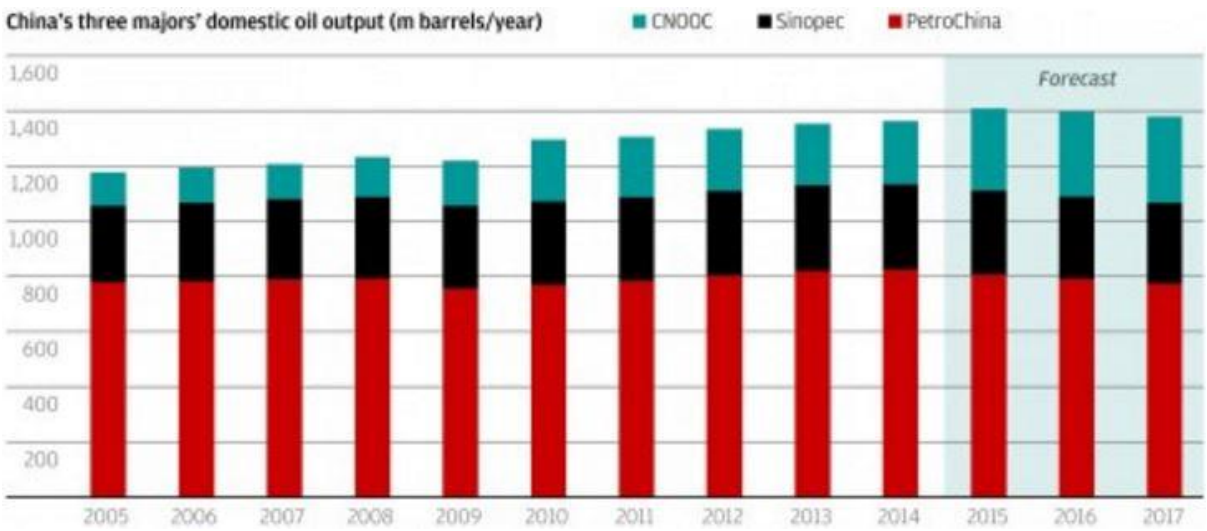


14/1/2016 http://www.woodmac.com/analysis/PreFID-2016-USD380bn-capex-deferred

China

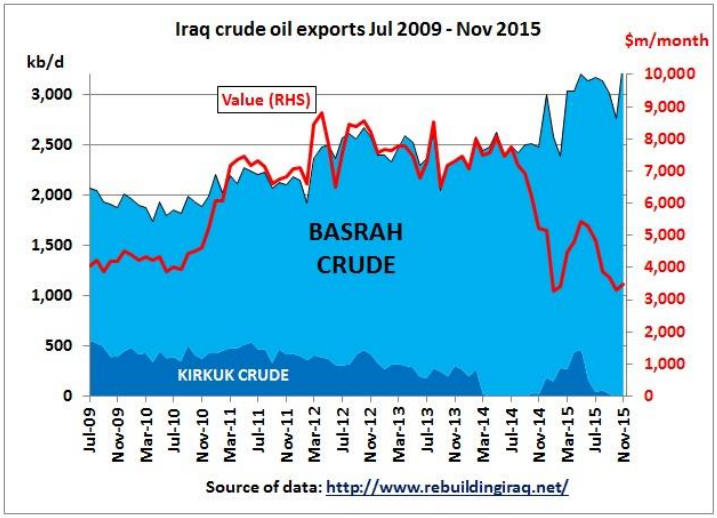
Australia wants growth of a Chinese middle class? Go for it!

China peak oil, 2015 is the year

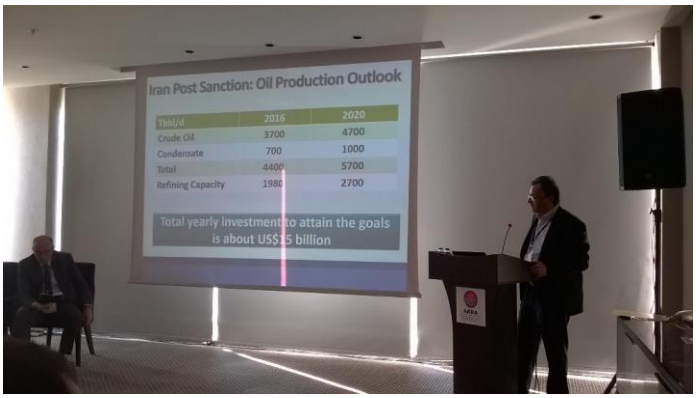


http://www.scmp.com/business/commodities/article/1881188/chart-day-no-turning-back-chinas-oil-production

Wild card Iraq

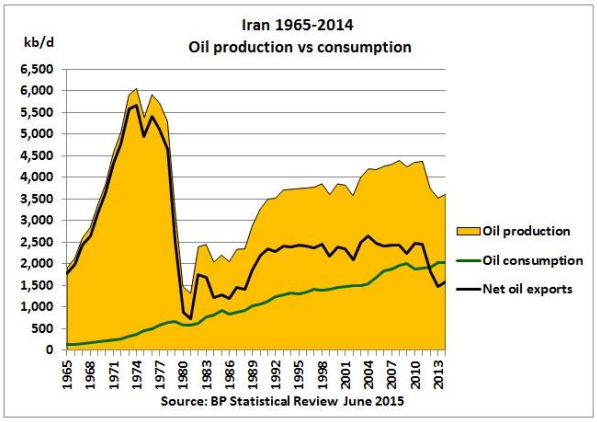


Wild card Iran



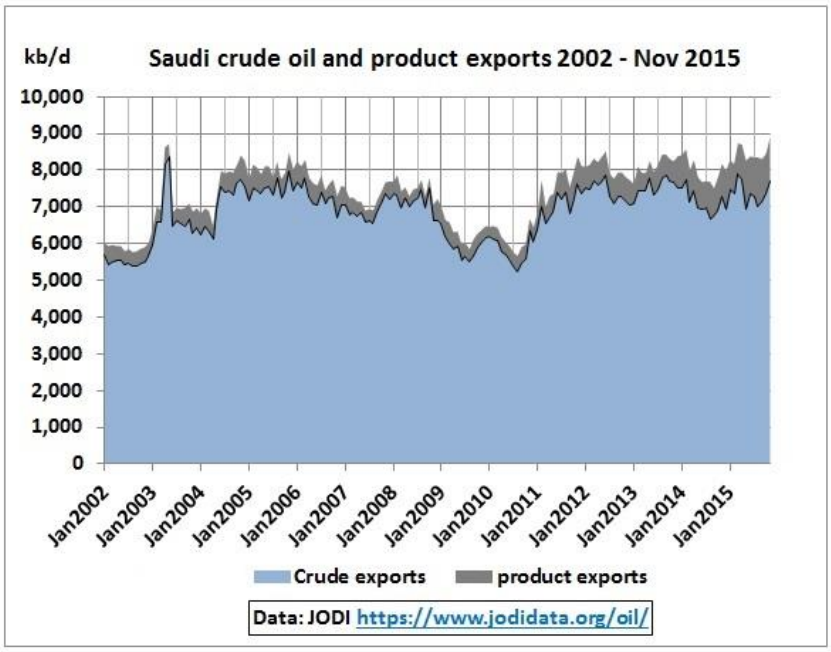
1 mb/d additional oil (4.7 mb/d by 2020)
Antalya presentation at the Cuttingedge conference January 2016
http://www.cuttingedgeconferences.com/iran/program
https://pbs.twimg.com/media/CZU6S0PUYAAHX3X.jpg:large

This optimistic outlook will bring Iranian oil production just 400 kb/d above pre-sanction levels.



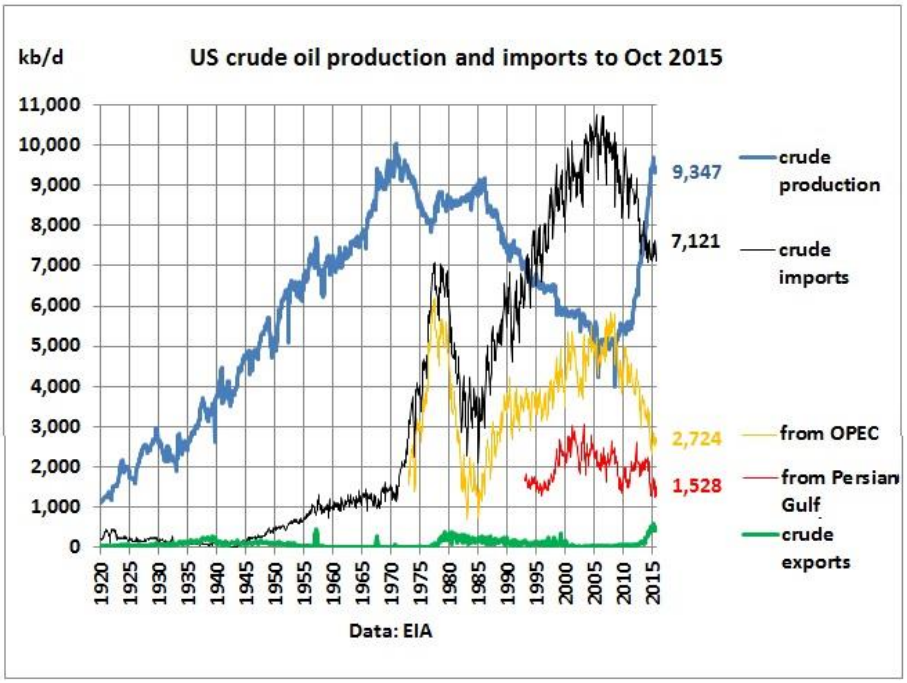
Debunking Myths

Saudi Arabia has NOT flooded market with oil



Fact: Saudi liquids exports remained on bumpy plateau for 4 years, hardly exceeding 2005 levels. That is also peak oil.

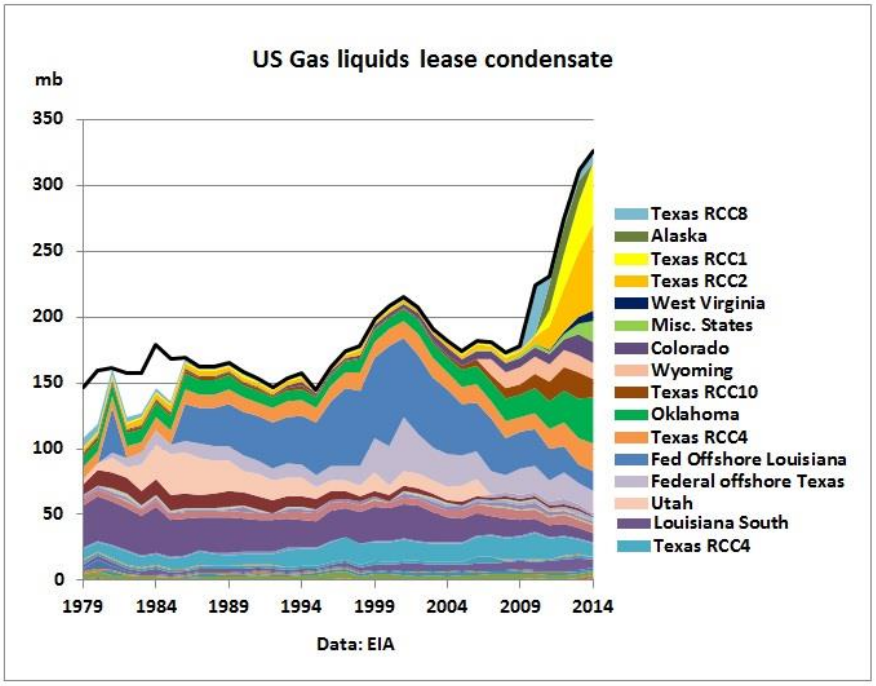
US is NOT self sufficient in crude oil



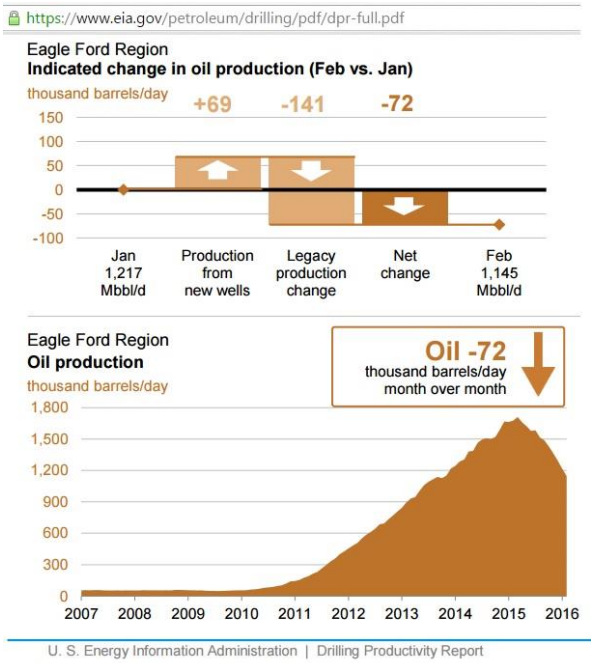
The US still imports 7 mb/d. This 43 % of crude oil requirements

More details are here:

21/1/2016 The myth of US self-sufficiency in crude oil
http://crudeoilpeak.info/the-myth-of-us-self-sufficiency-in-crude-oil



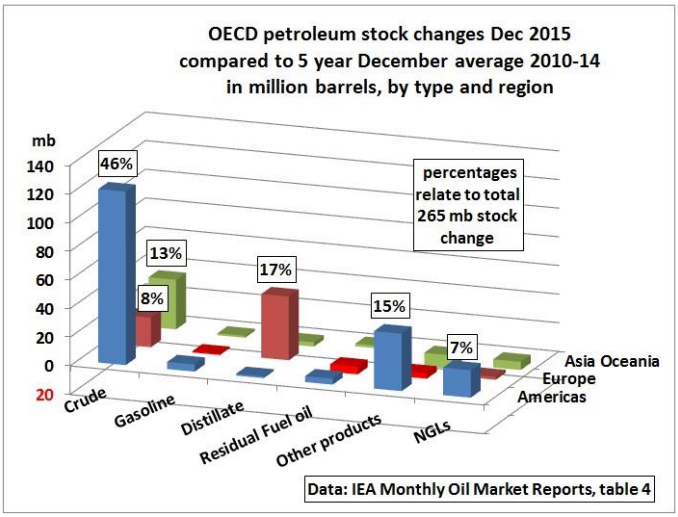
Shale oil boom created surplus of less versatile condensate, clogging up inventories



Note that decline of -141 kb/d is now far exceeding additional production from new wells of 69 kb/d
https://www.eia.gov/petroleum/drilling/pdf/dpr-full.pdf

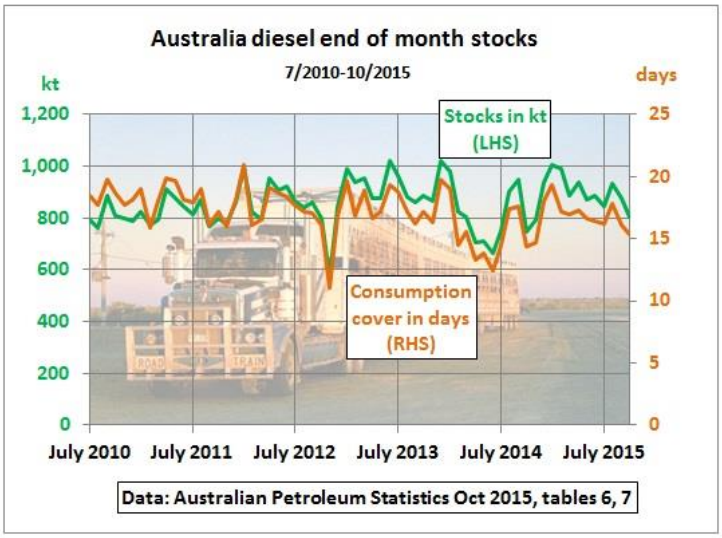
In another shale oil area, Bakken in North Dakota, rising unemployment:

Oil glut is not global



2/3 of additional stock is in the US. More details are here:

29/12/2015 Where actually is that much-hyped global oil glut?
http://crudeoilpeak.info/where-actually-is-that-much-hyped-global-oil-glut
And definitely there is no oil glut in Australian inventories:



For example, in October 2015, there were just 17 days of diesel

Import cover calendar year 2014					
	Stocks Kt table 6	Imports ML/month table 4	Density tons/ML	Imports Kt/month table 4	Import cover days
Gasoline	705	338	737	249	86
Diesel	814	1,170	885	1,035	24
Jet fuel	320	308	810	250	39

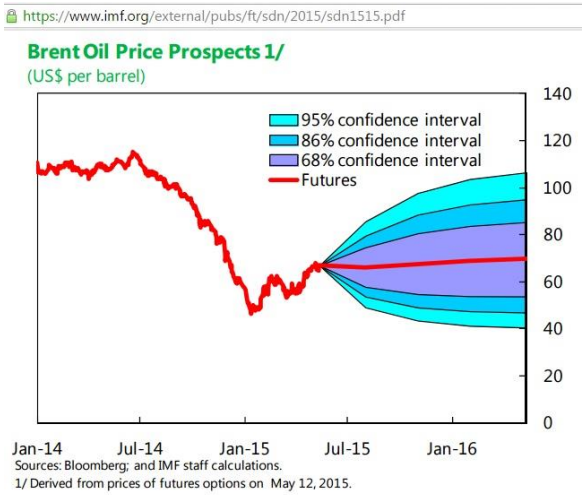
Import cover Oct 2015 last 12 months					
	Stocks Kt table 6	Imports ML/month table 4	Density tons/ML	Imports Kt/month table 4	Import cover days
Gasoline	771	547	737	403	58
Diesel	897	1,371	885	1,214	22
Jet fuel	356	409	810	331	33

The author of this submission was invited to a Senate Hearing on "Transport Energy Resilience" in Melbourne's Parliament House. More details are here:

12/1/2016 No glut in Australian petroleum inventories
http://crudeoilpeak.info/no-glut-in-australian-petroleum-inventories

Scenarios

No one can predict oil prices.



https://www.imf.org/external/pubs/ft/sdn/2015/sdn1515.pdf

The above graph is from the IMF paper "Global implications of lower oil prices" (July 2015). Oil price projections ranged from $40 to $105 for mid 2016, almost useless for practical

purposes. Imagine an airline basing their planning on this range. Or a toll-way operator, for that matter. So we can only look at scenarios.

(a) Oil prices stay low, that is below break-even production costs of the majority of oil producers. The reasons for low oil prices would be a recession due to the next phase of the financial crisis or a worsening economy in China (where those ghost towns indicate that China is experiencing its own subprime mortgage crisis). In that case high cost producers will have no other choice than to shut down production, especially when prices are below operating costs. This would mean that the oil industry dismantles itself similar to what we saw happening to Australian refineries. In some countries with nationalised oil companies there may be problems of paying for oil workers, social programs and subsidies, leading to social unrest and further production cuts. This may result in oil price spikes and continuing damage to the economy
(b) Oil prices go up again to $100 or thereabout when demand exceeds supply which had dropped due to lack of previous investments. As oil projects take several years to complete this situation cannot be easily resolved except by another recession and lower demand. In relation to US shale oil, there is a big question whether there will be enough confidence among investors and banks – who have burned their fingers – to finance another phase of shale oil. Quantitative easing – QE4 - will be required.
(c) Oil prices go back up to, say US$ 60 or US$ 70 and stay there for some time although there is no evidence during the last 10 years that this price level will be stable. Since the world increased demand to use US shale oil and the sweat spots are limited it is likely that in this scenario quantitative easing is also needed which will ultimately lead to another phase of the debt crisis. Everything will depend on oil from Iraq and Iran since all other producers, including Russia and Saud Arabia, are pretty much maxed out.
(d) Due to low oil prices Iranian revolutionary guards – involved in the oil business themselves - take some belligerent action which goes wrong and leads to a wider military confrontation involving the blocking of the Straits of Hormuz. All bets are off.
(e) Even blind Freddy knows the Middle East is a powder cake so there are many scenarios. The most serious will be social unrest among the Shia in Qatif (see my submission on the M4East) with most of the pipelines going to oil terminals and refineries.
(f) A major oil producer like Venezuela defaults (i.e cannot pay import bills for vital oil equipment) and production drops steeply. After exhausting inventories and releasing strategic reserves oil prices skyrocket.

There is actually no benign scenario for growing oil demand in the next decades because expensive US shale oil has peaked, the rest of the world is in year 11 of peaking with only limited prospects for additional oil from Iraq and Iran, both instable candidates.

In all oil crises scenarios Australia will be in danger as crude and product stocks are minimal.

Global warming

www.columbia.edu/~jeh1/mailings/2016/20160120_Temperature2015.pdf

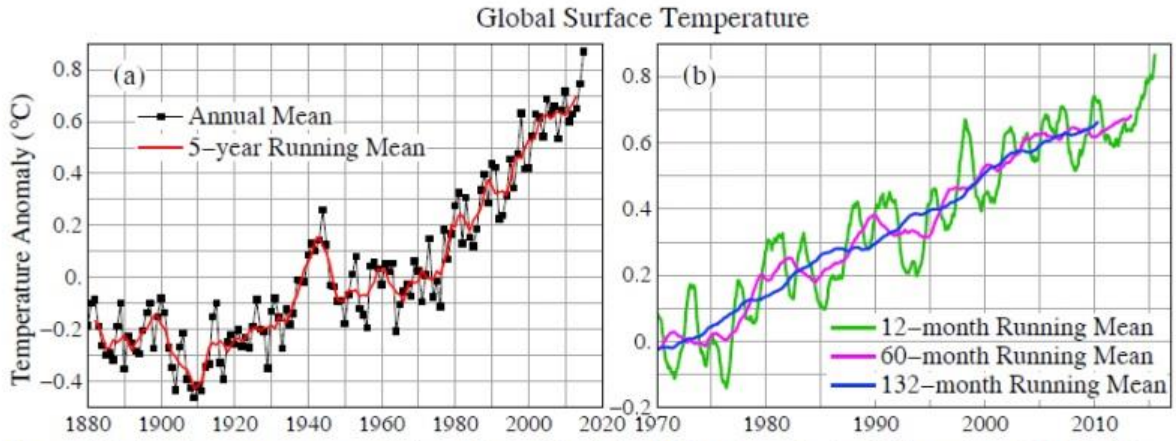


Fig. 1. Global surface temperatures relative to 1951-1980 in the GISTEMP analysis, which employs GHCN.v3 for meteorological stations, NOAA ERSST.v4 for sea surface temperature, and Antarctic research station data[1].

Global Temperature in 2015

16/1/2016

Abstract. Global surface temperature in 2015 was +0.87°C (~1.6°F) warmer than the 1951-1980 base period in the GISTEMP analysis, making 2015 the warmest year in the period of instrumental data. The 2015 temperature was boosted by a strong El Niño, nearly of the same strength as the 1998 “El Niño of the century”. The updated global temperature record makes it clear that there was no global warming “hiatus”. Global temperature in 2015 was +1.13 (~2.03°F) relative to the 1880-1920 mean. Accounting for interannual variability, it is fair to say that global warming has now reached ~1°C, almost ~2°F.

http://www.columbia.edu/~jeh1/mailings/2016/20160120_Temperature2015.pdf

Rebuilding transient coast lines

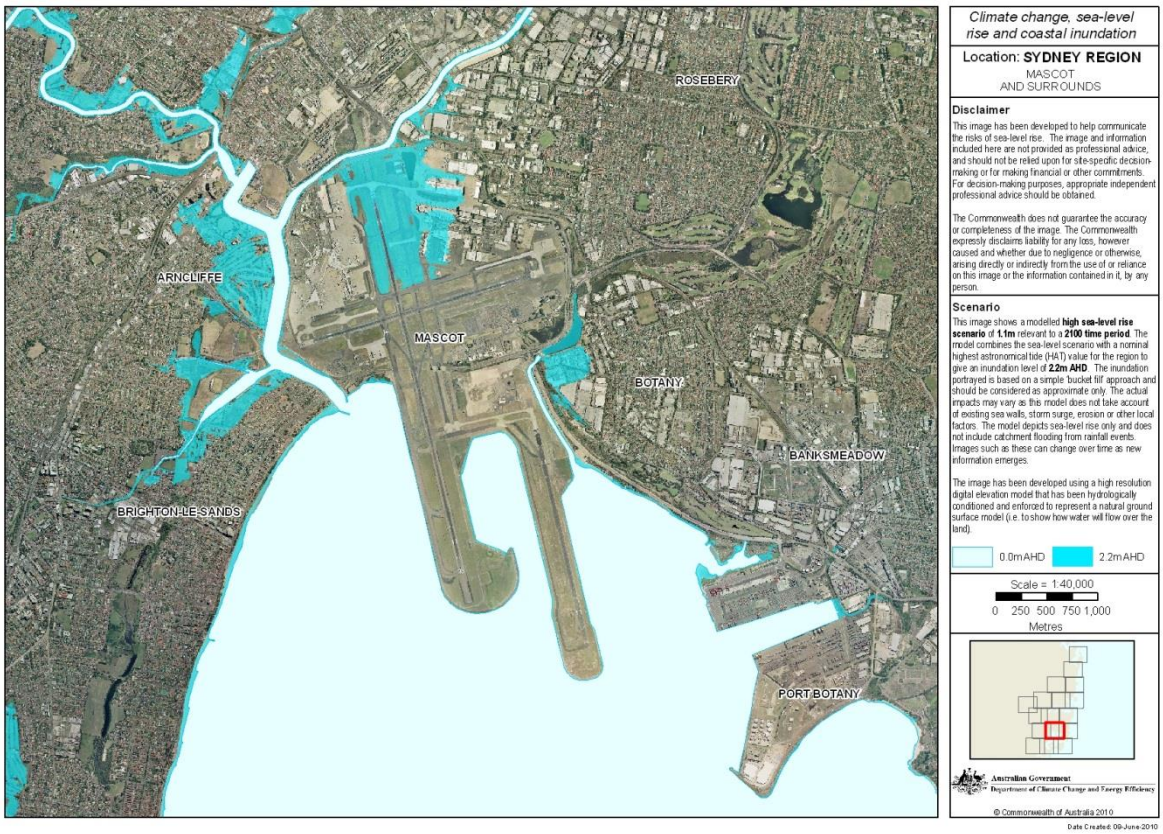
Icy flooding in New Jersey in Jan 2016 so shortly after Sandy

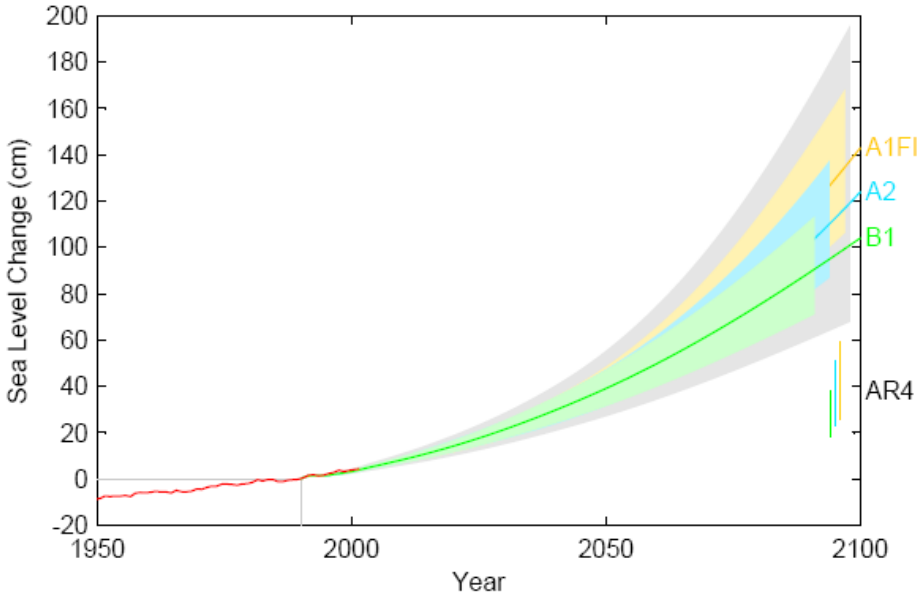
Predicted by James Hansen 10 years ago:

2006

"The effects of a rising sea level would not occur gradually, but rather they would be felt mainly at the time of storms. Thus for practical purposes sea level rise being spread over one or
two centuries would be difficult to deal with. It would imply the likelihood of a need to continually rebuild above a transient coastline.
http://www.columbia.edu/~jeh1/2006/CaseForCalifornia_20060630.pdf

Parts of the area served by the M5 will also be flooded by 2100



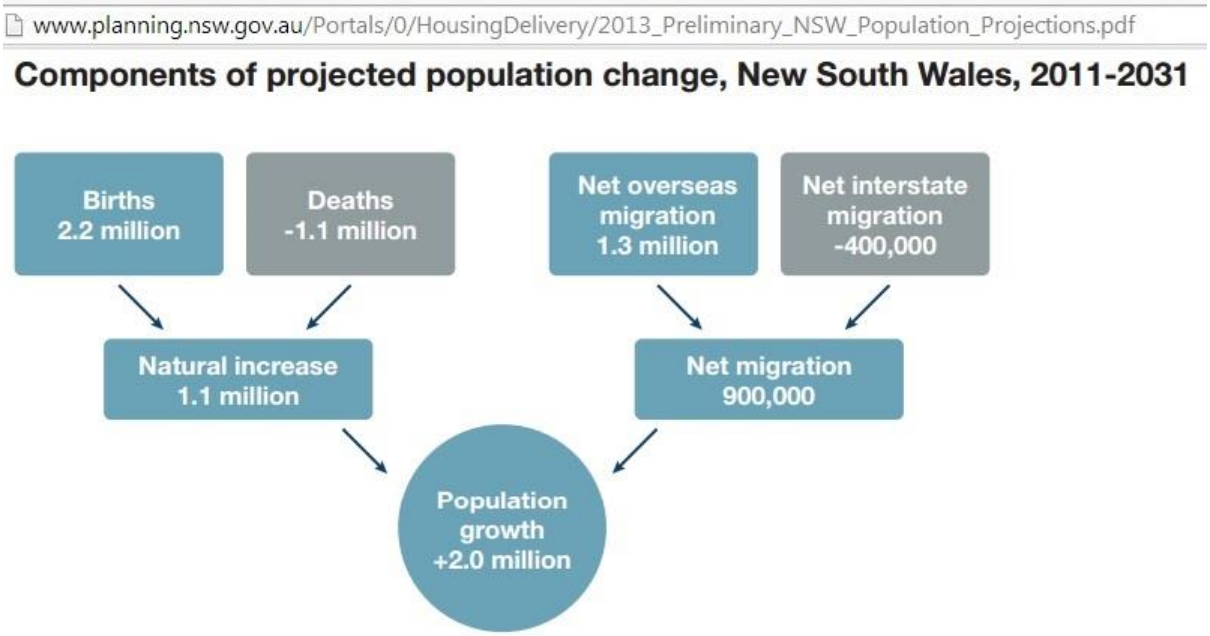


Sea level rise projection by the Potsdam Institute of Climate Impact Research

It is up to 2 m, not 0.88 m as assumed in App W, table W-5. It is am engineering principle to take the worst case scenarios from the literature, not to cherry pick research which is convenient for a project.

Implications for New M5

Already the assumption that there is sufficient energy for Sydney to grow from a population of 4.3 million to 5.8 million has not been tested. 65% of this growth comes from an entirely avoidable, unsustainable immigration where Asian immigrants immediately adopt wasteful Australian lifestyles. Moreover, it has not been proven that there will be sufficient affordable housing for that assumed population growth.



Likewise, the assumption that total vehicle movements will increase by 31% from 16 to 21 million vehicles per day by 2031 for the whole Sydney area has not been based on any energy calculation, whether from fossil fuels or renewable sources. If these assumptions for the whole of Sydney are wrong, then all traffic estimates for the M5 are also wrong.

In particular, the model in chapter 4.1 (App G "Future Year Traffic volumes and patterns") is completely flawed. It does not seem to contain any economic, financial, budgetary, environmental or energy supply parameters, let alone limitations or boundary conditions. Some of them may be hidden deep inside some of the sub-models. For example, GDP assumptions have not been made transparent in this chapter.

Therefore, chapter 9 (App. G) has made no assessment of implied oil or other energy supplies necessary to support the assumed traffic volumes on the M5**. Insofar the whole M5 documentation is absolutely academic**. Energy is economy.

Although I complained in my M4East submission that there were no screenline data for the existing (2012) traffic again this is not provided for the M5. It should be in the format of table 79 and 80, extracts of which are in this combined table:

New M5 EIS_Vol 2B_App G_Traffic and Transport.pdf - Adobe Reader

Table 79 WRTM screenline comparison between 2021 'without project' and 'with project' AWT volumes

Direction	Location	2021 'without project'	Share	2021 'with project'	Share	Change
Two-way	Princes Highway	72,415	21%	68,388	20%	-6%
	New M5	–	–	29,339	9%	–
	Marsh Street	75,979	22%	66,723	19%	-12%
	M5 East Motorway	101,554	29%	80,775	23%	-20%
	General Holmes Drive	95,018	28%	99,706	29%	5%
	Total	**344,966**		**344,931**		**0%**

Table 80 WRTM screenline comparison between 2031 'without project' and 'with project' AWT volumes

Direction	Location	2031 'without project'	Share	2031 'with project'	Share	Change
Two-way	Princes Highway	79,085	20%	75,628	19%	-5%
	New M5	–	–	34,748	9%	–
	Marsh Street	92,805	24%	86,501	22%	-7%
	M5 East Motorway	109,634	28%	95,208	24%	-13%
	General Holmes Drive	104,804	27%	108,233	27%	3%
	Total	**386,328**		**400,318**		**4%**

So we have no readily available 2012 number to compare to the traffic in 2021 (344,966) and 2031 (400,318). It would be important to know the assumed annual growth for the whole period to 2031. The increase from 2021 to 2031 is 16.3 % over 10 years. Applying that growth rate for the period 2016-2031 would be 24.5% over 15 years. It is absolutely impossible that oil production grows by that amount in that timeframe. So where is the modelling for:

(a) the truck fleet: fuel savings or alternative energy supplies including cost and timing of associated infrastructure
(b) the car fleet: fuel savings or alternative technologies like EVs including cost and timing of associated infrastructure

Note that Australia exports natural gas – potentially the only alternative transport fuel – in quantities equivalent to the total liquid consumption, a huge waste of energy. Details are here:

7/4/2015 Australia's alternative transport fuel: The East Coast gas-ship has sailed
http://crudeoilpeak.info/australias-alternative-transport-fuel-the-east-coast-gas-ship-has-sailed

CO2 emissions

New M5 EIS_Vol 2H_App U_Greenhouse gas.pdf - Adobe Reader

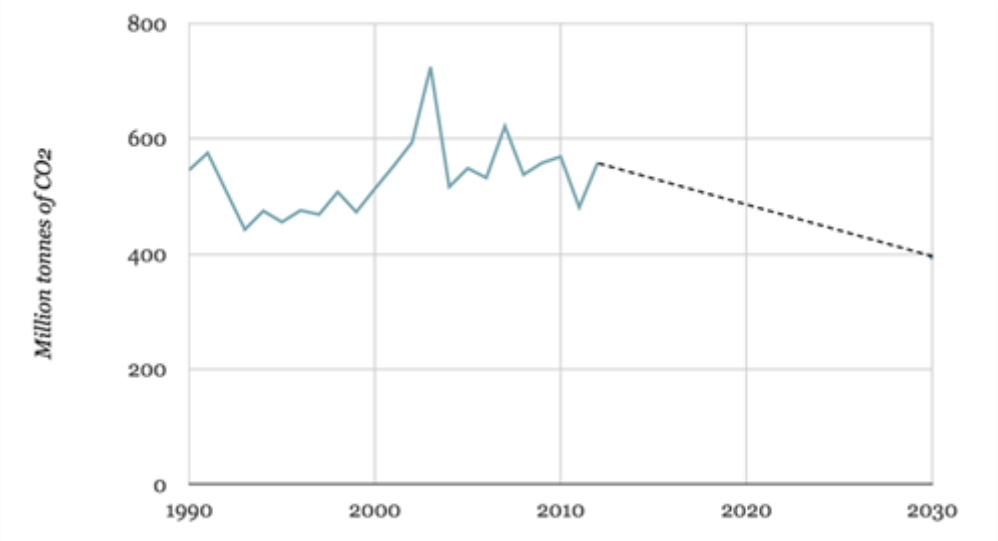
Table U-17 Scope 3 GHG emissions results for operational road use

Route	GHG emissions (t CO_2-e)					Difference between scenarios (t CO_2-e)		
	'Do minimum' (without project)		'Do something' (with project)		'Cumulative'	'Do something' – 'Do minimum'		'Cumulative' – 'Do minimum'
	2021	2031	2021	2031	2031	2021	2031	2031
Existing road network (within the study area)	5,924,115	7,885,465	5,938,768	7,532,411	5,812,520	14,653	-353,054	-2,072,945
The New M5	NA	NA	94,946	123,867	198,909	94,946	123,867	198,909
Totals	**5,924,115**	**7,885,465**	**6,033,714**	**7,656,278**	**6,011,429**	**109,599**	**-229,187**	**-1,874,036**

Note: negative values indicate a savings in GHG emissions for the 'do something' (with project) and 'cumulative' scenarios compared with the 'do minimum' (without project) scenario. NA = not applicable (the 'do minimum' scenario does not include the project).

Again, the existing (2012) emissions are not shown in the above table (is this done on purpose?)

Australia's modest CO2 reduction target is shown in the following graph, from 480 mt in 2021 to 400 mt in 2031, or 17%.



http://www.carbonbrief.org/australia-disappoints-with-weak-un-climate-pledge

So 5.92 mt should be reduced to 4.94 mt. The project 2013 number is 7.66/4.94 => 55% higher. The New M5 does not meet this target. Only public transport will do this.

Recommendation: The New M5 project should be stopped, immediately. Already the planning is a waste.

Prepared by Matt Mushalik 29/1/2016 mushalik@tpg.com.au @crudeoilpeak