

Submission on Sydney Metro

By Matt Mushalik

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## Focus on 2nd Harbour crossing and nothing else



Fig 1: Sydney Metro alignment and stations <http://sydnymetro.info>

### (1) No estimated costing

It is very difficult to comment on a document which does not include at least a rough cost estimate for each section and for each alternative alignment/station of the project. This has to be compared with the available funds whether this is from selling the State's silver (poles and wires), from the budget or from debt. The government seems to think that this exercise is open-ended. There is also a time limit because the global debt problem is NOT solved. Greece and the fall in China's stock market are just symptoms of an instable situation. With every year we are coming closer to another financial crash which in all likelihood will be combined with an oil crisis because current oil prices are too low for oil companies to make sufficient investments to offset decline in existing oil fields (subprime oil). The disintegration of the Middle East should also be a planning factor. It could be that in just 5 years everyone will be fighting against everyone, with continuously shifting alliances

between terrorists, tribes, ethnic and religious groups, all on top of the highest producing oil fields in the world. Moreover, if IAEA inspections in Iran discover isotopes which lead to undeclared nuclear facilities, all bets are off. In this uncertain financial and geopolitical context you don't start big, uncostered projects but rather work on smaller incremental improvements which can be completed even under adverse conditions.

It is also unclear how much of the asset sale is actually available for rail as the government has many road tunnel projects in mind, including another Harbour crossing which would compete with the rail tunnel. Not to mention that the current Federal Government is anti-rail.

## (2) Population growth

The document happily accepts perpetual population growth in NSW as a given. However, 65% ( $\approx 1.3/2$ ) of the underlying population growth is from net overseas migration which can be reduced when States lobby the Federal government accordingly.

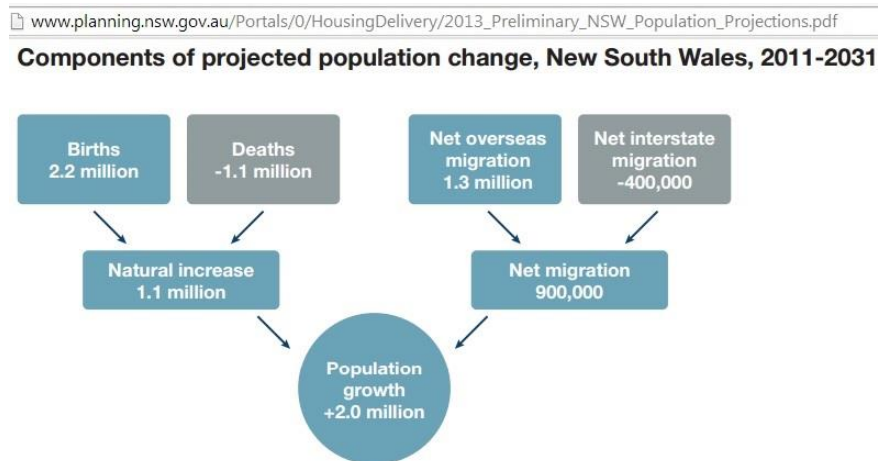


Fig 2: Population growth. NSW (Sydney) is lucky that net interstate migration is negative

If a city is allowed to grow beyond a certain size, additional transport infrastructure becomes unproportionally and prohibitively expensive, mainly because tunnels are needed, whether these are road or rail tunnels. Sydney has passed this threshold long ago, probably in the 1990s.

Net overseas migration (NOM) in 2014 was 184 K. Is Australia building every year one sustainable (energy frugal) city of this size and outside the commuting distance of capitals while sitting on one of the largest chunks of real estate in the world? No. Natural growth in 2014 was "only" 146 K. We are not building sustainable cities for that growth either.

So governments allow 330 K people EVERY YEAR to live and move into already congested capital cities which will never ever catch up with providing adequate transport infrastructure because they are too big. By declaring that the Asian Century will usher in a new period of prosperity, governments have attracted mostly Asian investors like flies which are crowding out poor local bidders at weekend auctions.

Latest ABS population statistics: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0>

Under the limitations mentioned in para 1 it is advisable to reduce immigration as a solution to the congestion problem instead of building additional, expensive infrastructure.

### **(3) North West Rail link is not a metro**

The North West Rail Link, now (misleadingly) rebranded as Sydney Metro Northwest, is NOT a metro in the classic European definition. It was designed as a heavy rail link for long distance commuters. The average distance between the stations Epping and Cudgegong is 2.9 kms, between Epping and Chatswood even 3.3 kms. A metro has usually stopping distances of around 1,000 m in high density areas (i.e 4-5 storey flats) to optimize walking catchments. That's why for metros you normally need a different, light weight rolling stock with high acceleration. But the North West area is a low density area. By putting single deckers into the NWRL tunnel (with small diameter!) you don't suddenly turn this into a metro. The stations are also too deep with high construction and operating costs.

The new NWRL operators from Hong Kong have of course noticed the lack of adequate patronage and want Councils to approve massive residential towers around stations in order to fill their trains.

However, the job at hand in Sydney is to REPLACE EXISTING car traffic, not to build rail tunnels for immigrants yet to arrive (and who are accustomed to a high rise life style)

Now the existing Epping – Chatswood tunnel is converted to single deck trains which will be bitterly regretted because operational flexibility will be unnecessarily sacrificed. The analysis of this problem is here:

4/1/2015

Sydney mismanages transition to driver-less single deck trains (part 2)

<http://crudeoilpeak.info/sydney-mismanages-transition-to-driver-less-single-deck-trains-part-2>

30/12/2014

Sydney plans to dismantle rail infrastructure built just 6 years ago (part 1)

<http://crudeoilpeak.info/sydney-plans-to-dismantle-rail-infrastructure-built-just-6-years-ago-part-1>

The introduction of single deck trains on what was originally planned as a double deck rail link now results in passengers having to change trains at Chatswood, a bad outcome, which the government uses as an argument to continue this single deck project into and beyond the CBD.

### **(4) CBD centric planning**

The rail congestion in the CBD is basically a self-inflicted problem which evolved over decades as a result of an enduring and entrenched Harbour View mentality of Sydney's political system and the planning bureaucracy.

Too much CBD employment was allowed compared to the limited capacity of the existing rail tunnels built in the 1930s, only extended by the Bondi line in 1979.



Given that such a station has not been integrated into basement structures already under construction, this is an expensive after-thought which symbolizes the ad-hoc planning so typical for Sydney. Remember that Transport Minister Costa cancelled the Epping-Parramatta Rail link on the grounds there would only be 15,000 passengers a day.

The CBD centric land-use and rail planning results in mono-directional traffic flows which for the whole system are very inefficient.

#### **(5) Chatswood – North Sydney**

It is not clear why a tunnel is needed here. This could be because driverless trains pose a problem above ground with many possible obstacles. If that is the case then this shows what the implications are of driverless trains: more costly tunnels. At a minimum, the document does not show where a tunnel under the Harbour would have to start on the North Sydney side (due to vertical alignment limitations)



**Fig 5: St Leonards/Crows Nest**

An “eat street” hub in Crows Nest is not a sufficient reason for a billion dollar rail tunnel. Planners seem to live in a phantasy land. Essentials first, luxuries later.

#### **(6) Bankstown line**

A long tunnel from Central to Sydenham is rather unnecessary, especially since a stop at Sydney Uni is only optional. This shows again that planners do not seem to know what a metro is (i.e frequent stops). At present students walk to/from Redfern station or use buses to/from Central. The proper solution here would be light rail from Central along Parramatta Rd with short tunnels at critical intersections. Watch this video how it is done:









Stadtbahn Stuttgart linia U6 <https://www.youtube.com/watch?v=isQO8FX45Pc>

Sydney would need 100s of kms of such a hybrid light rail/metro line system on all arterial roads and motorways to replace car traffic. But in the meantime the government pursues the Westconnex road tunnel, a doomed project like all other road tunnels including NorthConnex.

There is actually no immediate need to “upgrade” the Bankstown line to single decker services. This investment in screen doors and signalling is not a priority and actually unnecessary given the fact that there are many suburbs in Sydney which do not even have any rail station at all. This part of the project is basically forced by the idea to continue with driverless single deckers from Chatswood.



## (7) Rail hierarchy

Appendix C: Hierarchy of Urban Rail System in Frankfurt	
Heavy rail	
	
Double deckers are used as city or regional express only; limited stops every 15 mins or so	Single deckers for all stopper services. Average distance between stations: 2.5 kms
Metro	
	
Stops every 800-1000 m, runs every 5 mins	Also above ground on dedicated track.
Light rail – surface metro	
	
8 car trains - high platforms - frequent stops	Simple stations can be built fast
Trams – low floor	
	
Sharing road way	On dedicated track; car lanes gone

Excerpt from my submission on the NWRL <http://crudeoilpeak.info/wp-content/uploads/2012/12/Submission-NorthWest-Rail-Link-EIS2.pdf>

Sydney planners mix up the different types of rail systems and their functions. Yes, you normally use double deckers for express services and not for all-stoppers but that is in an integrated system where you have also metro lines, light rail and trams which Sydney failed to develop over the last 40 years. **This lost time cannot be made up for.** Sydney's established double decker system should not have been touched. Single deck metro lines should be ADDED, not mis-used to convert existing double decker services.

## **(8) Global Sydney**

It is easy to look at a world map and see that Sydney is located at the end of the world (which is good in war time situations). The so-called Asian Century and with it increasing globalisation will end as soon as Asia's oil imports can no longer grow. This historical moment is in sight. There is no need to plan for perpetual growth. The price of iron ore should be a warning for all those who think otherwise.

## **Summary and Conclusion**

The costly and unnecessary introduction of driverless trains between (Rouse Hill) – Epping – Chatswood is a life experiment with Sydney's established double decker rail system. The original idea was a link from Chatswood to Parramatta to relieve the CBD by diverting Western trains away from the congested Strathfield – CBD section and also to create part of a ring line North of the Parramatta River. Transport Minister Costa arbitrarily cancelled the Epping – Parramatta leg of this link and thus upset the whole strategy.

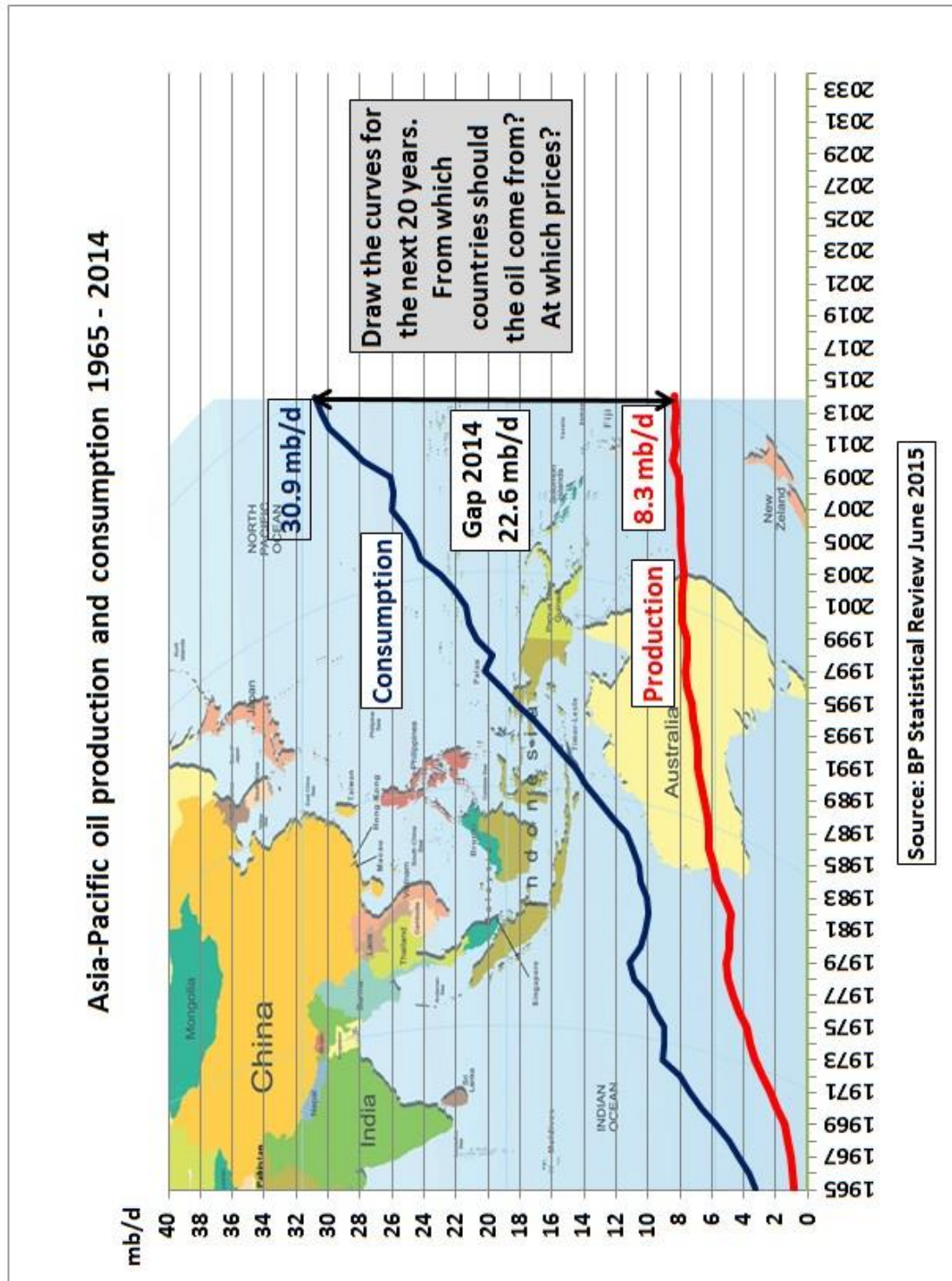
The next priority should have been a 2<sup>nd</sup> Harbour rail crossing from North Sydney to Central/Redfern. Instead, the money was wasted on the less important NWRL while the parallel running M2 was widened. Worse, a new government changed original plans for ideological reasons and introduced driverless single deckers to Chatswood, which are incompatible with the rest of the rail system. The government now wants to continue with this flawed strategy to the CBD and even Bankstown although there is no immediate need for the latter. **The focus should be a 2<sup>nd</sup> Harbour rail crossing and nothing else,** at minimum cost, using existing double decker rolling stock to maintain operational flexibility.

The cheapest solution would be to use the Harbour bridge and some ghost tunnel sections and platforms under the CBD. Closing down car lanes on the Harbour bridge is not a problem because when the big bang in the Middles East happens, that will be the immediate end of our car culture. It could already be by 2020.

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## Home work for the NSW government

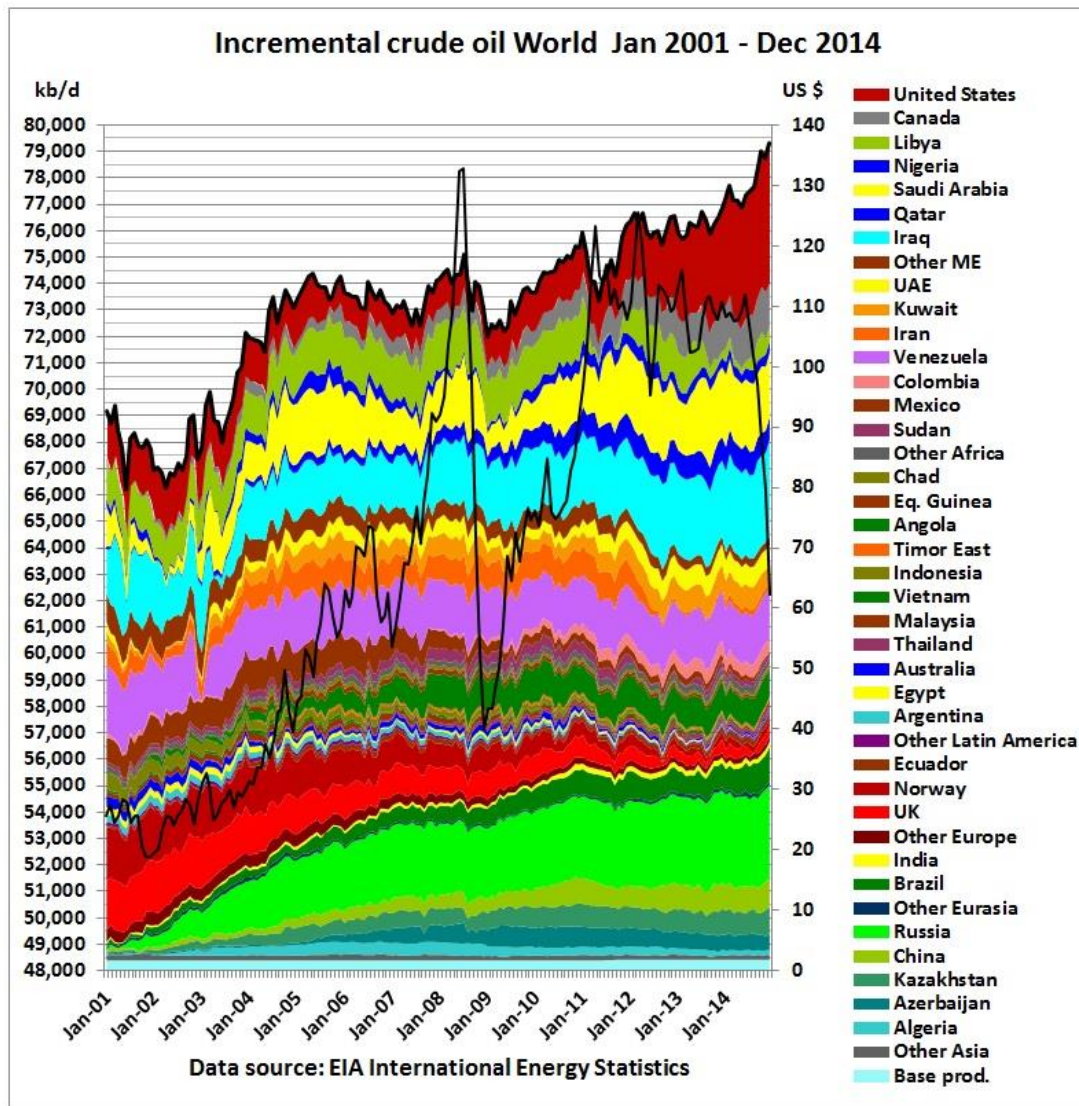
Draw Asia's oil consumption and production curves for the next 20 years which is well within the lifetime of current and planned projects



Hint: Read this article: 1/7/2015 Asia depends on Middle East for 66% of its oil imports

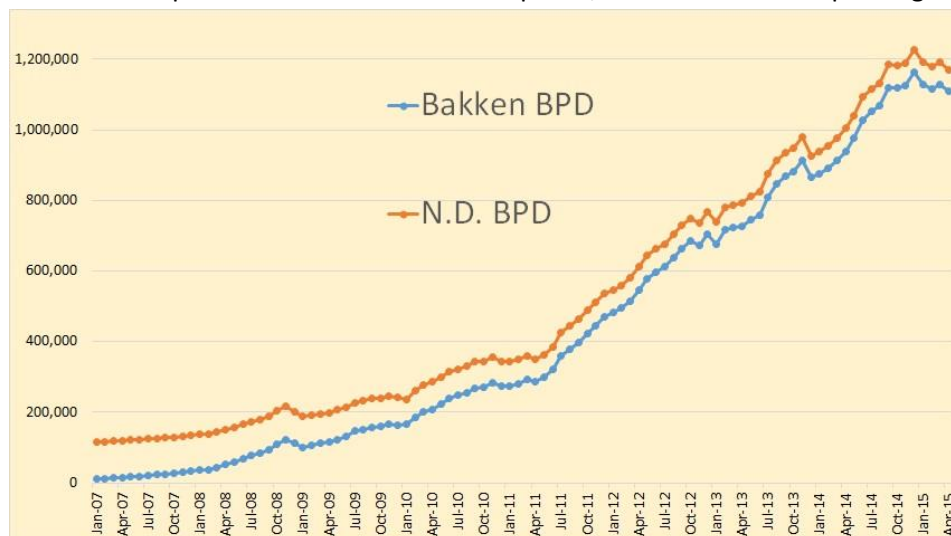
<http://crudeoilpeak.info/asia-depends-on-middle-east-for-66-pct-of-its-oil-imports>



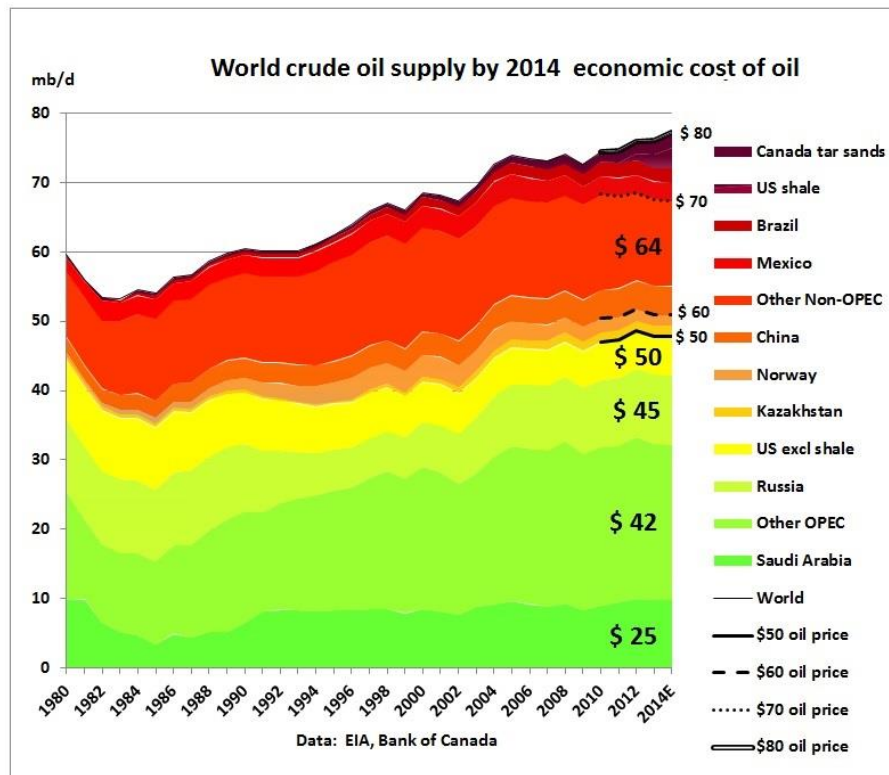


<http://crudeoilpeak.info/latest-graphs>

The world outside the US is on a bumpy production plateau since 2005. Without US shale oil the world would be in a deep oil crisis. But due to low oil prices, US shale oil is now peaking:



<http://peakoilbarrel.com/bakken-april-production-data/>



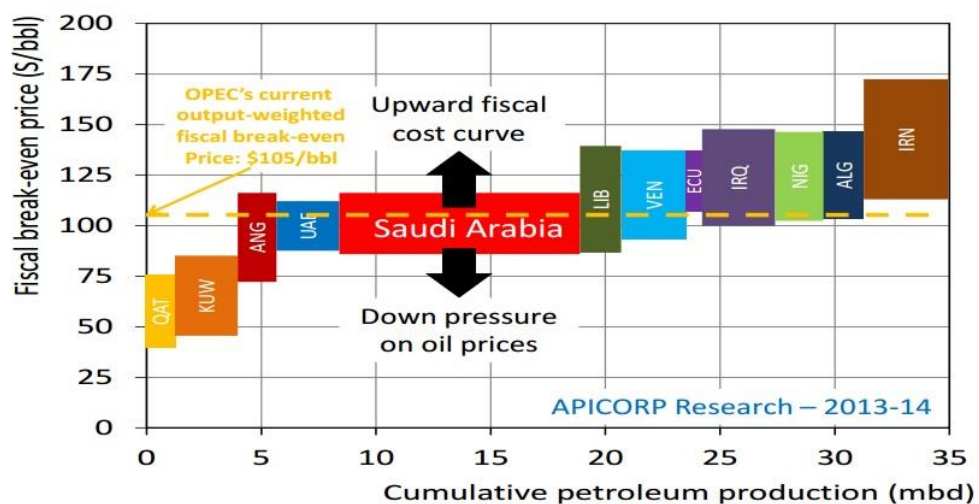
If oil prices stay at \$60 long enough, 1/3 of global oil production would be uneconomic. Drive 1/3 less, fly 1/3 less etc. More details are here:

2/2/2015 Peak affordable oil

<http://crudeoilpeak.info/peak-affordable-oil>

[www.apicorp-arabia.com/Research/Commentaries/2014/Commentary\\_V09\\_N7-8\\_2014.pdf](http://www.apicorp-arabia.com/Research/Commentaries/2014/Commentary_V09_N7-8_2014.pdf)

**Figure 6: OPEC Fiscal Break-even Oil Prices**



Iran needs \$130 oil to balance their budget. <http://crudeoilpeak.info/iran-peak>

The conflicts and wars are pre-programmed.

End of submission