# Greater Sydney 2056 Primary Energy, Population and Financial Crisis Submission by Matt Mushalik, March 2017

#### Summary

The suite of documents for "Greater Sydney 2056" (GSC) including the district plans are basically energy illiterate. There are no calculations on the quantitative availability and useability of primary energy (oil, gas, "clean" coal, renewables) to power Sydney with its assumed population targets. These are the immediate problems:

- We have reached peak conventional gas on the east coast while coal seam gas is squandered in LNG exports and there is no west/north to east pipeline
- Coal fired power plants are closing as they reach their end of life
- The IEA warned about an oil crisis by 2020 resulting from the lack of investments in the oil&gas sector since 2014
- Due to the toxic political environment on climate change and carbon trading there is no investment security in the power sector to replace aging coal plants

That is why the GSC plans cannot be implemented. To the extent they already are, they are doomed to fail. Current energy hungry projects like road tunnels, skyscrapers, Badgerys Creek airport, even the luxurious metro with deep underground stations will all experience power shortages and develop financial problems

There is also a likelihood of another external financial shock, triggered by

- Defaults, debt and currency problems in China
- Trump's experiments with global trade and the Dodd-Frank legislation,
- The next oil crisis
- The global debt bubble bursting

For none of these foreseeable events has the Greater Sydney Commission any preparations in place. In the contrary, its perpetual growth narrative will make things worse.

Previous growth plans including an unsustainable immigration program have made housing in Sydney unaffordable. There is no future in this city for young people, especially young families. So here Sydney has clearly reached, if not exceeded, its limits to growth. Existing housing may only become affordable after a price crash of around 50% – with a lot of collateral damage. However, construction costs are not likely to go down after a crash because the cost of material is high i.a. because of higher energy cost.

It is therefore recommended to abandon "Greater Sydney 2056" and focus on what has to be done to minimise the fall-out from the next financial crisis and to reduce energy consumption in absolute terms i.e ML of fuels, PJ of gas, mt of coal and to plan projects to provide renewable energies plus hydro storage. The Federal initiative for Snowy 2 is only a peaking plant and thus not sufficient for base power. This recommendation implies an immediate reduction in overseas migration.

# 1 Comments on "Towards our Greater Sydney 2056"

#### **Energy and Environment**

**Quote:** "We need to build Greater Sydney's resilience and use its resources and energy more efficiently"

**Answer:** To increase efficiency is not enough. <u>Total energy consumption</u> must be reduced and adapted to the availability of primary energy. The more Sydney grows in population the more it must reduce its total consumption.

**Quote**: "A more efficient Greater Sydney will analyse the most cost effective and efficient ways to reduce environmental impacts, reduce reliance on carbon and influence the design and location of water, energy and waste systems....minimise and mitigate environmental impacts through the efficient use of energy and resources, recycling of water and materials together with the development of renewable energy sources."

**Answer**: Nice words but reality is different. Consider the new flats along Carlingford Rd. in Epping, typical all over Sydney. They have deep basement car parks, thereby increasing traffic. There are no solar water heaters or PV panels on the roofs. Nothing is sustainable on this picture. Most inhabitants in these flats recently migrated to Australia. This means Australians have not benefitted from this "development". In fact, previous owners and renters have been driven out, just by rezoning. The traffic reports included in the DAs were fraudulent ("free flowing traffic on Carlingford Rd") and the Hornsby Council decision was made under duress (threat of sacking if State targets are not met)



This is not development, it is destruction of the existing environment for no long lasting benefit. Even the construction jobs were only temporary.



Before



Paramatta heat map. Note the green back-yards (low temperatures)



After: trees cut, new heat island created (Heat map not available

## Population

Quote: "The population of Greater Sydney is forecast to increase by 1.74 million people in the 20 years to 2036, and could be as high as eight million people by 2056



Answer: Natural population growth in Sydney is only 210K over 20 years

Why should Sydney burden itself with 1.5 million new immigrants? It is always argued that immigration improves the age structure. That is a static view. Immigrants are fed sideways into the population pyramid and therefore lead to a premature aging as shown by the areas outside the black colored arrows on the following graph:



More details are in this post:

27 Feb 2017 Sydney would peak at 4.9 million with zero net overseas migration <u>http://crudeoilpeak.info/sydney-would-peak-at-4-9-million-with-zero-net-overseas-migration</u>

#### Gas shortages – peak conventional gas



AEMO has warned about declining gas production and gas shortages

The root cause for this is that the east coast has reached peak conventional gas as shown by the blue areas in the following graph by the Chief Economist:



The problem goes back to wrong decisions 10-15 years ago. More details can be found in this post:

27/3/2017 Howard's energy super power stuck in domestic gas shortages http://crudeoilpeak.info/howards-energy-superpower-stuck-in-domestic-gas-shortages

#### I told you so

11/10/2011 Australia's natural gas squandered in LNG exports http://crudeoilpeak.info/australias-natural-gas-squandered-in-lng-exports

#### **Gas shortages = power shortages**

This is because gas is used for peak power generation



There was a dip in gas powered generation



Multiple systems failure. Liddell closure in 2022 foreshadowed. Tomago aluminium smelter had to be turned off for several hrs, pot line by pot line

More details here:

14 Feb 2017 NSW's privatized giveaway coal plant causes load shedding in extreme weather http://crudeoilpeak.info/nsws-privatized-giveaway-coal-plant-causes-load-shedding-inextreme-weather

## Closure of Hazelwood due to aging

QLD

NSW1-QLD1

-421

NSW

VIC

-544

124

\$101.23

N-Q-MNSP1

45 -45 -43

\$105.96

\$179.95

5,934

6,400 Wind and Other 0

8,108

7,412

221

VIC1-NSW1 9 9 605

5,056

4,980 Wind and Other 20



As of writing this submission NSW imports from Victoria are negligible on a mild day after Hazelwood shut down its last generating unit on 30/3/2017, 4 pm https://www.aemo.com.au/Elect rigitu/National Electricity

ricity/National-Electricity-Market-NEM/Datadashboard#nem-dispatchoverview

Concrete cancer threatening structural integrity of chimneys

See you next summer when NSW demand approaches 14,000 MW, not 8,100 MW. That no renewable replacement was built is the result of a decade long indecision on climate change policy, evasion and zig-zagging on carbon pricing by all governments.

#### **Closure of Hazelwood: impact on NSW**

AEMO predicts power shortages in Victoria in summer 2017/18 (red columns)







NSW imports between 400 MW and 1,000 MW

Instead of being pre-occupied by planning for 2056 the NSW government should prepare a proper load shedding plan for next summer. The Tomago aluminium smelter should be the last thing to be turned off. Power should be turned off in all those offices in Parliaments, government departments and banks which are responsible for the energy mess we are in.

### 2 Comment on power shortage impact on West/Central District Plan

No visualisation of the enormous densities proposed has been shown. This is from the Parramatta Council:



Nor has the district plan calculated the energy requirements for the implementation of its plan although a Parramatta Council sustainability report has assessed the peak power demand for the CBD area:

① parramatta.nsw.gov.au/\_data/assets/pdf\_file/0004/179878/Appendix\_13\_Sustainability\_and\_Infrastructure\_Study.pdf



#### IMPLICATIONS OF PARRAMATTA CBD GROWTH

Figure 20: Expected peak day electricity demand profile under each planning scenario as well as under various climate change scenarios.

It shows that additional high rise structures increase the peak demand. This is incompatible with the reality described above.

#### 3 Peak oil - where are we?





10 years of high oil prices killed the golden goose even before the final peak is reached (just as I warned John Howard – albeit at lower production levels and earlier timing)

- Low interest rates and quantitative easing
- Shale oil boom
- Asset bubbles
- Higher mountain of debt
- Budget deficits
- Company closures (car industry, refineries)
- Job losses
- OECD demand for China's exports weakened
- Oil demand growth softened

#### Shale oil peak



Up: steep decline rates in legacy wells (from <u>http://peakoilbarrel.com/</u> blog)

Right: Production profiles from EIA's drilling productivity report. Only the Permian is growing because it contains conventional oil which has now become feasible to extract as wells also penetrate shale oil layers.



It seems US shale oil is clogging up inventories.



2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

<< Additional US production is very light and extra light oil. It does not compete with e.g. Saudi oil. After lifting the crude oil export ban, only minor quantities have been exported in addition to what was always exported to Canada. Crude exports to the rest of the world went to many destinations, suggesting that globally it is used as blending component, not bulk refinery input.



# 4 80% of federal budget deficit caused by lower company tax revenue after GFC

High oil prices caused US recession end 2007 and contributed to GFC. Collateral budget damage in Australia. That is peak oil. And it is still not understood.



## 5 Australia's fuel import vulnerability after refinery closures









When something happens with North/South Korea or in the South China Sea, Australian motorists will start walking within weeks and there will be food shortages because Australia failed to use its gas as transport fuel. Transurban with \$ 12 bn debt will be a case of too big to fail.



#### Greater Sydney Commission to fill in this graph before dreaming of growth

Oops, China has peaked





6 Oil prices now too low for oil companies to make sufficient profits

16/10/2016 Royal Dutch Shell's upstream earnings peaked 2008, now in the red http://crudeoilpeak.info/royal-dutch-shells-upstream-earnings-peaked-2008-now-in-the-red



57% of Exxon's distributions financed from new debt



### CAPEX down

Drop of 17% in 2016 follows 24% reduction in 2015

In 2016, the IEA warned about falling CAPEX in the oil and gas sector, but Sydney is still building new road tunnels. Now the IEA issued another warning.

i International Energy Agency

# Global oil supply to lag demand after 2020 unless new investments are approved soon

6 March 2017



This means: the longer oil prices stay low, the deeper the next oil crisis

# HAPPY MOTORING, GREATER SYDNEY

The greater, the longer the petrol lines

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