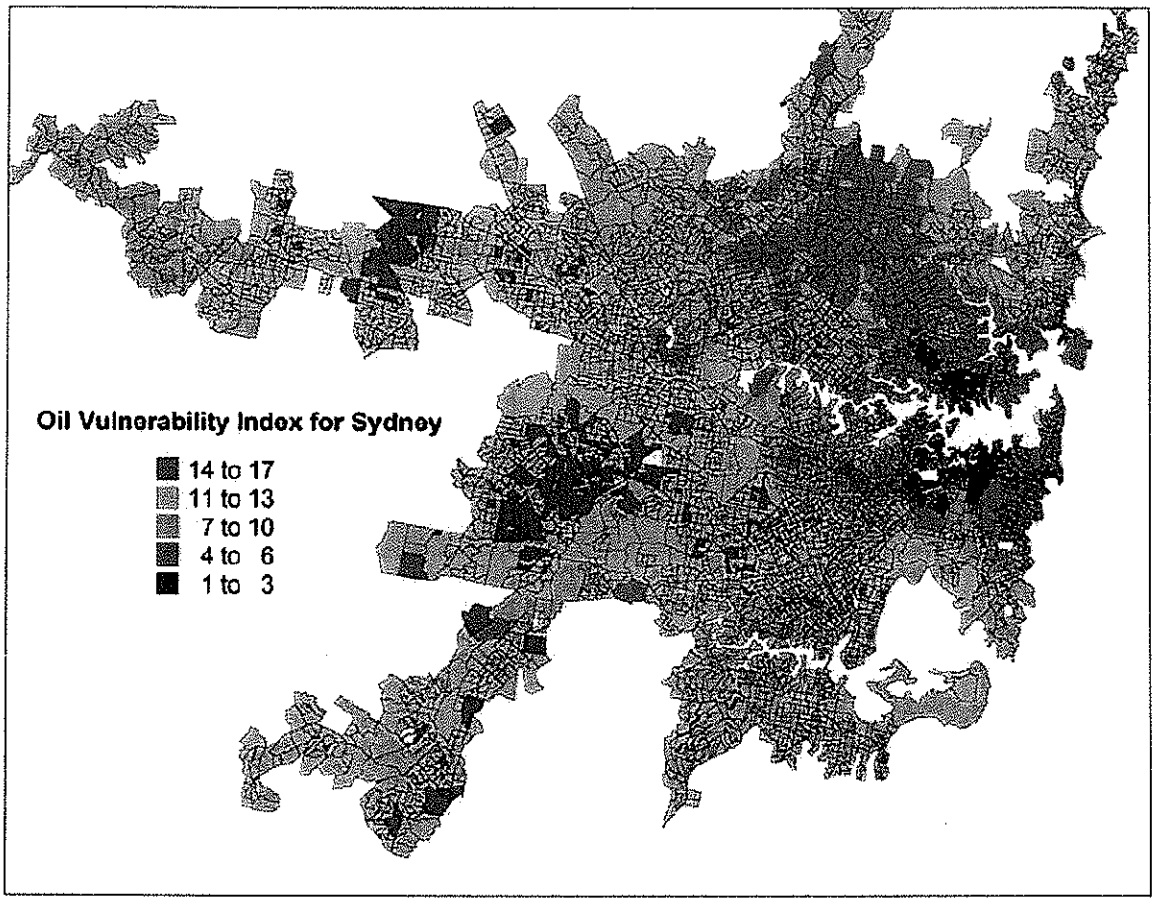
4. Oil vulnerability is high in suburbs with older cars (higher fuel consumption) most in need for replacement



http://www.griffith.edu.au/__data/assets/pdf_file/0011/48575/urp-rp06-dodson-sipe-2005.pdf

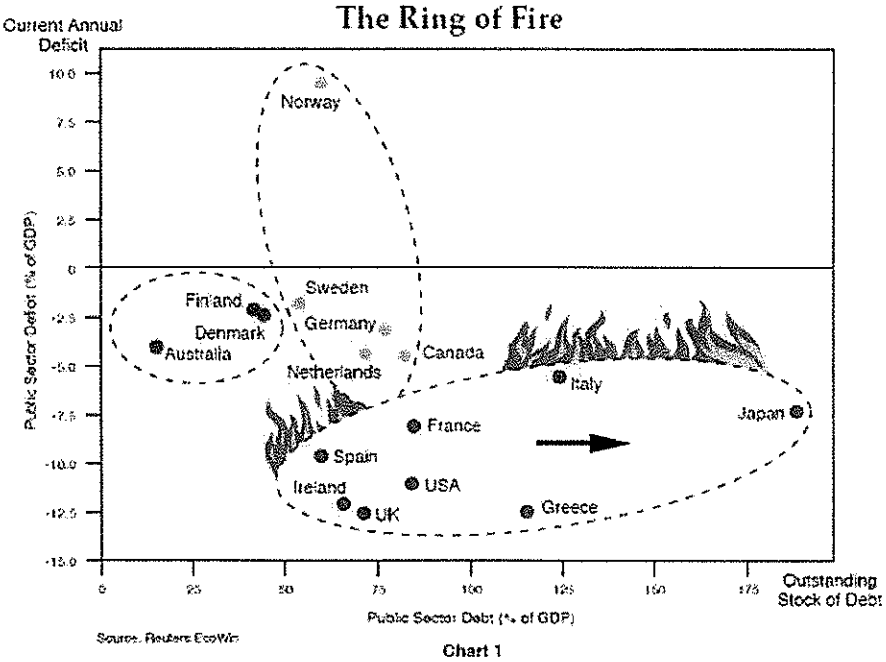
The above graph is from the Griffith University.

5. Oil decline after peak oil will NOT evolve peacefully or smoothly: roller coaster oil prices, oil wars, oil proxy wars and global power conflicts, civil unrest in Middle East when OPEC's oil reserve bubble bursts, trade deficits and regional imbalances. Australia does not even have a Strategic Oil Reserve, thereby violating its obligations as a member of the International Energy Agency. No one will help us when there are shortages on the global oil market.

6. Global warming, unpredictable climate change events and weird weather will physically force us to abandon coal much earlier than naively thought => huge electricity crisis on top of the problem of declining oil production. Turning point is disappearance of Arctic summer sea ice around 2015.

7. Demand for power to drive electric cars will increase household consumption by 30%. If recharging of batteries is done at night from coal fired power plants we'll swap oil dependence with coal dependence. Local grids/transformers are also too weak in hot summer nights. New wind farms in Canberra are used for desalination which is global warming adaptation, NOT transformation of our power supply to green power which is actually our job #1. Global warming = less reliable rainfall also means shortages of cooling water e.g. for power plants at Lithgow. http://www.smh.com.au/environment/people-v-power-station-as-water-levels-plunge-20091118-imjv.html

8. Peak oil = peak credit. The Greek debt crisis shows us that GFC problems have NOT been solved. Availability of car finance will be a severely limiting factor in transformation of car fleet.



http://www.pimco.com/LeftNav/Featured+Market+Commentary/IO/2010/February+2010+Gross+Ring+of+Fire.htm

9. Biofuels don't have a high energy profit ratio and must be used in the agricultural sector itself. Diesel shortages = food shortages. What cars we drive will NOT be our main problem.

Powerful choices from Barney Foran: large areas of plantation forests are needed ro replace liquid fuels

pn30178.pdf - Adobe Reader

Table 54. A comparison of key indicators over the 45-year scenario period (2006–2051) for the base case and 90% oil replacement with ethanol from biochemical (crop and lignocellulose feedstocks) and thermochemical (wood feedstock) conversion processes.

Indicator	Base Case	Biochemical Ethanol from Crop Feedstock	Biochemical Ethanol from Crop and Lignocellulose	Thermochemical Ethanol from Wood Feedstock
Total ethanol produced – PJ	0	96,126	105,402	94,547
Total biomass electricity produced – GWh and % of total at 2051	171,000 (1%)	1,174,000 (10%)	1,685,015 (11%)	1,556,000 (11%)
Arable cropping land – million hectares	22.9	45.9	32.9	22.9
Plantation forest land at 2051 – million hectares	6	6	32.8	43.2
Energy profit ratio of ethanol at 2051	n/a	0.7	1.3	10.3

http://lwa.gov.au/files/products/innovation/pn30178/pn30178.pdf

10. The laws of thermodynamics will not allow to introduce fuels like liquid hydrogen

Catalysis and syngas for the production of hydrogen **by Professor David Trimm**

5 May 2006 Science on the way to the hydrogen economy
"To achieve adequate supply of hydrogen we will need an extra 6,000 chemical plants. Alternatively 9,000 nuclear plants would be needed – and in the USA that means about one at every 100 kilometres around the coast – or about 220,000 square kilometres covered in solar cells. I suspect that this will eventually happen, but there are problems, as Kuwait, where I did a lot of work for a time. Essentially, they put in a solar cell and it really worked tremendously well, until the first sandstorm, when all the mirrors were very nicely abraded and the whole thing collapsed to 0.1 per cent efficiency."
http://www.science.org.au/events/sats/sats2006/trimm.htm

11. Compressed natural gas is a solution but is not being pursued at a speed commensurate with the expected oil decline. Current conversion capacity is 150,000 cars pa. (12 million fleet) Training of licensed gas mechanics would be a bottleneck. Trucks will get priority:

LNG refuelling stations for east coast

http://www.smh.com.au/business/lng-refuelling-stations-for-east-coast-20100506-ugxc.html

12. Less working hours and/or unemployment will mean less purchasing power and fewer new cars are bought, further delaying the transformation of the car fleet.

13. Car industry is weakened by 1st oil price shock of peak oil and is in the process of downsizing.
Global automakers face slowing demand in Europe and the expiration of government incentive programs http://news.yahoo.com/s/ap/20100521/ap_on_bi_ge/eu_germany_gm_opel

'The Idea of State Aid to Opel Is Absurd'

"After months of stalemate this would have been the worst possible moment for giving aid to Opel. Right after its savings package, the government would be facing questions about how it could introduce sweeping cuts to welfare, parental pay and other social services and then a few days later throw a huge part of the money saved at an automaker that is not sustainable."

http://www.spiegel.de/international/germany/0,1518,699910,00.html

Conclusion: Basically, it is too late trying to transform the car fleet. **In fact this is absolutely dangerous** because unrealistic EV dreams lead to more mis-investments in toll-ways, road tunnels, car-dependent sub divisions and shopping centres. Read more details in chapter 5 of my submission "Too late for Metro Tunnels" http://www.crudeoilpeak.com/?p=290

Mitsubishi i-MiEV Electric car dreams =>>
Happy motoring for $70,000
http://smh.drive.com.au/motor-news/leading-the-charge-20100416-sixn.html?autostart=1

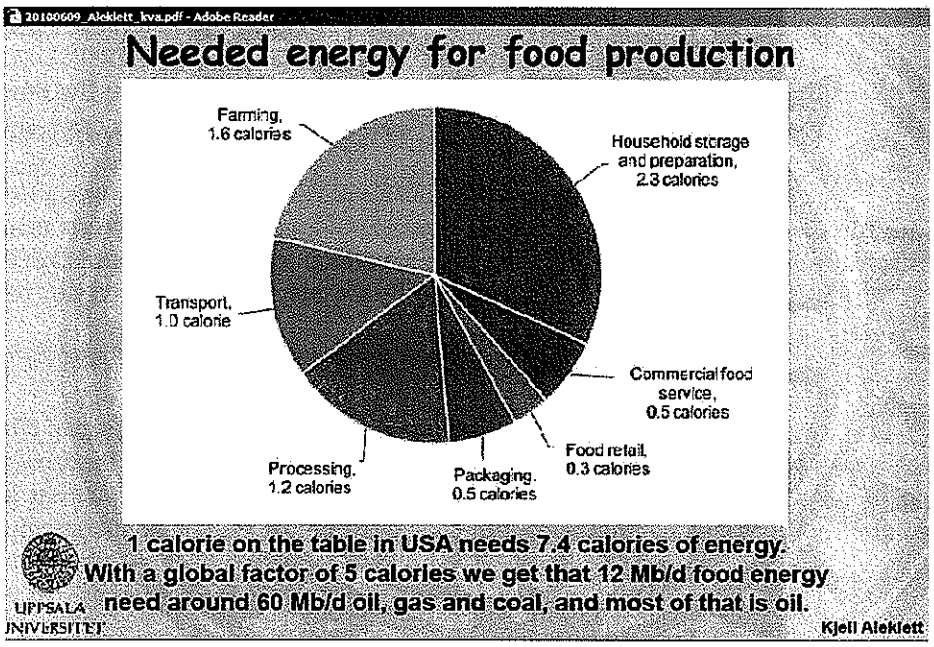
Sydney gets electric car charge station

http://news.theage.com.au/drive/motor-news/sydney-gets-electric-car-charge-station-20100524-w57g.html
Before using green power for EVs we must first replace our existing coal fired power plants to renewable energy.
Rest assured: EVs will have to pay a road tax proportional to KWh consumed.

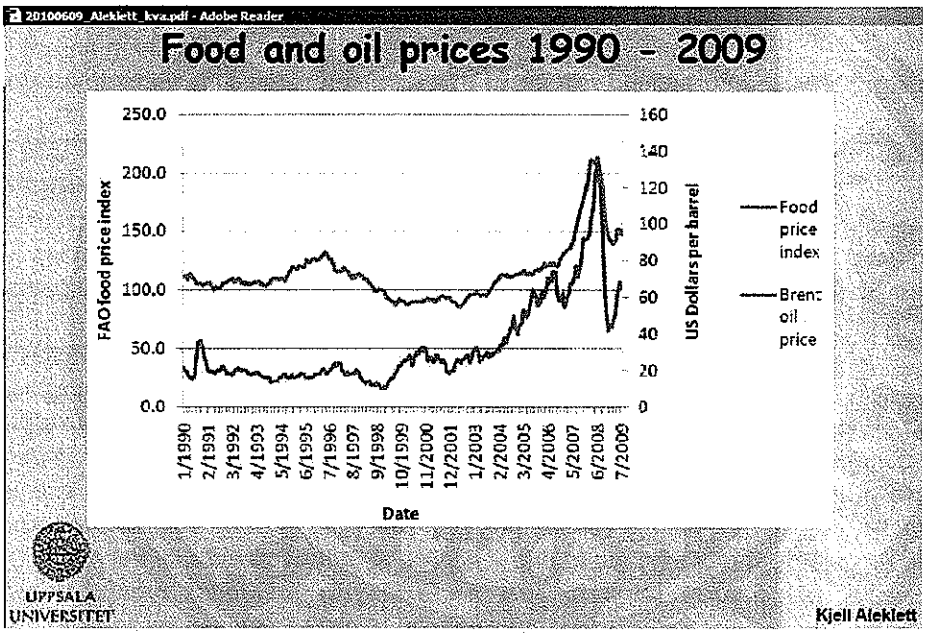
13 Food production more important than urban cars

This slide is from a presentation of Prof. Aleklett at the Whitlam Institute of the Uni of Western Sydney 27/10/2010

THE TIE THAT BINDS PEAK OIL AND FOOD SECURITY
http://corpapps.uws.edu.au/media/eupdate/view.phtml?a_id=9226&catcode=fromdailynews&searchdate=2010-10-21



http://www4.tsl.uu.se/~aleklett/powerpoint/20100609_Aleklett_kva.pdf



14 Questions the RTA must answer

Question 1: In which year did Australian oil production peak?

A: _____

Question 2: When did global crude oil production peak?

In terms of annual production?

A: _____

In terms of monthly production?

A: _____

Question 3: How did peak oil impact on the global financial system and the economy?

A: _____

Question 4: What does the principle of prudence mean for the widening of the M5?

A: _____

Question 5: What are the annual decline rates of crude oil production in Australia in the next 10 years?

A: _____

Question 6: From which countries will Australia import its oil and in which years has oil production peaked in those countries? By how many percent will their consumption increase?

A: _____

Question 7: What will be the global oil export volumes in the next 10 years?

A: _____

Question 8: Which Australian oil refineries will survive the period up to 2020? Write down the names and the capacities including possible sources of refinery feedstock, both local and overseas:

A: _____

Question 9: What are the current inventories of transport fuels in terms of days of imports and net imports? Which fuels are more critical: petrol, diesel or aviation fuel?

A: _____

Question 10: What will happen when the next oil war starts in the Middle East? How will the administration of the Liquid Fuels Emergency Act impact on toll-revenue?

A: _____

Question 11: Why did the Lane Cove tunnel and the Cross City tunnel collapse financially?

A: _____

Question 12: What is the performance of the Clem7 tunnel in terms of traffic volumes?

A: _____

Question 13: Are climate change solutions implemented in a timely manner?

A: _____

Question 14: What will happen to the M5 traffic if the solutions are delayed in the same way as is now happening in relation to climate change?

A: _____

Question 15: What are these alternative fuels, in which quantities will they come to the market and when? Name the projects, companies and capacities in barrels per day or mega litres pa. See detailed questions below.

A: _____

Question 16: What were the fuel efficiency gains of the Australian car fleet in the last 10 years in % per annum? Taking latest car sales figures and the growth of the vehicle fleet, will overall petrol and diesel demand in Australia increase or decrease over the next 10 years?

A: _____

Question 17: Using the results from Q 15 and 16, what are the quantities of alternative fuels and savings in mega litres over the next 10 years compared to the calculations from Q 5-7? Will they be sufficient to compensate crude oil decline and possible loss of oil import volumes?

A: _____

LPG

The past conversion capacity to LPG was around 100,000 cars pa. but could be increased to 150,000 pa.

Question 18: How many cars can be converted to LPG by 2020? Are there enough licensed gas mechanics? How long will it take to train them? Would there be sufficient local propane supplies and butane storage facilities along the East coast?

A: _____

CNG – compressed natural gas

Question 19: How many NGV cars are being manufactured in Australia? How many NGV refilling stations are there? How many cars could be manufactured, imported and/or converted by 2020? In

the catchment area of the M5: Is the domestic gas supply infrastructure (where it exists) sufficient to cope with increasing numbers of motorists refilling their NGV cars at home?

A: _____

Biofuels

State governments have started to introduce E10.

Question 20: Who is supplying this ethanol? How much is imported? What are the future expansion projects and when will they start to produce? What feedstock is being used?

A: _____

Question 21: Which quantities of bio diesel are being produced? What is the supply forecast for the next 10 years? How will this impact on food supply?

A: _____

Hydrogen cars

Question 22: What is the current status of fuel cell cars?

A: _____

Question 23: What is the current status of hydrogen cars using internal combustion engines? What is the timing of bringing these cars on the market?

A: _____

Question 24: Which primary energy will be used to produce hydrogen? What hydrogen supply infrastructure has to be built up? Who will finance this? Which companies are interested? Do they get government support?

A: _____

Electric cars

Question 25: How many electric cars will be on Australia's roads by 2020? Given the enormous inertia in our existing ICE car fleet, where is the transition model for EVs? Will there be enough car loans available? Where will the primary energy come from to re-charge the batteries? If EV's are allowed tax free, where will the money for road maintenance come from?

A: _____

Question 26: What is the average daily driving distance of motorists on the M5? Will batteries by large enough? Will the local electricity supply grid cope with the re-charging?

A: _____

Question 27: What is the amount in mega litres? Is that net decrease sufficient to compensate for the results from Q 17?

A: _____

Question 28: What are the emission savings in the next 30 years in % pa?

A: _____

Question 29: What would be the CO2 saving if a Transperth solution were implemented?

A: _____

Question 30: So where is this assessment as a PDF file? The report just repeats, sentence by sentence, the response presented above, with all these open questions.

Web-link: _____

Question 31: What is the Federal government's assessment on peak oil and our oil vulnerability? Does the draft of the energy white paper deal with this problem? Is there an alternative fuels supply scenario in the white paper?

A: _____

Question 32: By how many % will the "green" cars initiative reduce fuel consumption in Australia? How does that compare numerically with the results from questions 5-7?

A: _____

Question 33: What did the NSW government do in relation to a peak oil response plan tabled in Parliament?

A: _____

Question 34: In summary, in order to manage oil decline, do governments have a concrete plan including legislation, a portfolio of properly sequenced projects and, above all, party political and public support for these measures?

A: _____

Appendix on Peak Oil – extracts from this web site:

www.crudeoilpeak.com

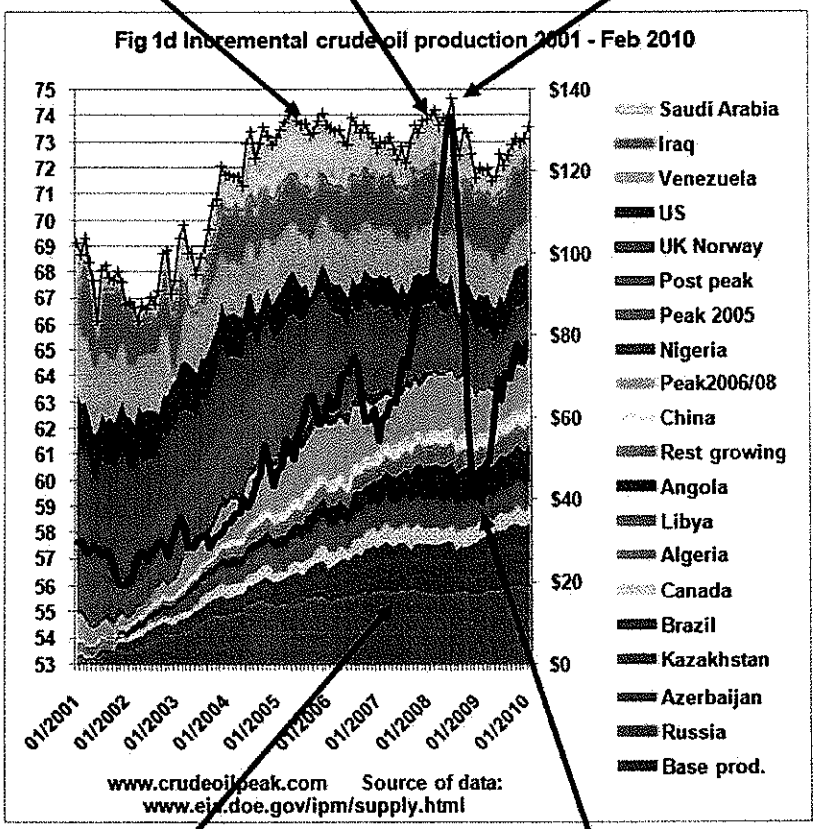
Crude Oil Peak

#1 in Monitoring the Global Crude Oil Peak

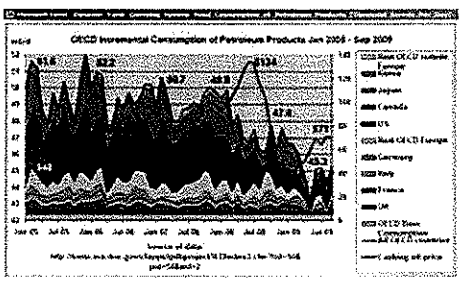
May 2005: crude oil production started to peak at around 74

Extra demand from China for the Olympic Games drove oil prices sky high

Saudi Arabia could not produce enough oil to stop oil prices from rising



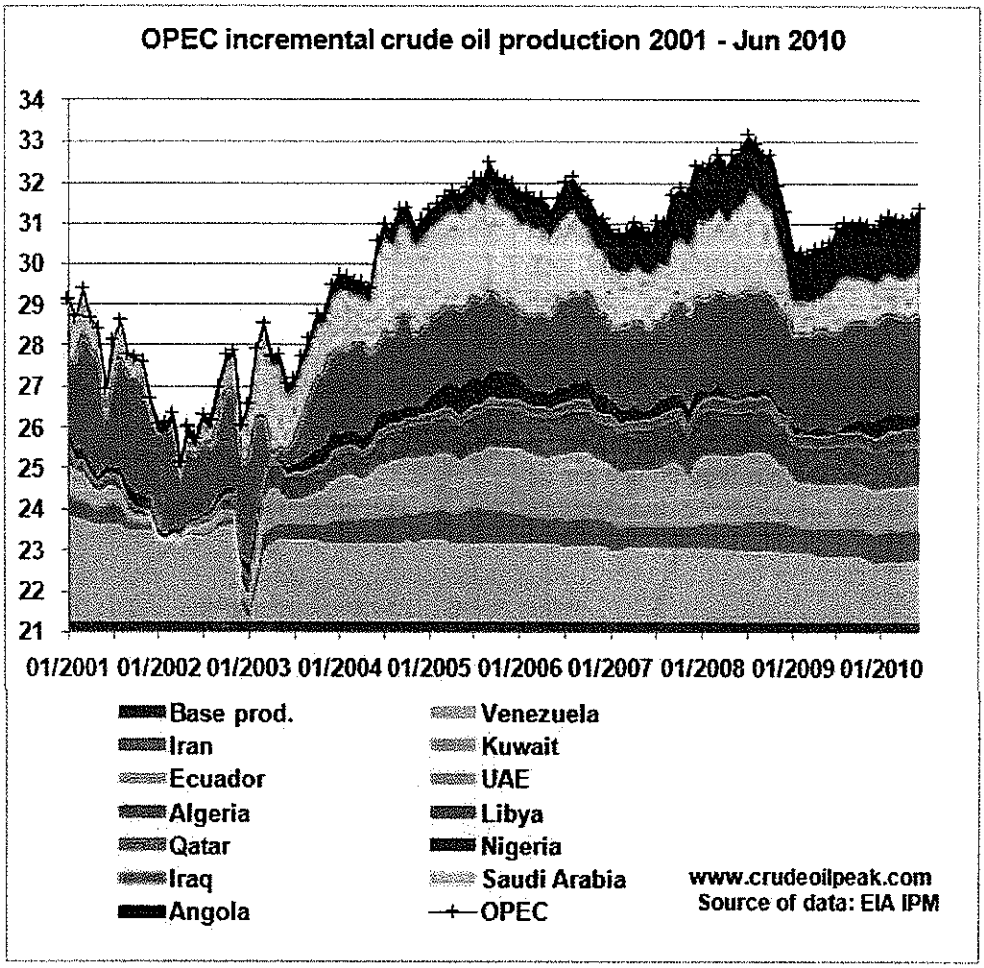
Russian oil production on plateau



Convergence of accumulated debt and limited oil supplies triggers financial crisis, culminating in the collapse of Lehman Brothers. Oil prices drop in the ensuing recession, overshooting on their way down.

<<< OECD demand fell by 5 mb/d. This oil was mainly used by OPEC countries and China

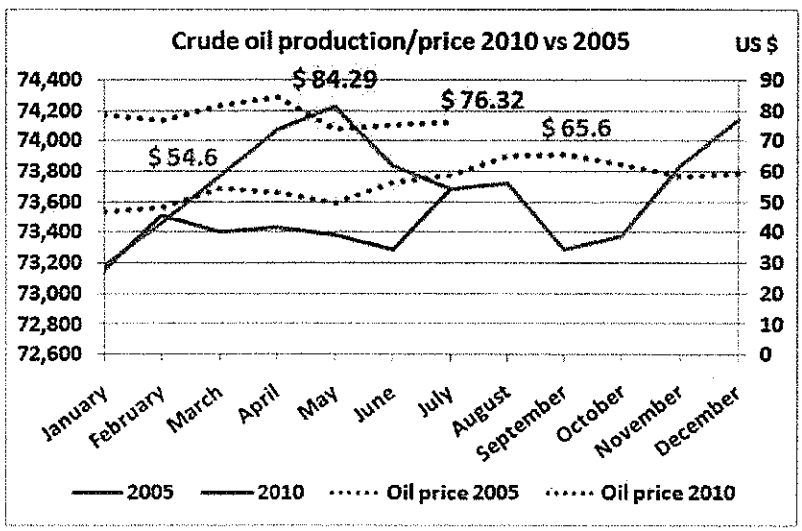
Without the debt crisis we would have already had oil shortages



Clearly visible: Saudi Arabia could not produce enough oil in 2007/2008 to keep oil prices down. Peak oil popped the debt bubble prematurely.

Use the option "Latest Crude Oil Graphs", updated monthly with data from the Energy Information Administration, International Petroleum Monthly http://www.eia.doe.gov/ipm/

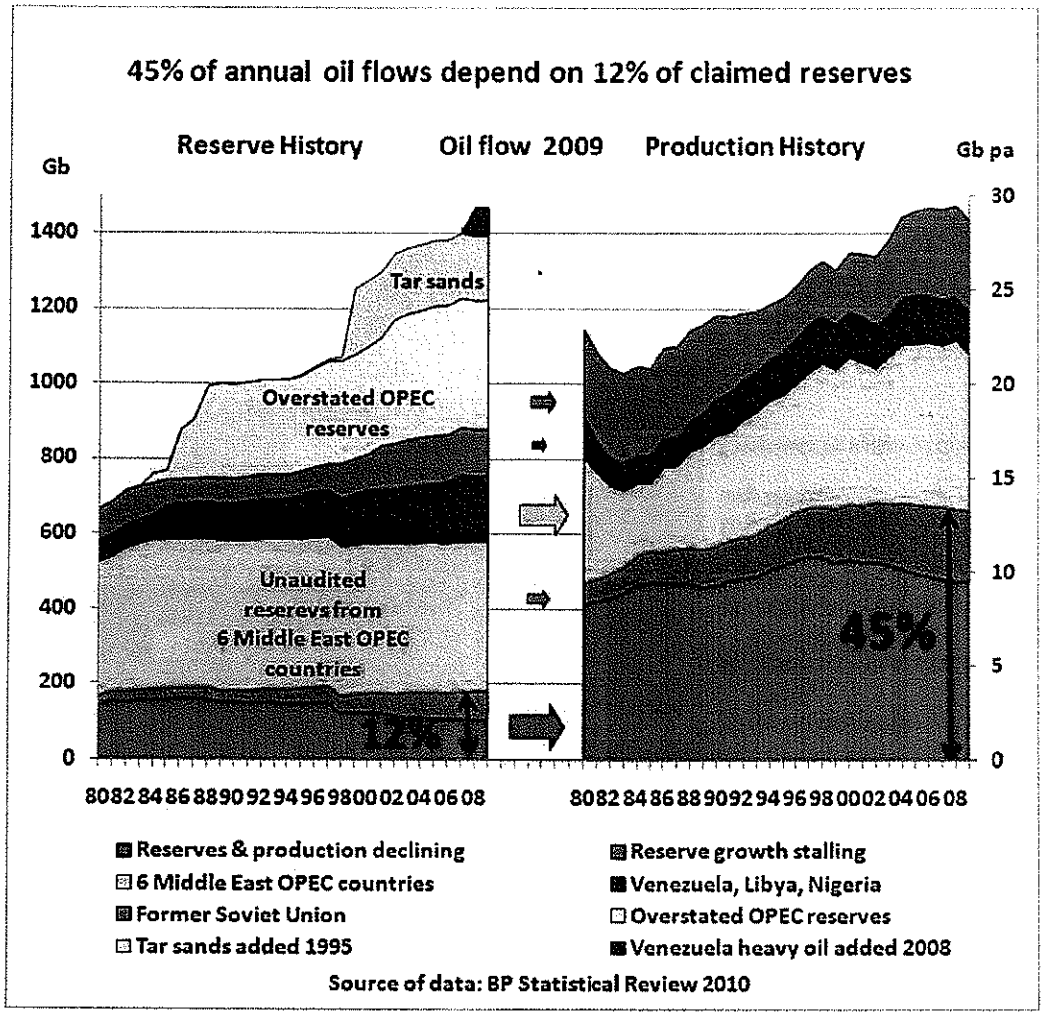
The methodology of graphs is explained here: http://www.theoildrum.com/node/3793



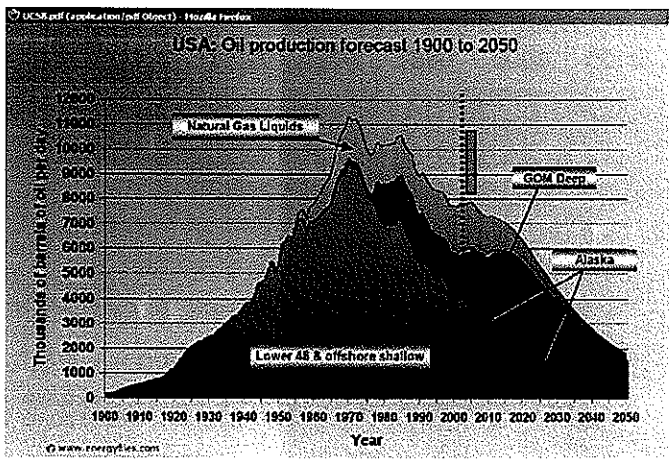
<< 5 years peak oil. Global crude oil production is back where it was 5 years ago. But the world pays $25 more per barrel now. That tells you the whole peak oil story.

What we have seen so far is the response of the economy and the financial system to oil production not growing.

The next phase of peak oil will be worse.

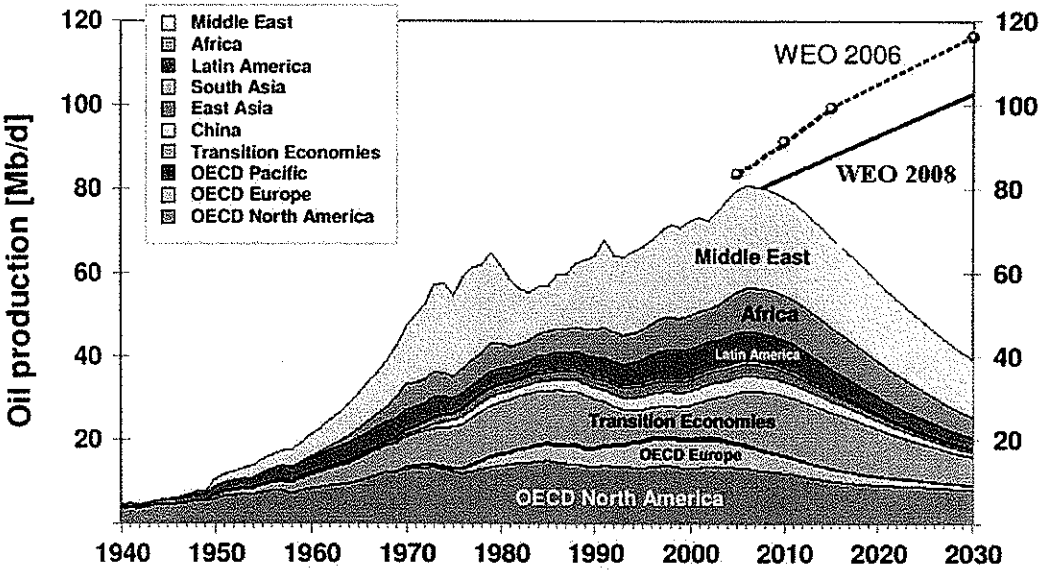


BP Statistical Review June 2010: Oil reserves and production don't match
http://www.crudeoilpeak.com/?p=1591



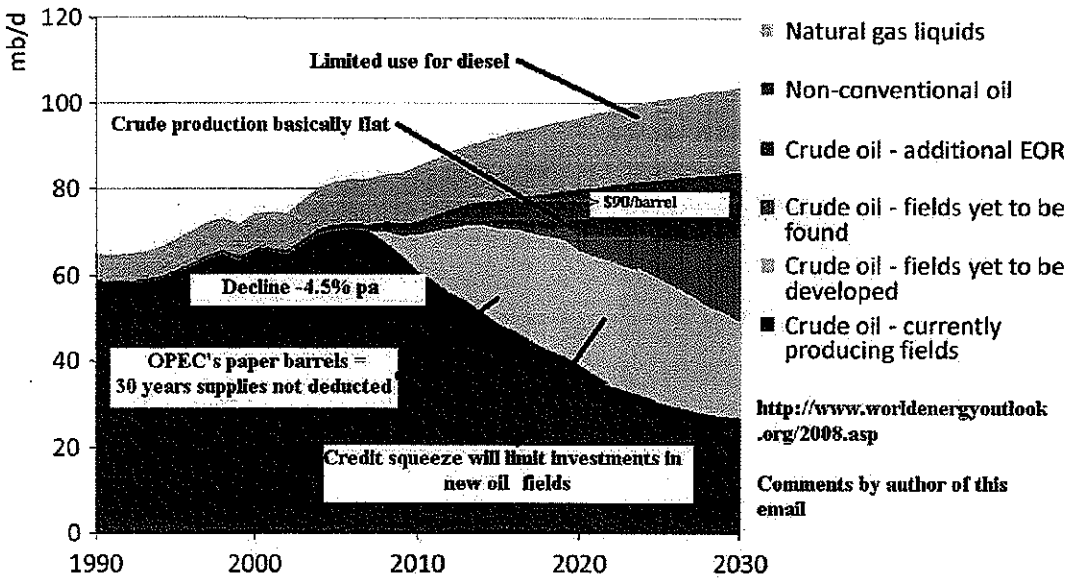
The oil spill in the Gulf of Mexico symbolizes the fight for offshore oil half way down the backside of the US oil peak which happened in 1970. In 1971, the convertibility of the Us dollar to gold was discontinued. The oil import game came to an end with the global oil peak in 2005, which triggered the subprime mortgage crisis. http://www.crudeoilpeak.com/?p=1508

Figure 40: Oil production world summary

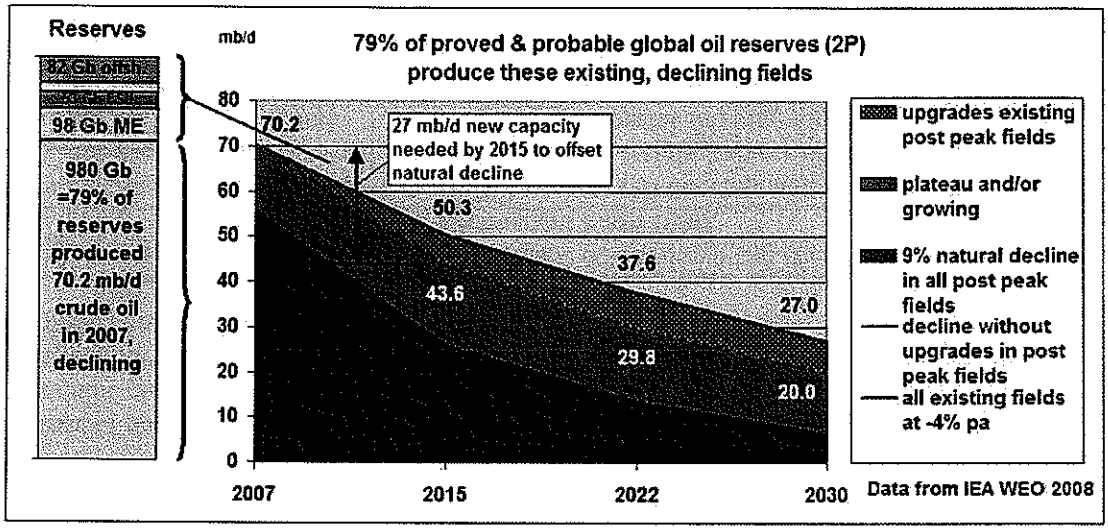


http://www.energywatchgroup.org/fileadmin/global/pdf/2008-02_EWG_Oil_Report_updated.pdf

Why is there such a huge gap between the Energy Watch Group and the IEA? The WEO curves are DEMAND curves, not PRODUCTION or SUPPLY curves!! This is the EIA WEO 2008 in detail:



What does the above graph tell us? Crude oil production, the most important part, will stay practically flat, even under all the optimistic assumptions the IEA is usually making. Growth would only come from natural gas liquids. But these are not as versatile as crude. You can run forklifts with Propane but you can't fly planes with these liquids.



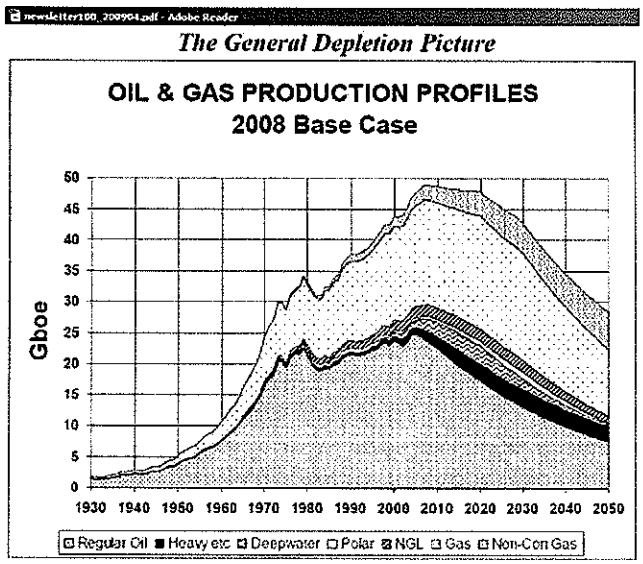
Disassembly of the WEO 2008

79% of P2 reserves (whatever the true figure is) are already exploited in existing fields which are declining at the above rates. In order to offset natural decline in these fields 27 mb/d of new capacity have to come on-stream until 2015 alone. With lower oil prices, there will be less investments and this target cannot be met. On the other hand, if oil prices go up again, our economy will get damaged.

Therefore, we must aim at a soft, continuous "landing" or rather a sliding down along the decline curve. Try to grow the system with increasing oil demand, like in the Metropolitan Growth Strategy, and you end up with multiple system failure.

And what about the remaining reserves for those new oil fields?

(1) 98 Gb are in the Middle East (not audited according to SEC rules http://www.sec.gov/interps/account/sabcodet12.htm)
(2) 82 Gb offshore – not easy or cheap oil,
(3) 53 Gb from the Former Soviet Union, outside OECD control.



Estimate from ASPO http://www.energiekrise.de/e/aspo_news/aspo.html

National 10 Point Program	
Events/impacts/problems	What to do
Next oil price shock and/or fuel shortages around 2012. When the truth comes out about OPEC's oil reserves (overstated by 80%) confidence in oil reserves will evaporate and oil markets will freeze. Iran will no longer export oil by around 2015. Catch 22: Diesel shortages will delay implementation of essential rail and clean energy projects.	(1) Immediate moratorium on new freeways, airport and port expansions, car-dependent shopping centers and subdivisions, multi-level car parks and other oil dependent infrastructure. No more business as usual.
	(2.1) Set aside – by legislation – oil and gas fields for diesel, petrol and CNG supplies to civil works needed to mitigate the impact of peak oil and to de-carbonize our economy. Example: Turrum oil field on-stream by 2011. (2.2) Build up Strategic Oil Reserve
Public largely unaware of the physics of the coming oil, energy & climate crisis. Political system and corporate sector in denial mode and unable to grasp magnitude and urgency of problem. Too many untested assumptions around.	(3) Public education program; participation of public is absolutely essential. Nation needs to be put on a war footing; change of value system is needed. Prepare motorists for petrol rationing and car-pooling as this is the only "solution" if a physical oil crisis were to hit tomorrow, e.g. during the next oil or oil-proxy war.
Best alternative transport fuel in Australia is natural gas.	(4) Develop compressed natural gas (CNG) for buses, trucks, construction and mining machinery. This must get priority over LNG exports.
Peak oil means end of internal combustion engine which wastes 90% of energy as heat. Oil decline is so steep that there is no time for any transition to electric, hydrogen or 'green' cars. We have a clean primary energy problem, not a technology problem. EVs run on coal are dirty.	(5) Abandon unrealistic car dreams Electrification of land transport system is required which must be more efficient by an order of magnitude; urban rail on all free-ways (Transperth) and major roads; all genuinely renewable energies produce electricity, not fuels. Time is now running out for these solutions; too late for large scale rail and metro tunnel projects
Globalization built on cheap oil will go backwards; bunker oil shortages for ships will limit import/export volumes.	(6) Re-industrialization of Australia on the basis of renewable energies; focus on essential tools, products and parts.
Peak oil will quickly turn into food production and distribution problem	(7) Bio fuels to run farming machinery, trucks and other vehicles to transport agricultural produce and implements; revive rural rail lines
Proximity to 4 (out of 10) tipping points in the next years will force us to abandon coal (without geo-sequestration of CO2) much earlier than generally assumed. 1. Disappearance of Arctic summer sea ice 2. Increase of melt lakes on Greenland and hydraulic cracking of glaciers 3. Release of methane over permafrost 4. Destabilization of West Antarctic ice sheets **http://realclimate.org/**	(8) Replacement program for all coal fired power plants; re-tool car factories and suppliers (BEFORE they go out of business after peak oil) to mass-produce components for wind farms, solar power plants, solar water heaters. A 1,000 MW coal fired power plant requires the continuous sequestration 150 Kb/d of liquid CO2. NSW alone has 12,500 MW installed. Australian oil handling capacity around 500 Kb/d. 1,000s of km of CO2 pipelines needed. Huge challenge. Difficult while oil production is declining. May come too late to fix climate.
Power shortages unavoidable	(9) Drastic power down and energy efficiency. Permanent Earth Hour.
Airlines first hit by high oil prices, then the GFC and the credit crisis, now by a volcanic ash cloud from Iceland.	(10) Interstate rail development and electrification; both passenger and freight; replace domestic flights with night trains; coastal shipping for freight