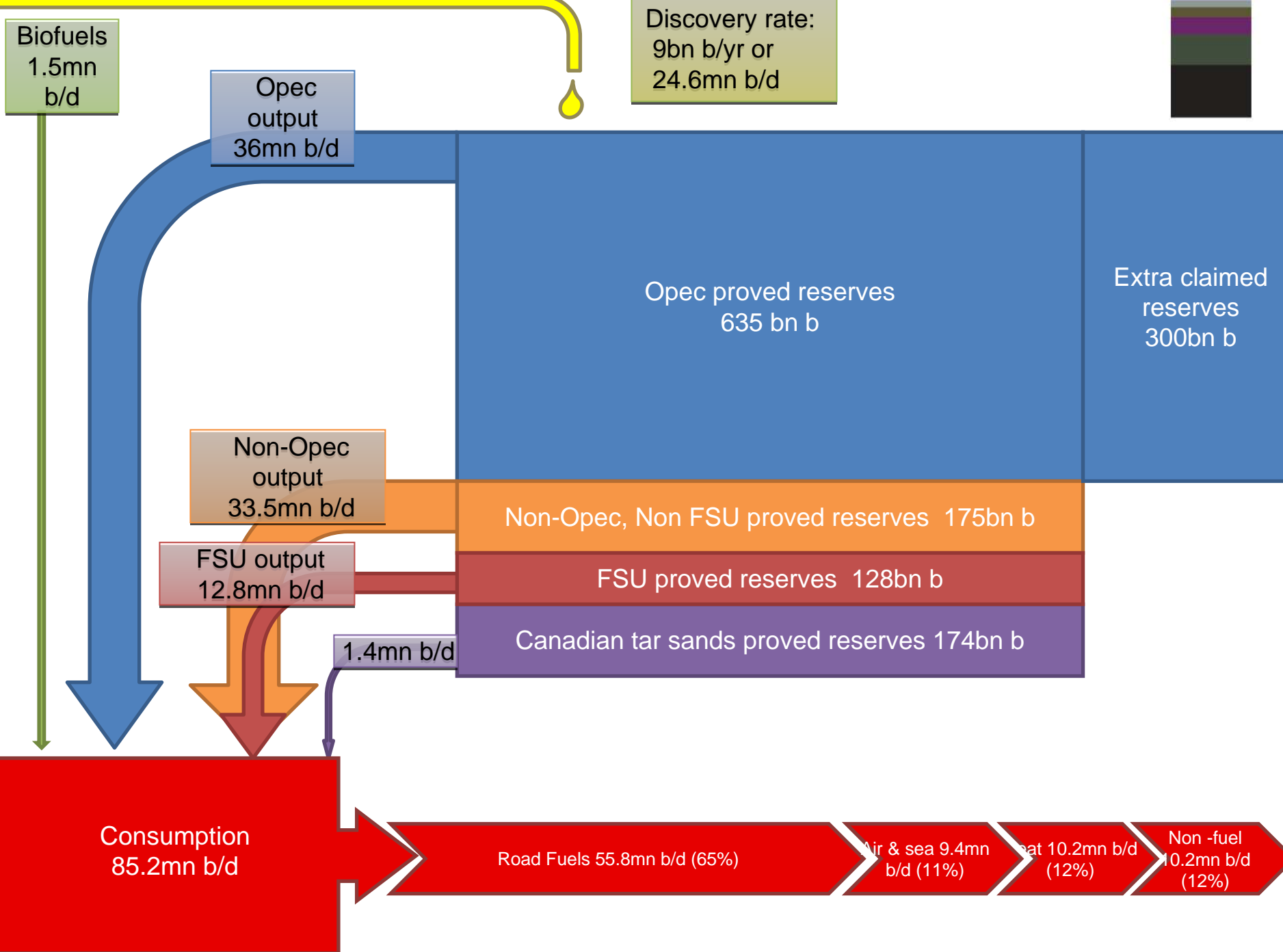
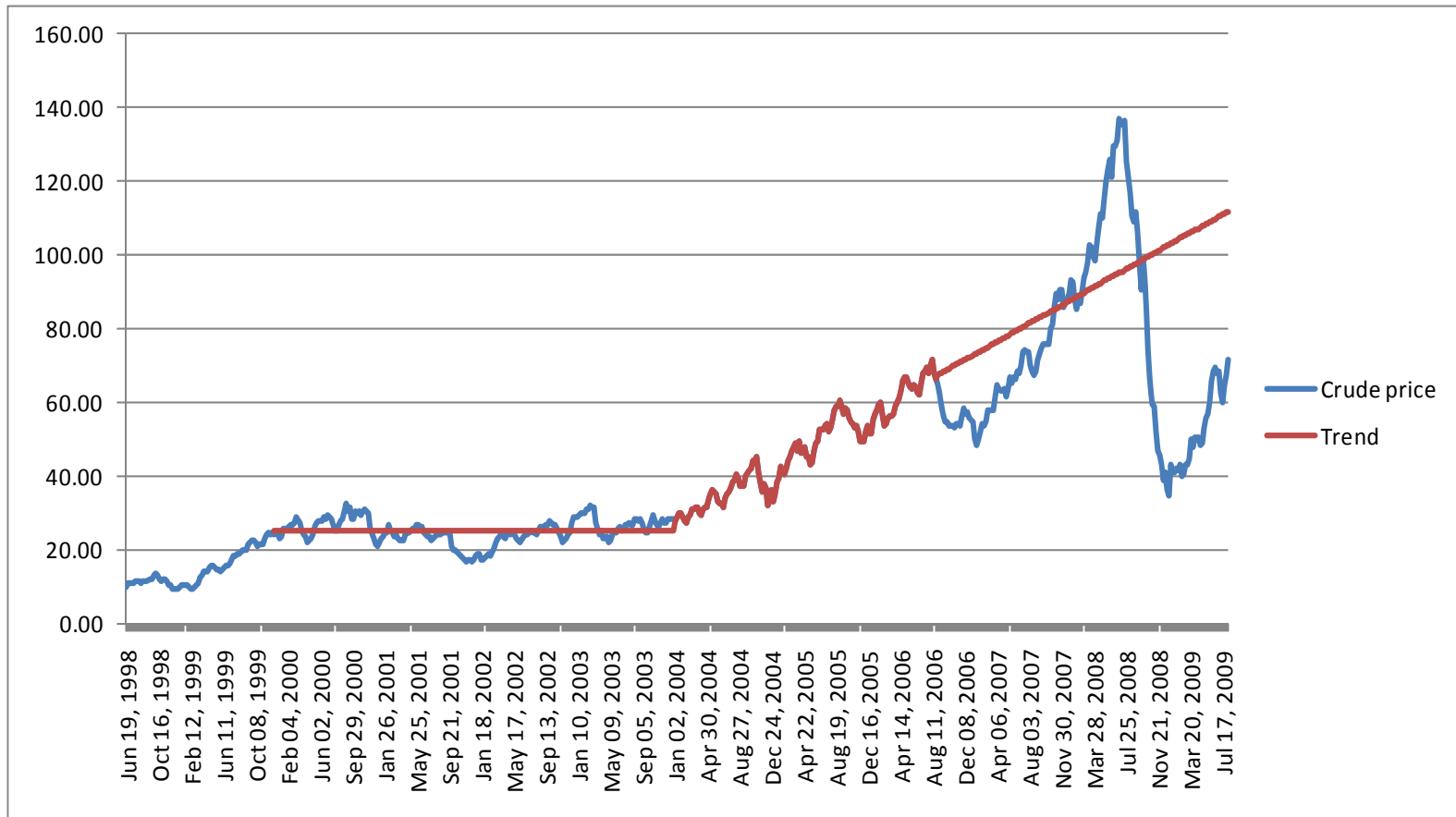


Two years remission for:
Financial bad conduct

PEAK

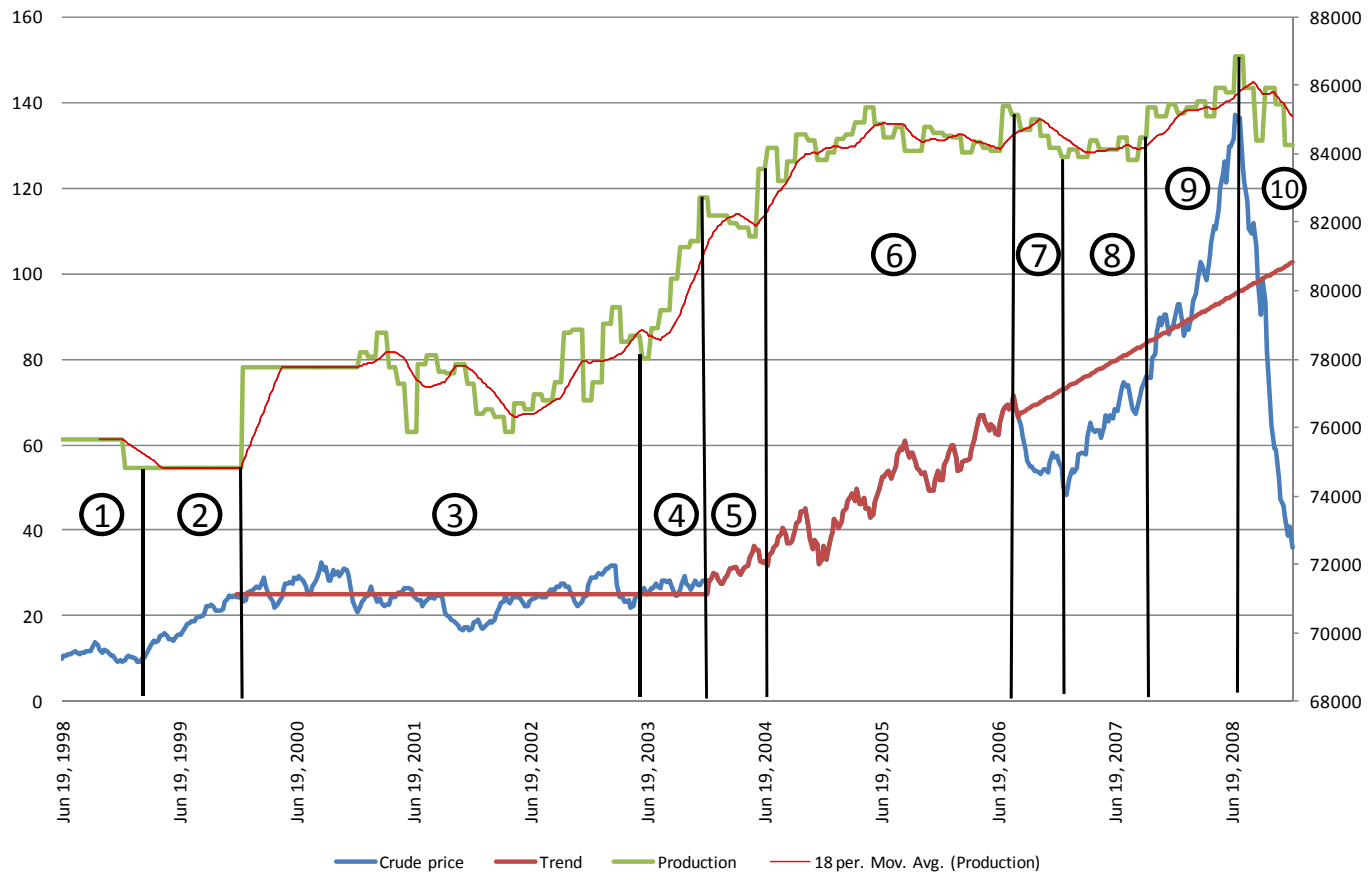


Prices were reconciling stagnant supply with demand by pricing demand out of the market – but now?





High prices failed to draw forth new supply

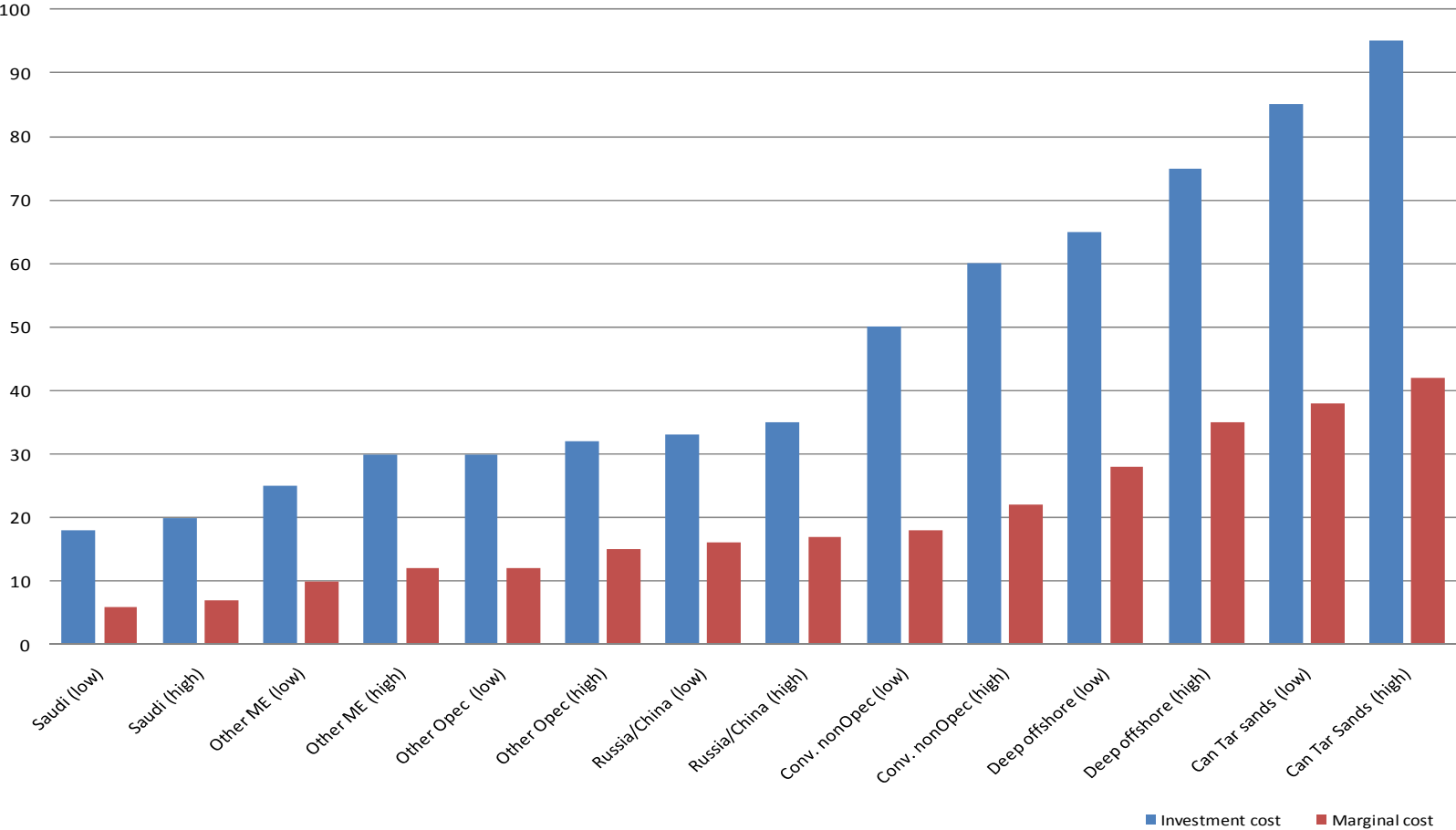




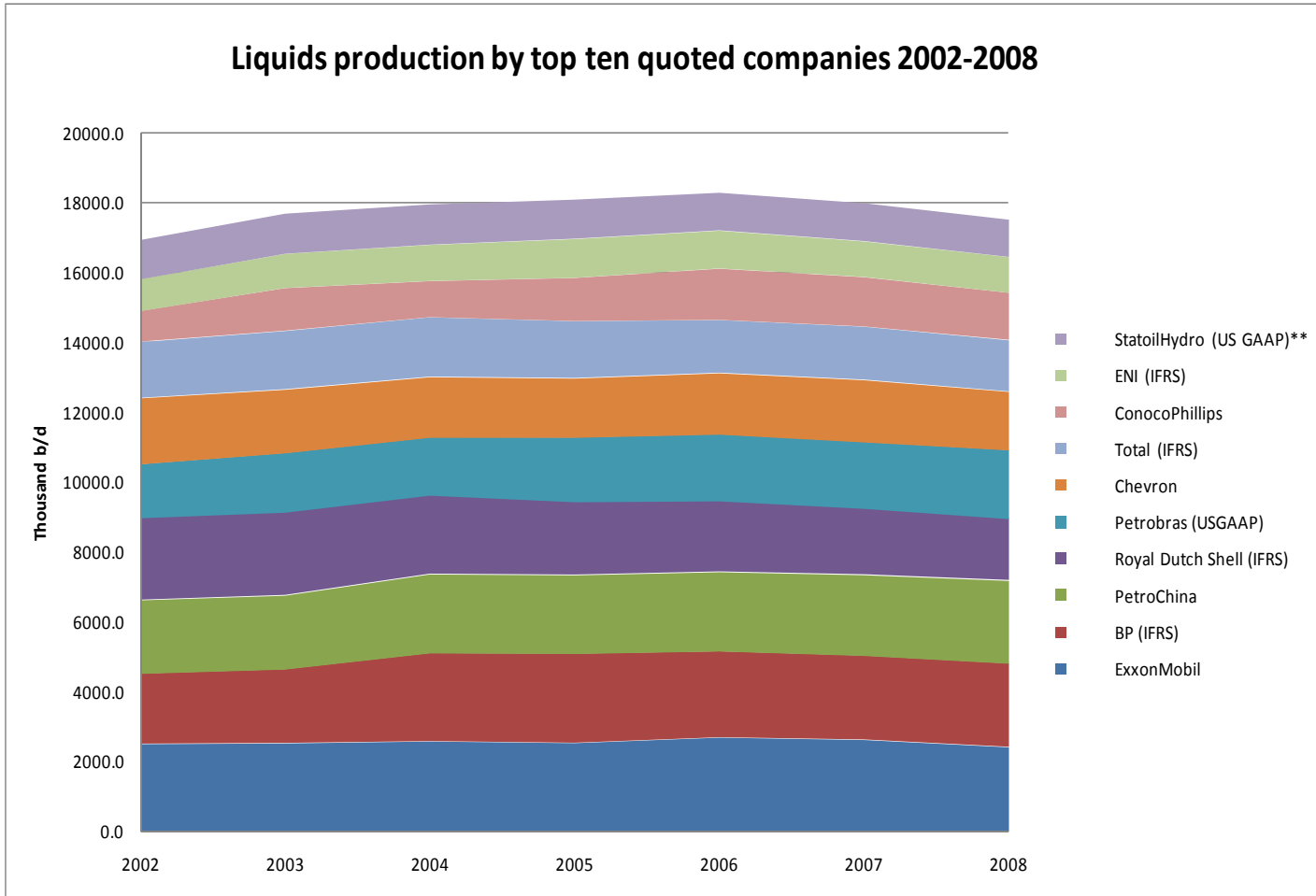
Impact of economics



Let's look at fully built up and out of pocket costs



The 10 largest companies are back to 2003 output





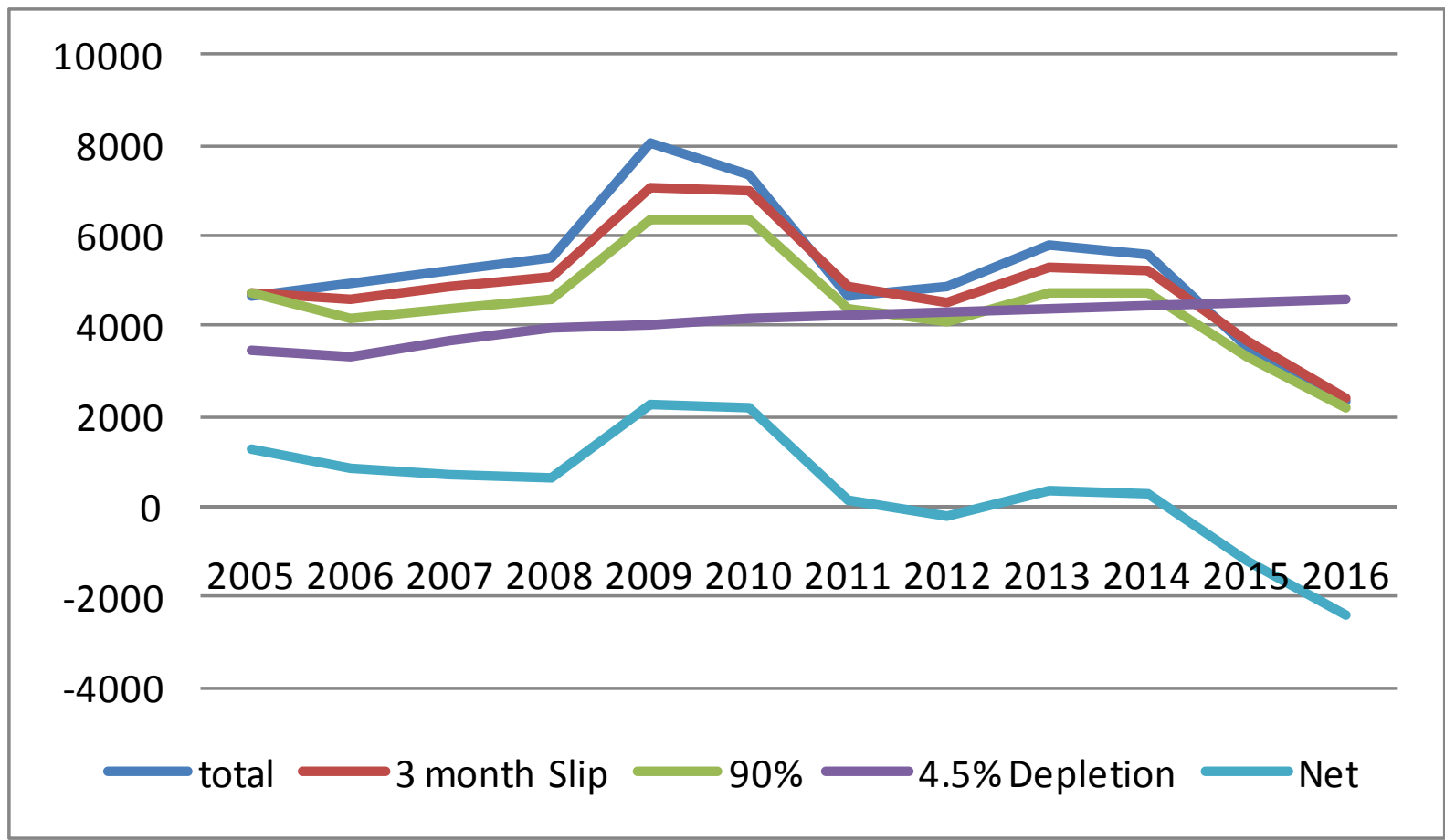
The hole in the bucket

- How big and how fast is depletion?

- Depletion acts as a negative flow
- IEA claims 6.7% average decline for post peak fields
- Global depletion is 5.0%-5.5% of crude flows
or around 3.7mn-4.0mn b/d/yr
- Or losing all tar sands, biofuels and heavy oil production
- Or losing all Iran's production in one year
- Or losing all North Sea production in 14 months
- It is not split equally but roughly 1.5mn b/d/yr for Opec production and 2.5mn b/d/yr for non-Opec production

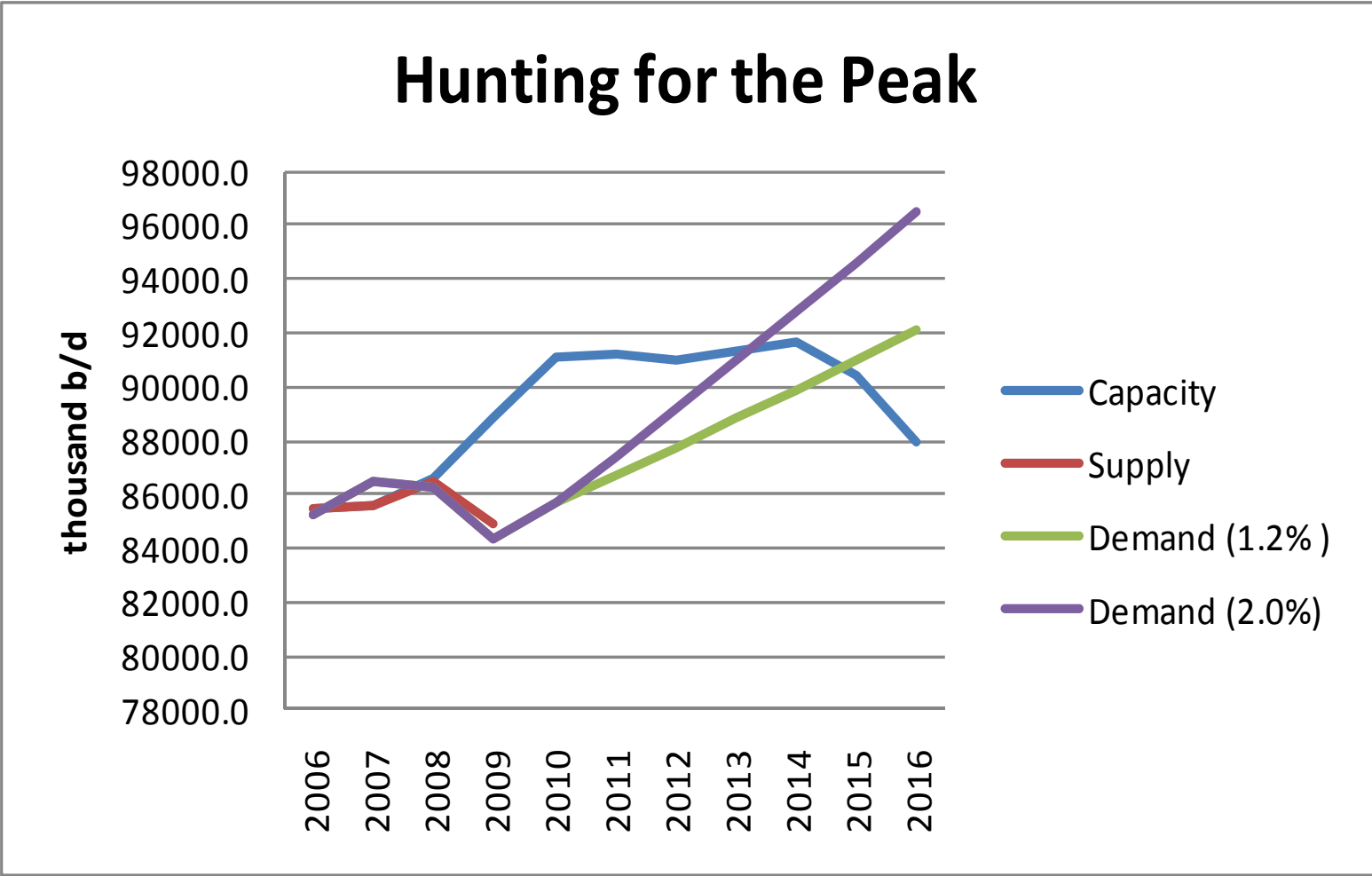


The Megaprojects database – projects starting up from 2005 and showing potential capacity gains



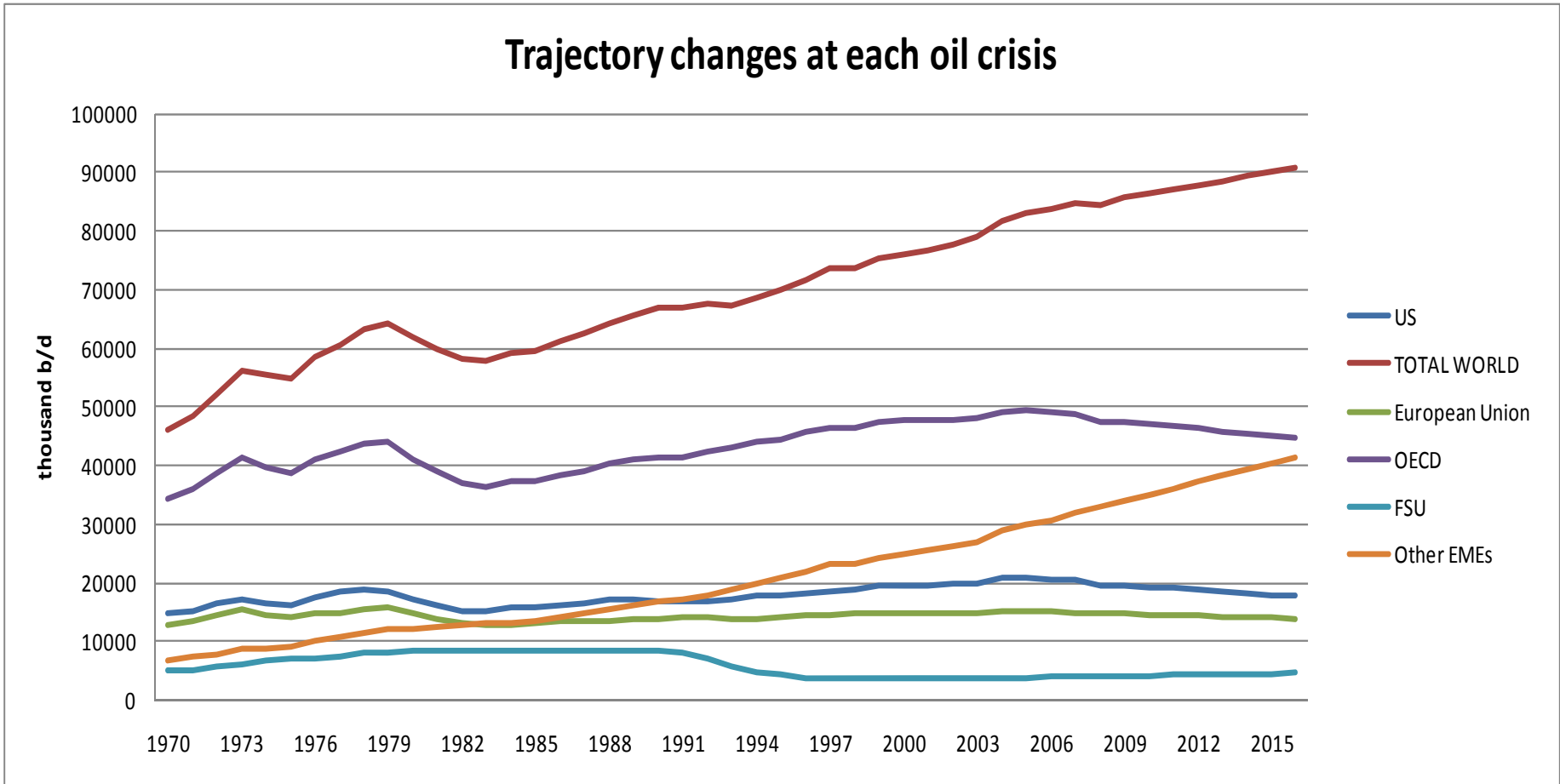


Slow growth now gives Peak in 2015



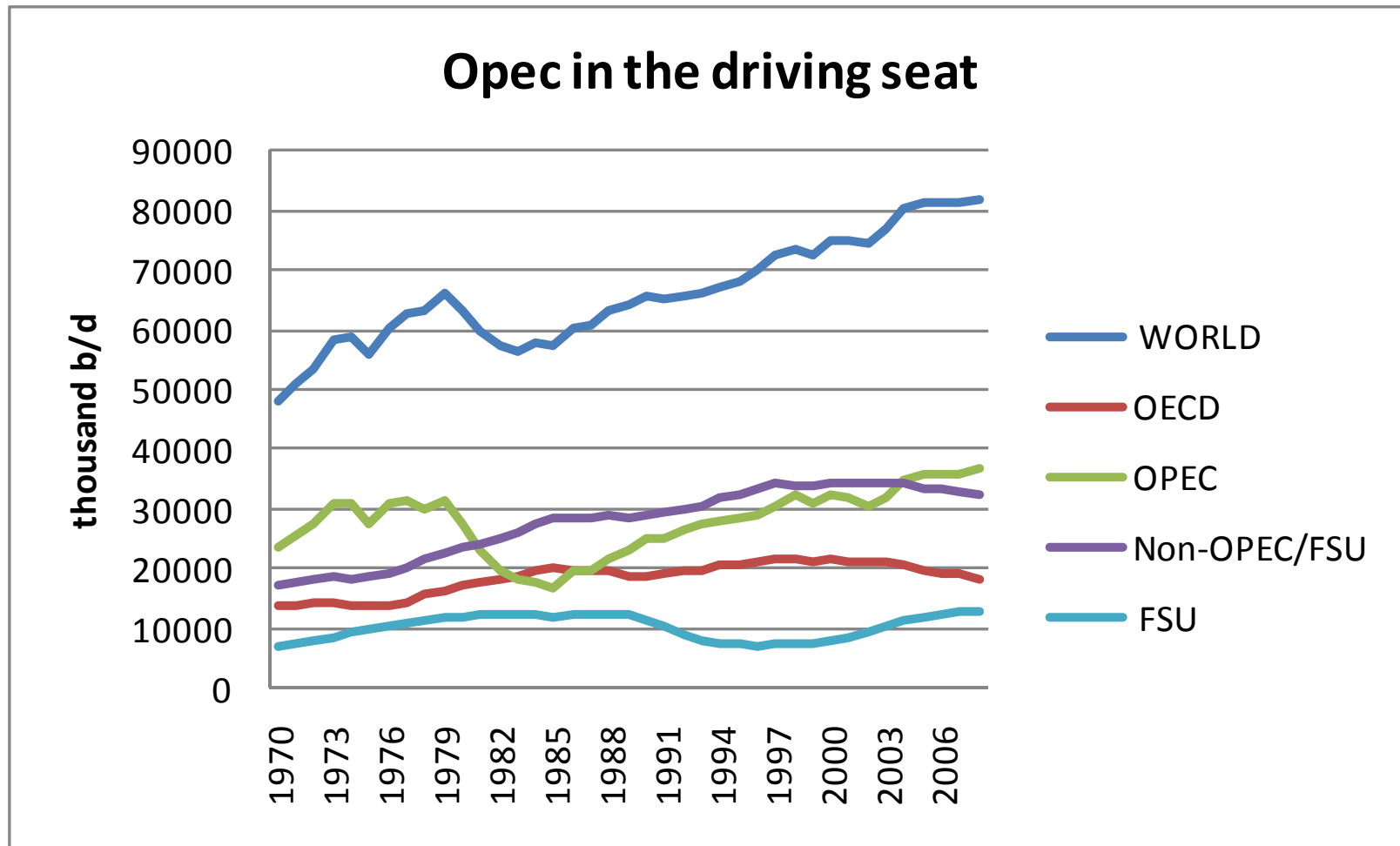


Global Oil consumption 1970-2008 trended to 2015





Global Oil production 1970-2008





Can the world afford high cost oil?

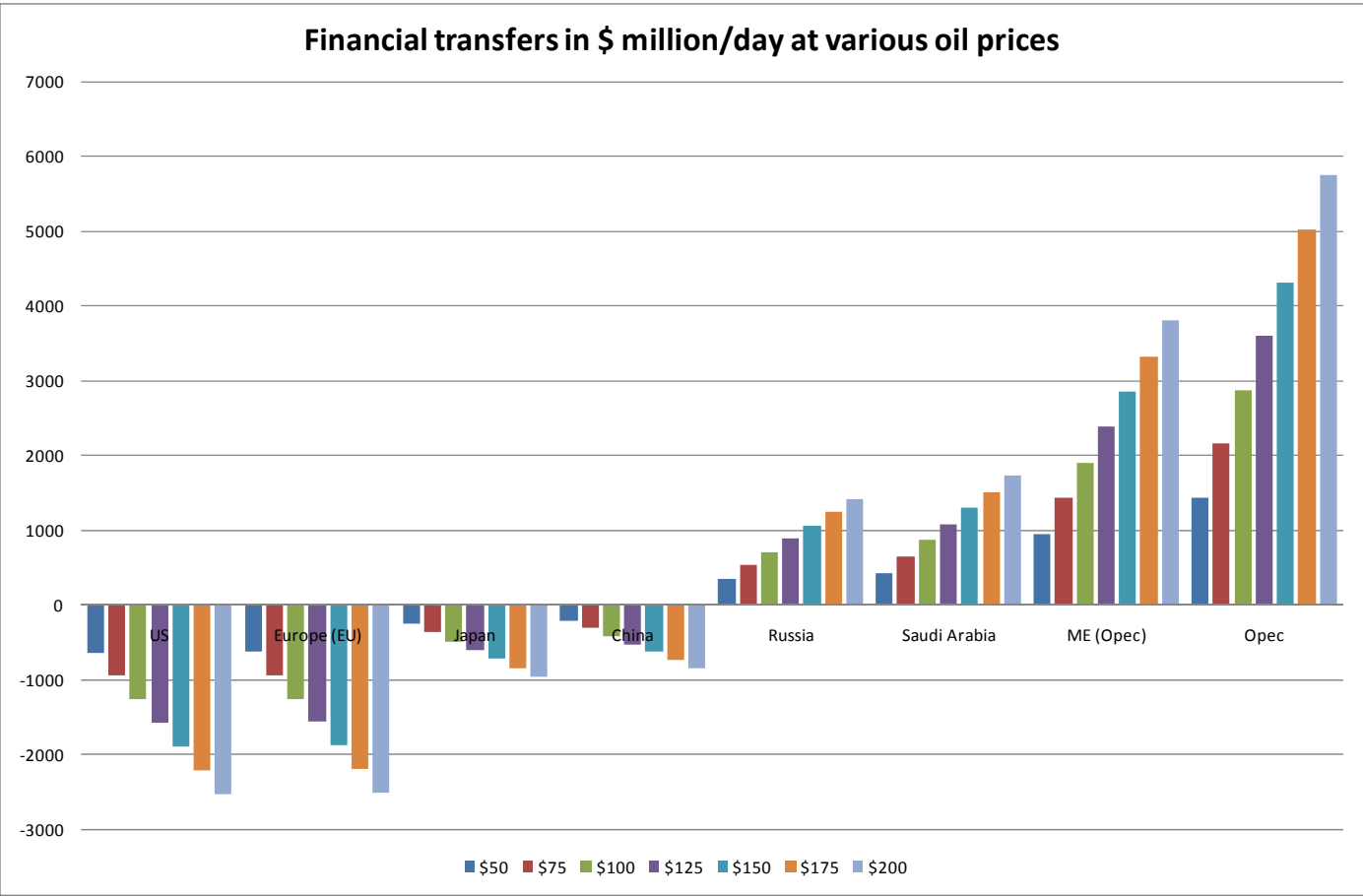


The price happiness/unhappiness table

- At \$147 world economy breaks
- At \$100 all new projects go ahead
- At \$70-80 all projects except new Canadian tar sands go ahead
- At \$75 King Abdullah's 'fair' oil price, Iranian budget balances
- At \$60-70 deepwater West African/Brazilian development looks problematic
- At \$65-70 Saudi budget balances with debt retirement
- At \$50-55 All other Opec budgets balance
- At \$40-50 West of Shetland, most North Sea, most deepwater and some remote (E Siberia) developments look problematic.
- At under \$25 Canadian tar sands, remote and high-cost production starts to be shut in. Maintenance and workovers are minimised.
- At \$20 Opec in crisis and oil companies going broke



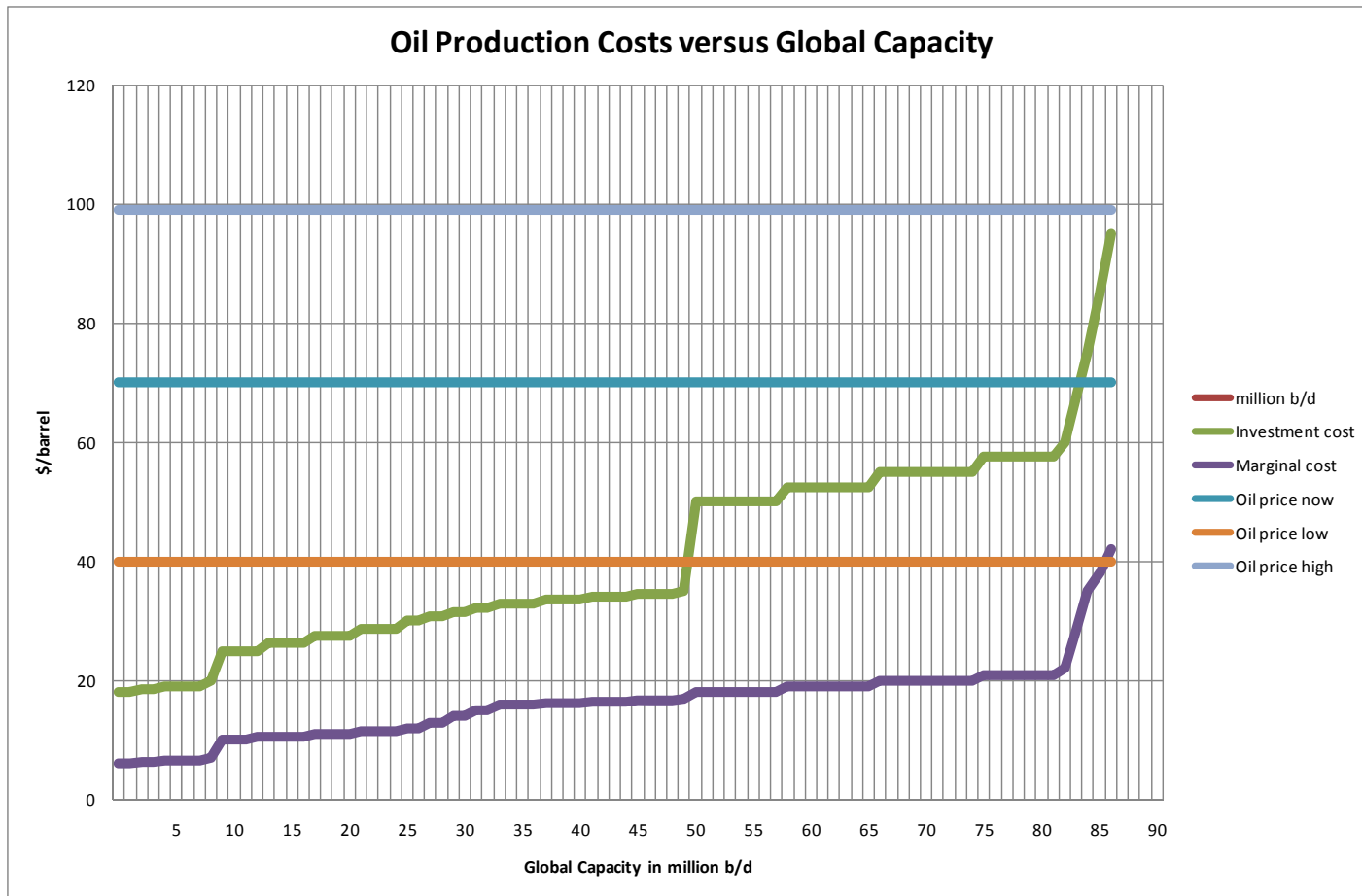
Can the world afford these financial transfers?



Rising energy import dependence

Country	Oil imports	Gas imports	Coal imports
Japan	99.9%	99.9%	99.4%
South Korea	99.9%	99.8%	98%
EU 25	84% (67% +Norway)	41%	44%
India	71%	25%	13%
USA	67%	17%	Exports 2%
Total OECD	61%	25%	13%
China	53%	2%	1%
Australia	40%	Exports 73%	Exports 76%
Brazil	17%	49%	84%
Canada	Exports 30%	Exports 52%	Exports 21%
Russia	Exports 72%	Exports 30%	Exports 22%

Can the world afford to develop high-cost oil?





Is the wild card gas?

- Many countries have quite low utilisation of gas for primary energy supply others are already up to 50%
- Gas sales grew at 3.3%/yr 1998-2008
- Anticipated 2%/yr growth by 2010 continuing to 2030
- Rapidly increasing supplies of shale gas/tight gas
- Plentiful supplies of stranded gas
- Floating LNG solutions becoming economic
- At price of \$6-8/MM BTU supplies of both LNG and pipeline gas would be abundant. (double current price levels or \$36-48/boe)
- King Abdullah's target of \$75/b is equivalent to \$12.50MM BTU
- King Abdullah's price should cause a gas supply boom
- Low cost of gas should lead to considerable utilisation increases



My conclusions at very best

- Supply will start to tighten the moment economic recovery occurs and prices will rise
- Much depends on Opec's use of its spare capacity of about 5mn b/d
- Much depends on Opec's oil price ambitions
- Rapid oil price rises would threaten economic recovery
- Oil supply will most likely peak in 2014/15 at under 92 million barrels/day
- There could be supply shortfalls in winter before Peak
- Oil supply in international trade will peak earlier than the oil production peak



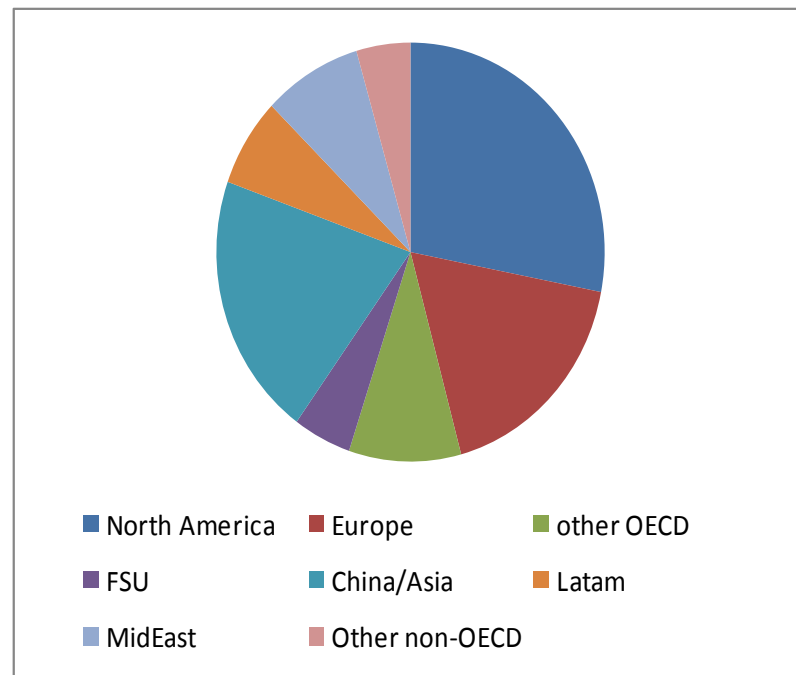
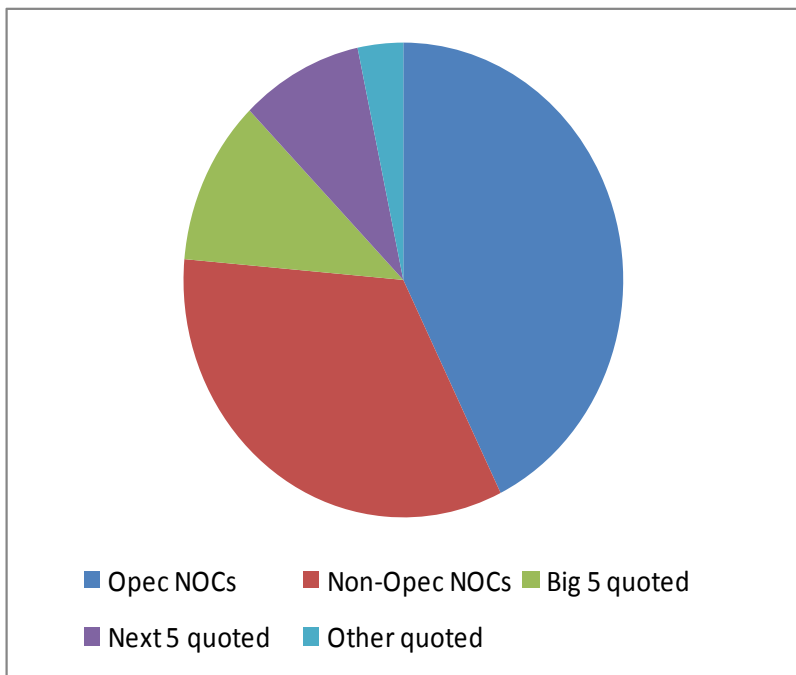
There is hope

- The world will not stop turning after Peak Oil it will need to find smart solutions to the problems it previously solved with cheap oil
- We will need more engineers, scientists and creative thinkers to address the challenge of oil supply peaking
- Solutions exist already to meet many of these challenges
- Key solutions are electrification of surface transport, biofuels, biogas and massive improvements in efficiency
- “The future is already here. It's just not very evenly distributed.” – William Gibson

Many thanks for your attention
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Who controls production -- Who consumes the oil





Peak Oil matters because ‘The flows matter’

- Consumers need delivery **flows**
- Reserves are only useful as **flows**
- Peak oil is when **flows** *can't* meet the demand
- The oil industry is slow moving and predictable

- Flows can be geologically constrained – e.g., the North Sea
- Flows can be politically constrained – e.g., Russia, Saudi Arabia
- Flows can be physically constrained – e.g., Nigeria
- Flows can be skills constrained – e.g., lack of experienced engineers
- Flows can be capital constrained – e.g., Mexico, Venezuela

- **Many** talk of **reserves** and **ignore flows**
- **Others** talk about **access** and **ignore flows**

- **Peak Oil flows will occur no later than 2015.**



Latest BP statistics (2009) show Peaks are already happening

- OECD production **peaked in 1997** and has now declined by 2.5 million b/d (-11.5%)
- Non-Opec, non-FSU production **peaked in 2002**
Has now declined by 1.50 million b/d (-4.24%)
- Total non-Opec production decrease in 2008 -613,000 b/d
- North America/Mexico **peaked in 1997** now down 602,000 b/d (-4.2%)
- North Sea - UK/Norway/Denmark **peaked in 2000** now declined by 1.87 million b/d (29.4%)
- Around 28 significant producers in decline (accounting for over 40mn b/d)
- About 50% of global production from decliners
- Can the other 50% outrun depletion and meet demand? For how long?



Is non-Opec supply Peaking? in 2009? or 2010? (IEA)

