Iran's Nuclear Ambitions: A Looming Crisis For the Oil Market

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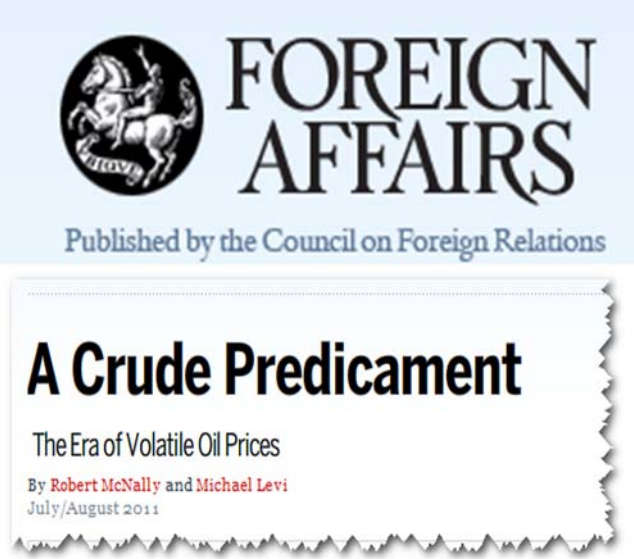
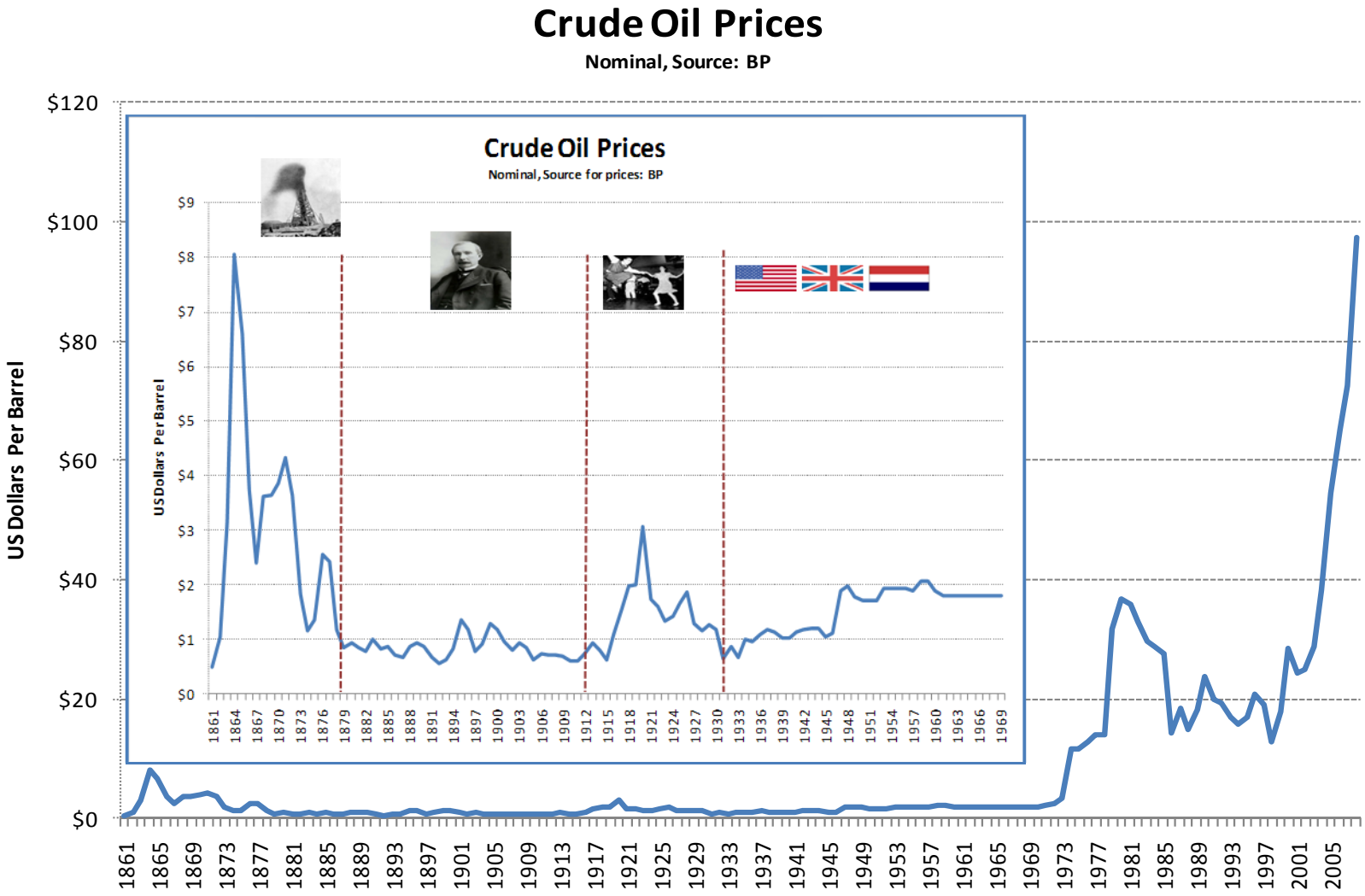
Key Themes



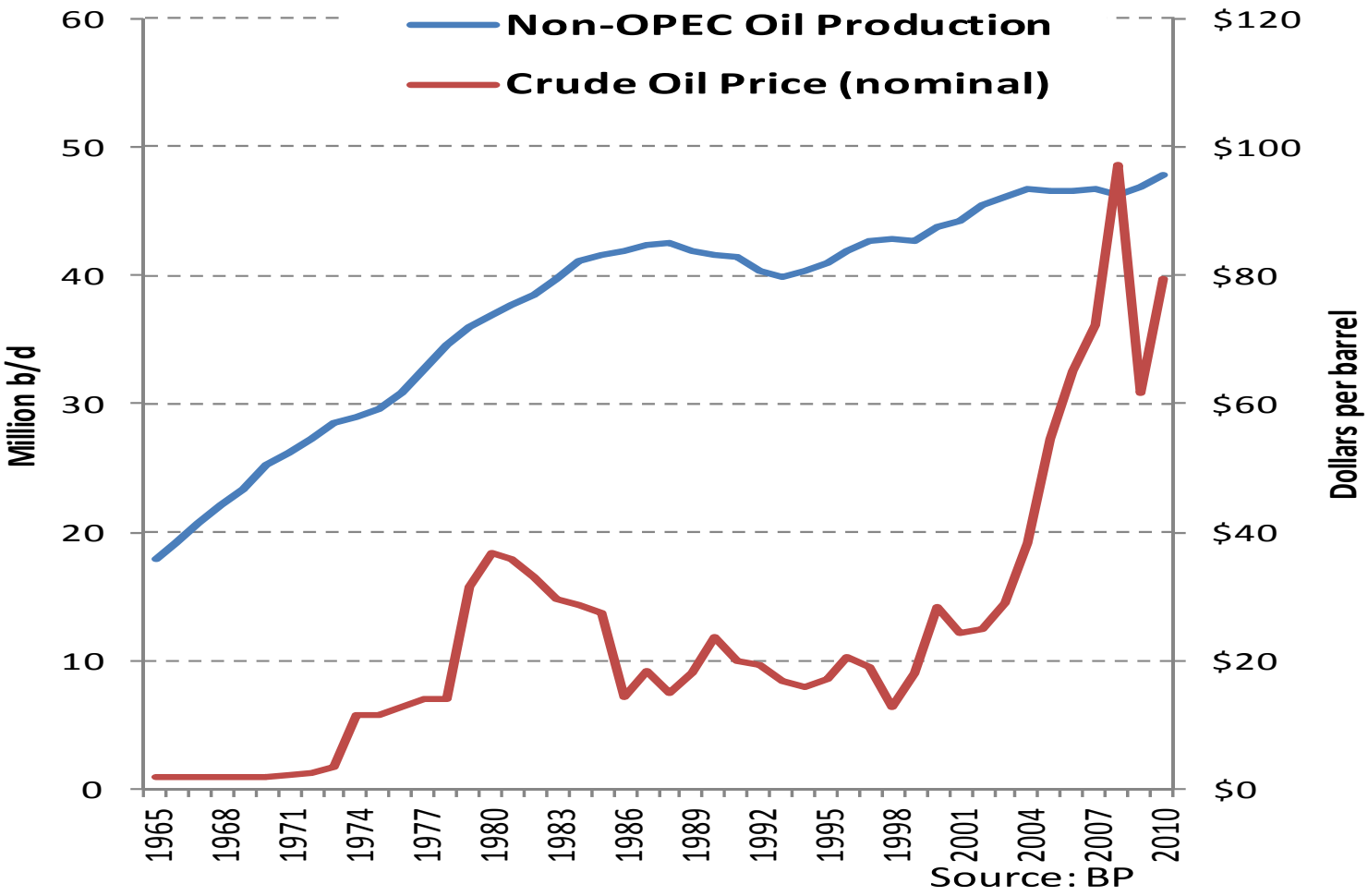
- The oil market has entered a prolonged period of fundamental tightness, geopolitical risk, and oil price volatility
- OPEC (Saudi) spare capacity is and will likely remain low
- Therefore, market sensitivity to geopolitical disruptions is very high
- Iran's nuclear crisis may come to a head this year and oil market participants are starting to price in conflict risk – LNG exports are also a concern
- Scenarios: (1) Iran concedes; (2) Iran prevails; and (3) conflict
- Iran's pursuit of a nuclear weapons capability will lead to oil and LNG market turbulence, one way or the other

Absent Supply Control, Oil Prices are Prone to Booms and Busts



1861-1944 US Average.
1945-1983 Arabian Light posted at Ras Tanura.
1984-2008 Brent dated.

"The Cure for High Oil Prices Is High Oil Prices"…?



Next Major Bullish Driver To Come On The Demand Side

Consensus may be lowballing oil intensity of EM GDP growth

- Historical experience of oil demand responding to price hikes **not** likely to repeat
- Consensus forecasts (DOE/EIA, IEA) assume an **unlikely** decline in per capita energy consumption
- But if per capita energy use increases, demand will be much higher (as much as 30% compared with consensus forecasts by 2030)

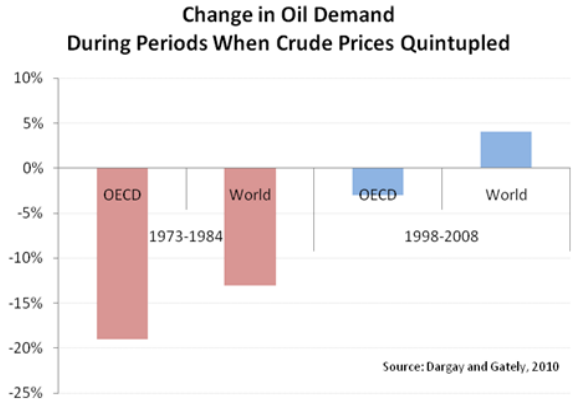
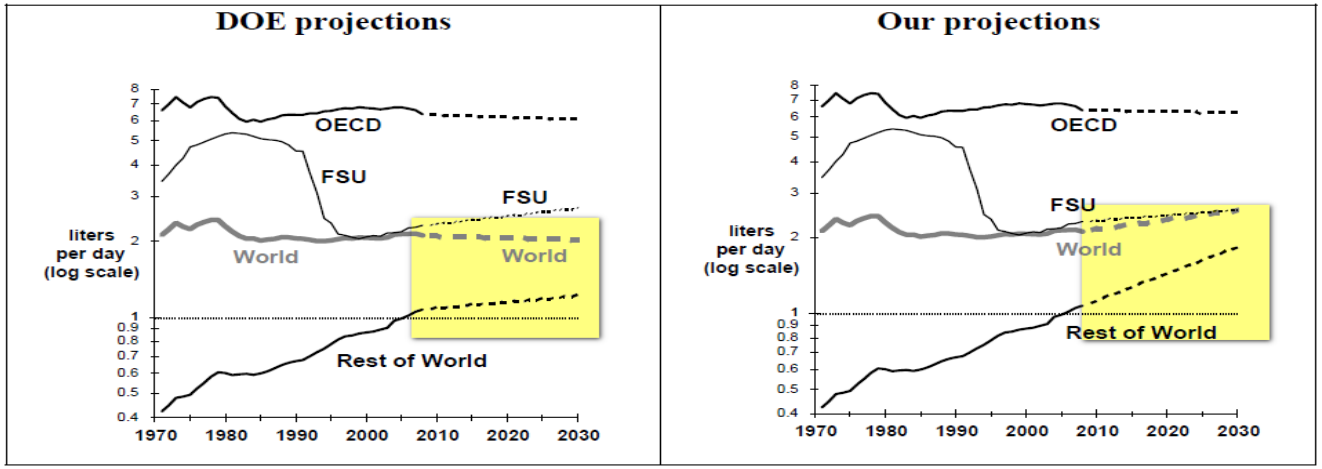


Figure 15. Per-capita oil demand 1971-2008, and projections to 2030 using DOE Reference Case assumptions for crude oil prices and income growth: DOE projections and Our Projections

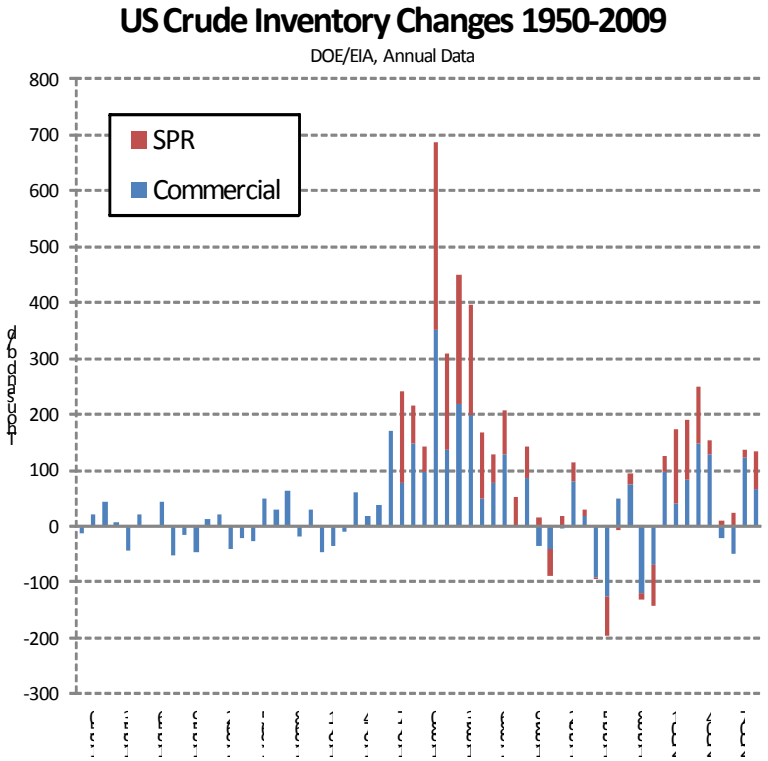


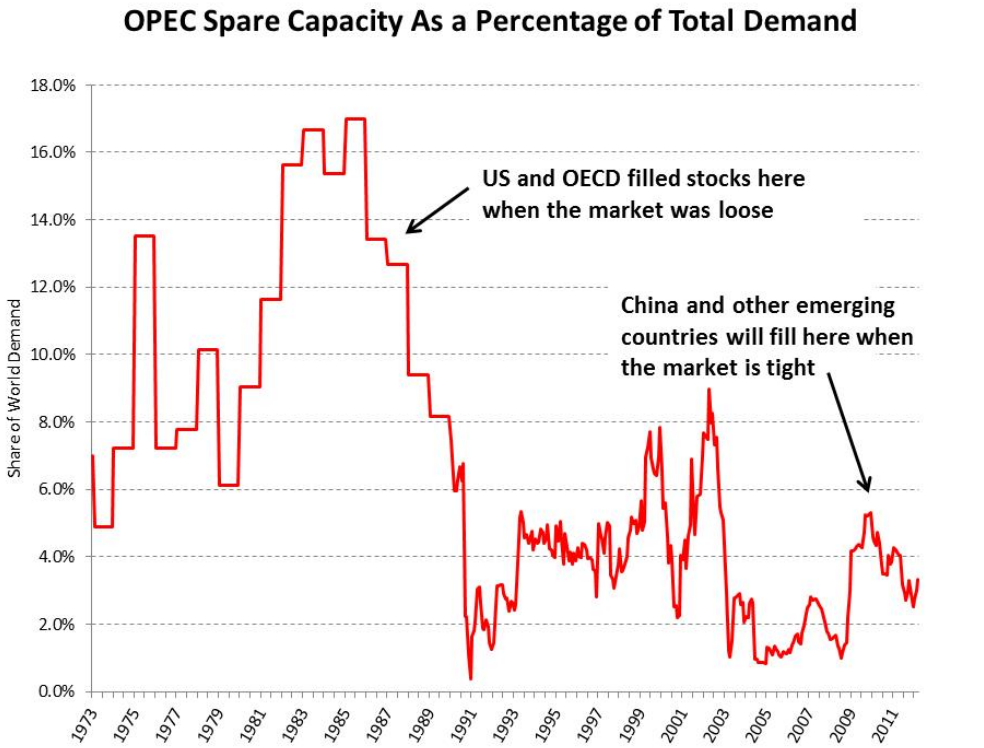
World oil demand's shift toward faster growing and less price-responsive products and regions, by Joyce M. Dargay and Dermot Gately, February 2010

http://www.econ.nyu.edu/dept/courses/gately/OilDemandDargayGatelyFeb2010.pdf

China Is Scrambling to Build Stocks In a Tight Market

The US was lucky to fill stocks with oil freed up by demand-switching, recessions and non-OPEC supply surges

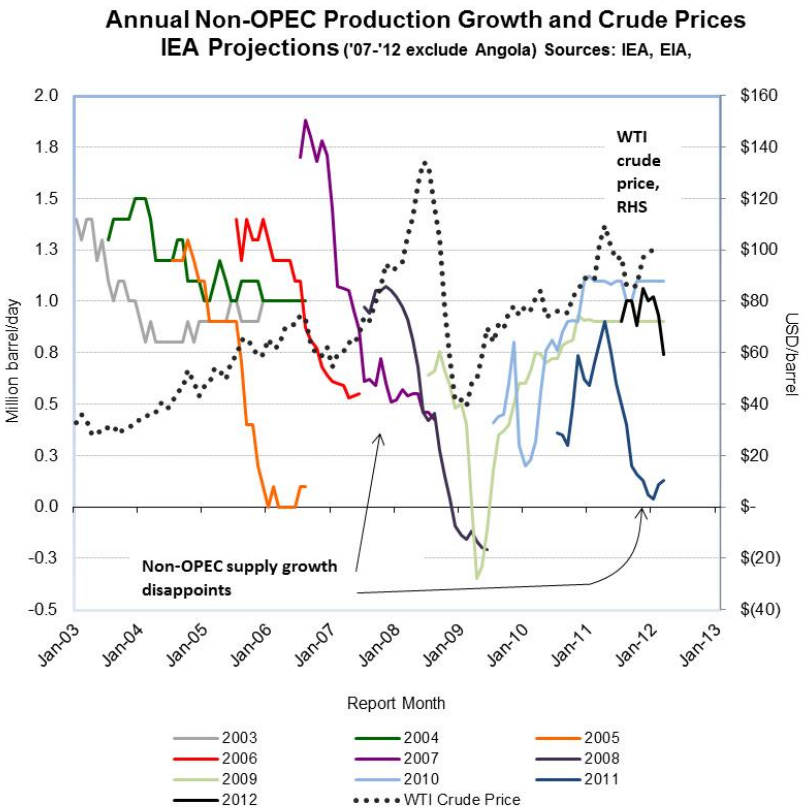




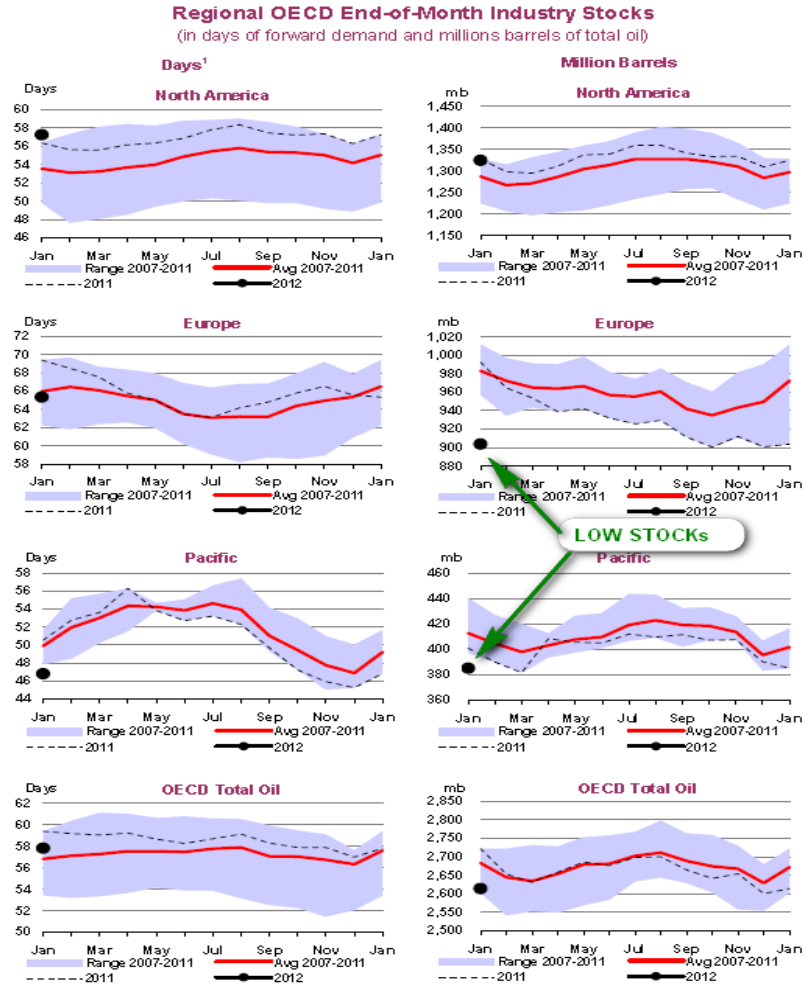
Data: DOE/EIA

Current Status – Oil Market is Tight and Fearful

Non-OPEC supply growth disappoints….



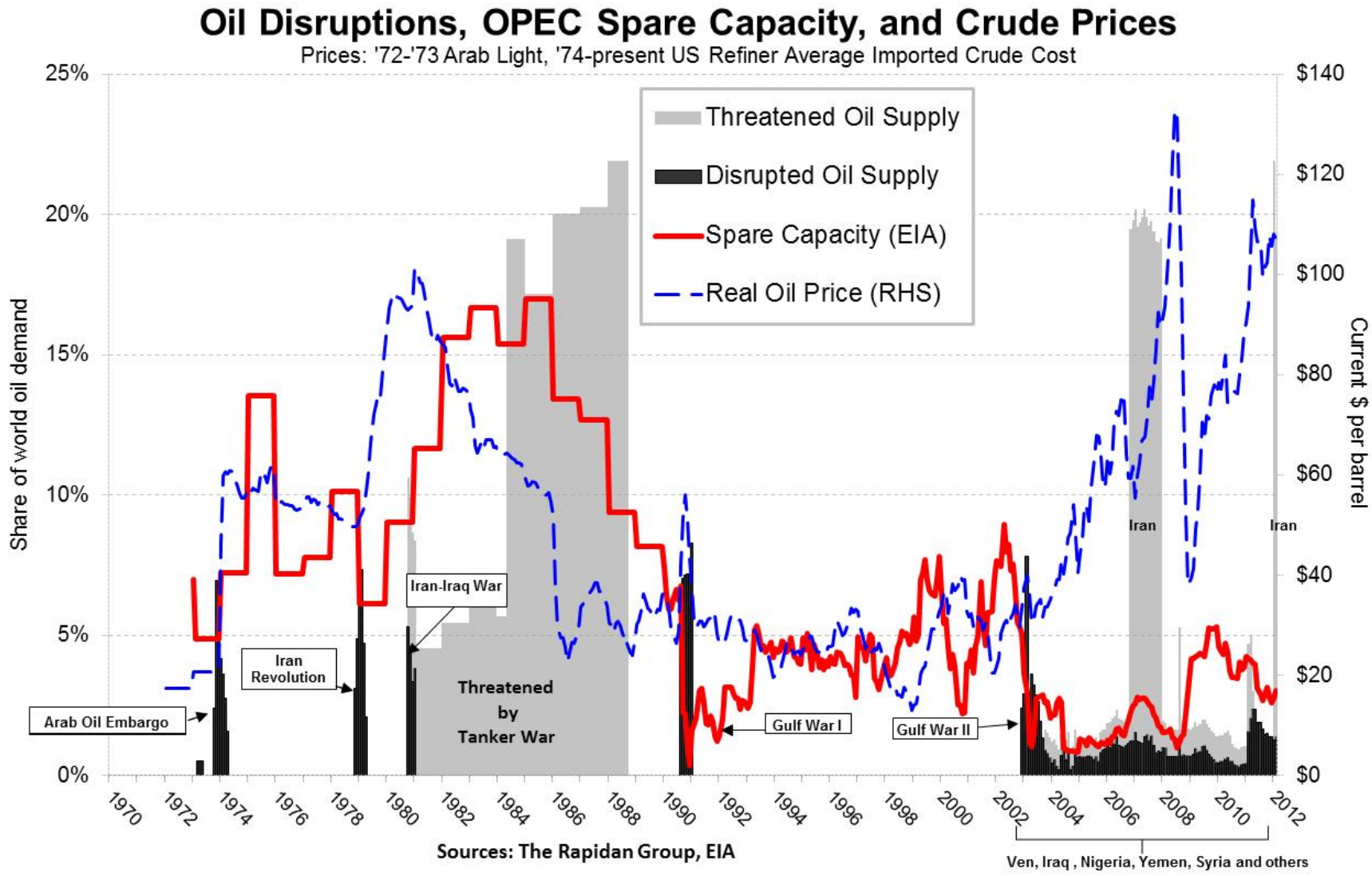
…Inventories are low outside North America.



1 Days of forward demand are based on average demand over the next three months

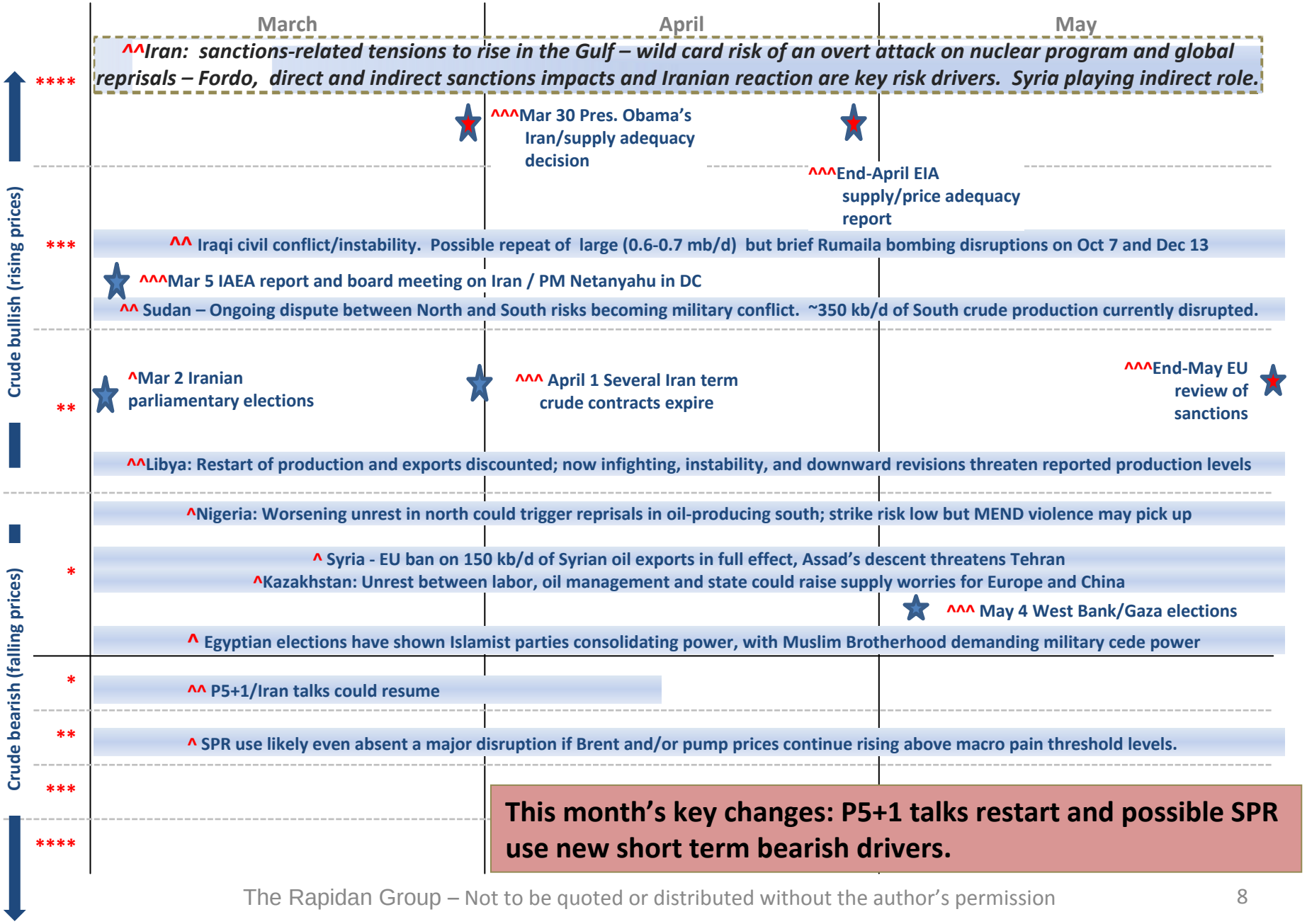
Sufficient Spare Capacity?

Barely, and Not If Disruption Risk Returns



The Rapidan Group - Geopolitical Event Risk Calendar/Crude Oil – Mar '12 through May '12

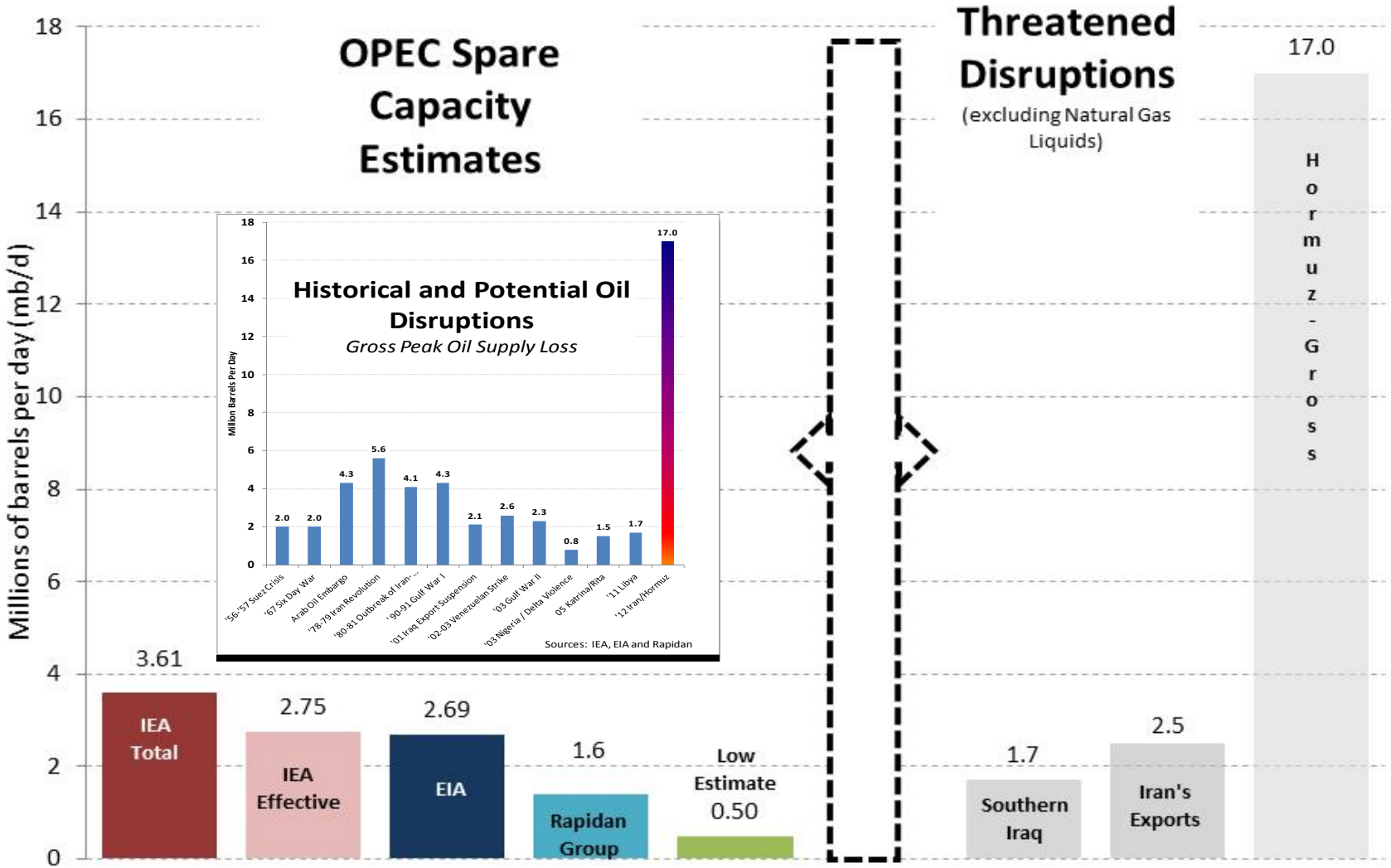
Timing is approximate unless noted. Event probability denoted as follows: ^^^ high, ^^moderate, ^low



Spare Capacity Not Enough For Peacetime, Much Less Additional Disruptions

OPEC Spare Capacity and Selected Oil Production and Flows

Source: Rapidan Group, March 2012 IEA and EIA monthly reports, and press reports



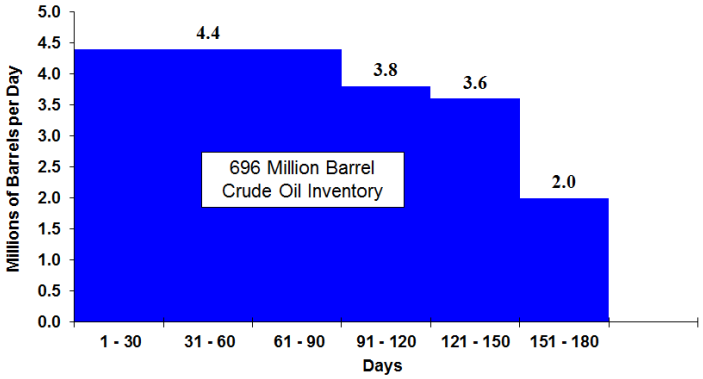
Strategic Stocks Are Available

Recently US SPR drawdown rates have come under scrutiny

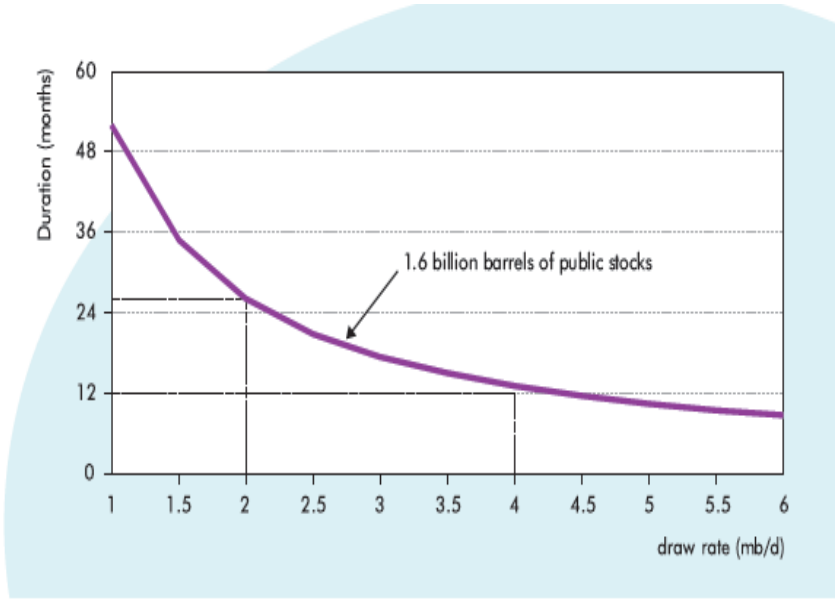
US Strategic Stocks

Strategic Petroleum Reserve Oil Drawdown Capability

- **Max Sustained Drawdown : 4.4 Million B/D for 90 Days**
- **Site Sustained Drawdown : 90% of Inventory at Max Rate**
- **Full Drawdown of Inventory in 180 Days**



IEA Strategic Stocks



IEA, 2010

Scenarios

1.Iran freezes enrichment to enable negotiations to begin and stop the drift toward conflict – crude oil prices drop by about $5-10 per barrel as risk premium exits.

2.Conflict – Tensions escalate into overt military conflict - (See next page)

3.Iran achieves a hardened breakout capability or nuclear weapon

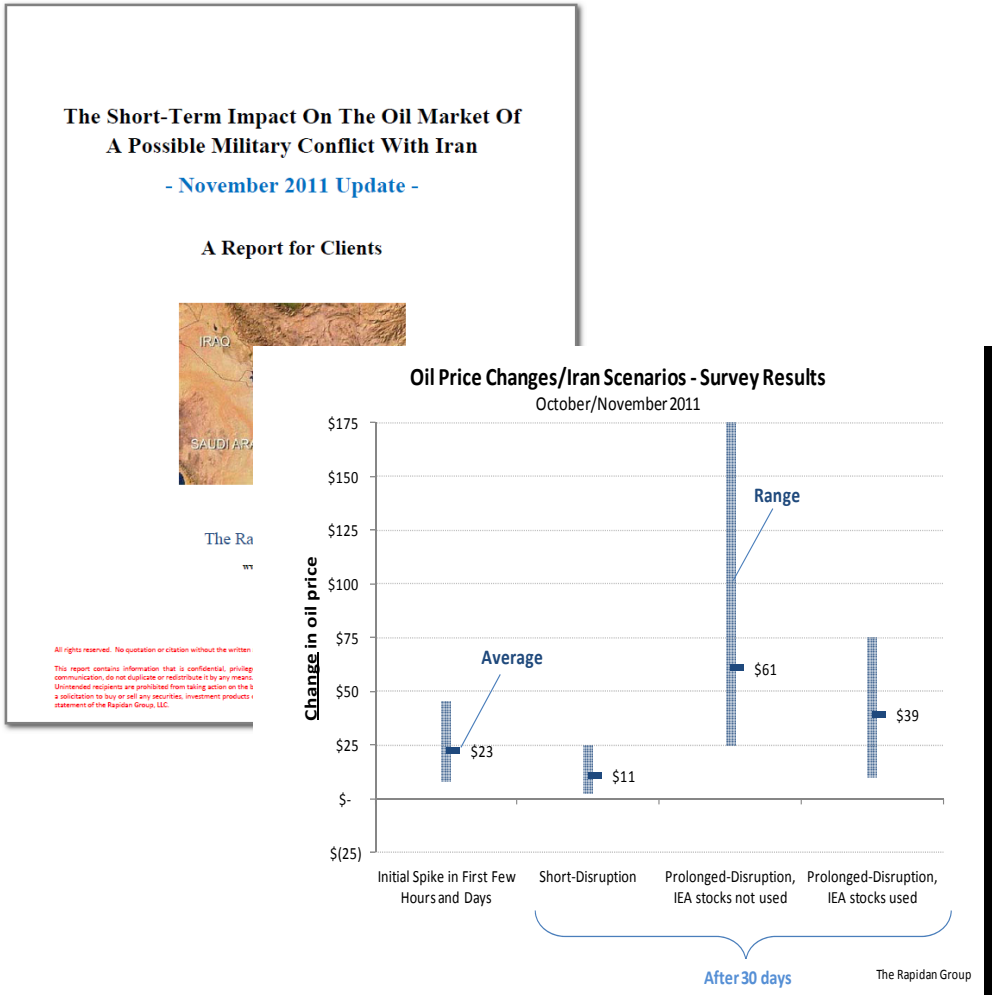
No major impact on oil prices in 2012 but worst case for oil price stability afterward

Stable Cold War "Containment" paradigm unlikely to work with Iran and the Persian Gulf Region

- **Cold War was very violent and nearly catastrophic in first decades – in Iran/Israel's case this initially violent/uncertain phase would play out in the confined but energy-critical Middle East.**
- **Containment requires credible deterrence, testing/demonstration of capabilities – how will oil and LNG prices respond to Israeli, Iranian, Saudi, and other nuclear tests?**
- **Cold War: bilateral; secure, conservative regimes, risk-averse; 70 years of ideological hostility. Iran: Poly-nuclear Middle East; insecure and reckless regimes; religious/ethnic conflict spanning millennia.**

Conclusion: Nuclear, hostile Iran + tight oil market = prolonged and high disruption risk and turbulent oil and LNG prices.

Iran-Related Conflict: Short Term Oil Price Impacts



Source: *The Short-Term Impact On The Oil Market Of A Possible Military Conflict With Iran - November 2011 Update, The Rapidan Group*

(We are in the process of updating this study)

Other crude price estimates

- Bank of America – loss of Iran's 2.5 mb/d = $140 WTI crude.
- IMF – loss of 1.5 mb/d Iranian supply = initial price of $120-$130 WTI crude (Brent about $10 higher)

LNG

- 33% of global LNG flows through Strait of Hormuz
- Damage to Qatar's Ras Laffan production complex a risk
- Ras Laffan vulnerable to Iranian missiles; repairs could take years
- Most immediate impact on spot cargoes (19% of supply)
- Impact worst in winter, when gas demand peaks