

The Oil Market in 2009

Mid-Year Reality Check

*NASEO 2009 SHOPP Conference
Newport, RI*



RESEARCH

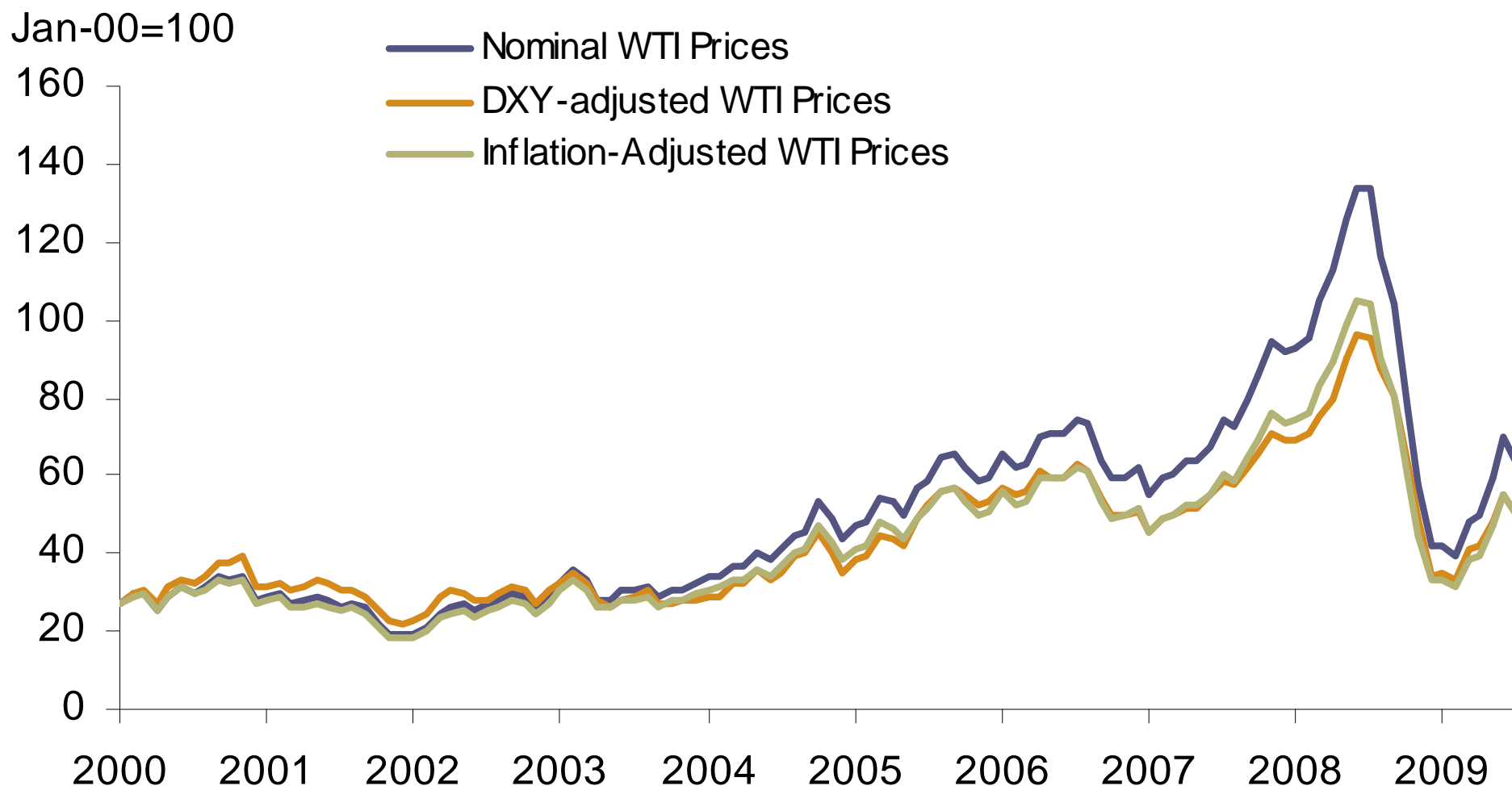
August 3, 2009

Edward Kott
ekott@louiscapital.com

Oil prices peaked in July 2008, slid into winter, rebounded in Q2

WTI reached an all-time high of \$147.27/bbl, but the price in real terms (2000\$) topped out at \$96.84. The 36% October slide was the largest monthly drop ever. Prompt prices rebounded to half the 2008 peak. What's in store for the rest of 2009?

Real and nominal WTI (2000-09 monthly average)



Will the 1H price recovery continue unabated?

The consensus seems to have shifted to continuing momentum

- Bullish expectations point to an end-2009 price level of \$85, with even higher prices in 2010
- Expectations are based on a combination of:
 - Higher demand accompanying a Q3/4 recovery in the US and elsewhere
 - Tighter supply based on high depletion rates, lower upstream capex
 - Accelerated inflation because of combined quantitative easing measures by governments and central banks
 - Rapid \$US depreciation
- Hence the investor focus on oil and many other storable commodities as a safe investor haven and inflation/US\$ hedge, and because of additional leverage from accelerating commodity prices
- For many analysts the easiest answer is the ‘boomerang theory’ with a V-shaped recovery in which low prices encourage higher demand, reduce revenues for producers; reduced revenues for investment lead to tighter supplies and a repeat of 1h 2008 by 2011 or 2012
 - The IEA’s recent supply/depletion study reinforces this view
 - **BUT, if \$147 reflected a bubble, why should markets rapidly return to that level?**
 - What if the fair value of oil was a lot lower than \$147 in July 2008?
- What’s needed is a sorting of the critical issues, bearing in mind that there are difficulties in doing so

What makes this year different from previous years?

- Oil prices are considerably lower
- Rather than rising by 1.5-1.8 m b/d, oil product demand fell by more than 3 million b/d y-o-y in 1H 2009
- Oil **refining capacity** has rapidly moved from being constrained to being oversupplied, damping margins considerably
 - From 2003-2008 tightness in refining led to imbalances in products supplied, perpetual tightness in distillates, because of inability to produce a balanced product slate across northern hemisphere seasons
 - In 2009 because of plunging demand, especially for middle distillates, product imbalances persisted because of inability to limit middle distillate output given global refining configurations
- **Spare production capacity** has re-emerged after virtually disappearing for five years, as a response to new investment and falling demand
- After four years of rampant cost inflation impeding finding and development of new resources, a period of **cost deflation** has set in, making capital expenditures more attractive and efficient, but leading to project postponements to capture lower future costs
- **Inventory levels** have surged, encouraged by financial flows taking advantage of contango structures in crude oil and distillates, following a period of time when tighter markets, structural backwardation, credit constraints and high prices encouraged minimal inventory levels

Do these changes matter?

Yes, these changes make a big difference...

But some continuities linger, obscuring importance of these changes

- Financial flows into commodities have regained their momentum after a 16 month period of liquidation and redemptions, having had an initial impact of depressing prices below fair market value and since Q2 2009 having a tendency to inflate prices above historical indicators of fair market value
- Expectations by critical market participants have distorted prices, price relationships and forward curves; this is especially true of a combination of two sets of expectations:
 - Aggressive and coordinated **quantitative easing** by financial officials has given rise to the view that:
 - Quantitative Easing will accelerate **global economic recovery**
 - QE will lead inevitably to **inflationary pressures** that governments will find it difficult to control
 - QE will lead inevitably to accelerated **US\$ depreciation**
 - Commodities in general, and oil as the “new gold” will protect investments as **a dual hedge** against inflation and dollar depreciation
 - Investing in commodities will also provide leverage as **supply constraints** accelerate commodity price increases
 - Lingering and perhaps misapplied lessons of the recent past give rise to the view that petroleum **product demand** will rebound at pre-2008 rates and that lower upstream capital expenditures after mid 2008 will result in **accelerated depletion**, with markets tightening and returning to 2H 2008 perceived conditions within a couple of years

The simple (minded) approach: the boomerang theory

It's comforting to believe that in an aftershock, life will return to normal, BUT...the history of oil price disruptions is that fundamental changes in demand follow the shock far more rapidly than fundamental changes in supply

- The conventional wisdom in the analytical community is that demand shocks are not long lasting
 - **The historical reality is that every price shock has been followed by a resumption of demand growth at a significantly lower level**
 - There are compelling reasons to believe that this will again be the case
- The conventional wisdom also now asserts that lower prices are bringing lower revenues to producers and lower upstream capital expenditures, and lower supplies.
 - While some projects are being postponed, the supply outlook for the next two years is determined by investments that are unlikely to be impacted by changes in the price deck,
 - An examination of the near term doesn't indicate that lower prices are impacting capex or production significantly
 - To the degree that marginal supply might not materialize, it's also the case that the demand outlook doesn't require as much supply as was previously thought

Key themes

We need to look, one by one, at a number of critical issues

- ***The Supply Outlook and Spare production capacity:*** Two related issues -- How have lower prices impacted the supply outlook? And, given Saudi production plans, the production growth elsewhere and demand trends, what's the medium term outlook for spare capacity? And how will that likely impact expectations and, in turn, both the deferred curve and prompt prices?
- ***Demand:*** What's the outlook for the next two years and beyond?
- ***Finding and Development Costs and the Back End of the price curve:*** How can we evaluate the various impacts of lower cash flows and lower costs? How rapidly are costs falling? What are the new marginal barrels? What's the impact on deferred prices?
- ***Inventories:*** How are they likely to behave, given credit problems limiting working capital commitments and oversupply in the market?
- ***Crude Oil and Commodities:*** To what degree are price changes in oil or gas reflective of overall changes in the demand for commodities as opposed to their own fundamentals?
- ***Financial Flows:*** How are current and how will future financial flows impact crude oil prices (passive investment in commodities, speculation, the dollars vs. other currencies)
- ***Geopolitics:*** A period of limited spare capacity has accentuated geopolitical risks to supply; how will geopolitical factors change now that the energy system has entered a period of higher spare capacity?

The supply outlook: sorting out what's on the way and what might be postponed

The conventional wisdom: supply will look extremely bleak

- ◆ The peak oil mentality continues to dominate most analytical projections of supply, which are based on an accelerating rate of depletion
 - The latest IEA estimates put global depletion at 6.7%, higher than the earlier conventional wisdom of 4.5%; ML report says depletion will accelerate to >10%; SCI sees depletions accelerating year by year
- ◆ Exacerbating depletion is the view that as demand rebounds with lower prices and higher economic growth, supply will be even more severely constrained by lower cash flows and lower capital expenditures
- ◆ To some extent this short-term view is inevitable, but to what extent can this view withstand detailed analysis? Our take is that ***the doomsday supply scenario has been overstated***
 - As annual budgets of majors are announced most project delays have been in downstream projects not yet under development; upstream shift to development from exploration
 - The most noteworthy pauses are in the Oil Sands
 - The Russian situation is highly confused and confusing but is the most critical test case of assumptions about the future of non-OPEC conventional oil supply

The supply side has been problematical this decade...so far

The main story of the past eight years has been on the supply side far more than on the demand side, in both OPEC and non-OPEC

- ◆ For both OPEC and non-OPEC the main factor has been lagging investment for a generation
 - Capital investment expenditures peaked in 1981 with no indicator triggering economic or political incentives to invest
 - The forward curve signaled \$18-21 oil forever
 - Wall street analysts pressured firms to limit capex, focus on higher investor returns via dividends, cost cutting and share price (hence share buy-back programs)
 - 1998/99 price collapse appeared to reinforce these views
- ◆ Without significant capex flows, it was inevitable that maturing fields would start declining at an accelerating pace, creating an optical illusion that the age of peak oil had arrived
- ◆ In recent years upstream capex increased considerably, but the services sector underwent significant inflation, on the order of 350% over the period 2003-2007, so that capital outlays were inefficient; that is now ending, with huge increases in capital efficiency

Supply curve shifts are not instantaneous

As increasing demand bumps up against maximum supply that can be wrought from the existing production base, new supply curves must be developed

- ◆ New supply requires significant time and investment before being brought online
 - Infrastructure for extraction and transportation must be funded
 - Labor and materials bottlenecks often develop, increasing necessary breakeven price—hence cost inflation dominated 2003-2008
 - While new supplies are developed, the market remains precariously balanced on the exponential part of the previous supply curve
 - Normal input cost economics do not drive commodity prices in this environment—hence prices can overshoot, as in 2007/2008
- ◆ Once new provinces reach critical size, prices are determined by the new supply curve
 - Economies of scale often reduce price per unit of new production capacity
 - Labor and materials bottlenecks erode with investments in these markets
 - As operational knowledge of the supply province increases, projects become significantly less expensive and significantly less risky, as is now taking place in the shale gas plays of North America and, perhaps, in deepwater plays

The loss of OPEC capacity after 2002 was the biggest surprise in the oil market

The main reason companies failed to raise upstream capex, whether EXXON or Aramco, was the expected rise in low cost OPEC production

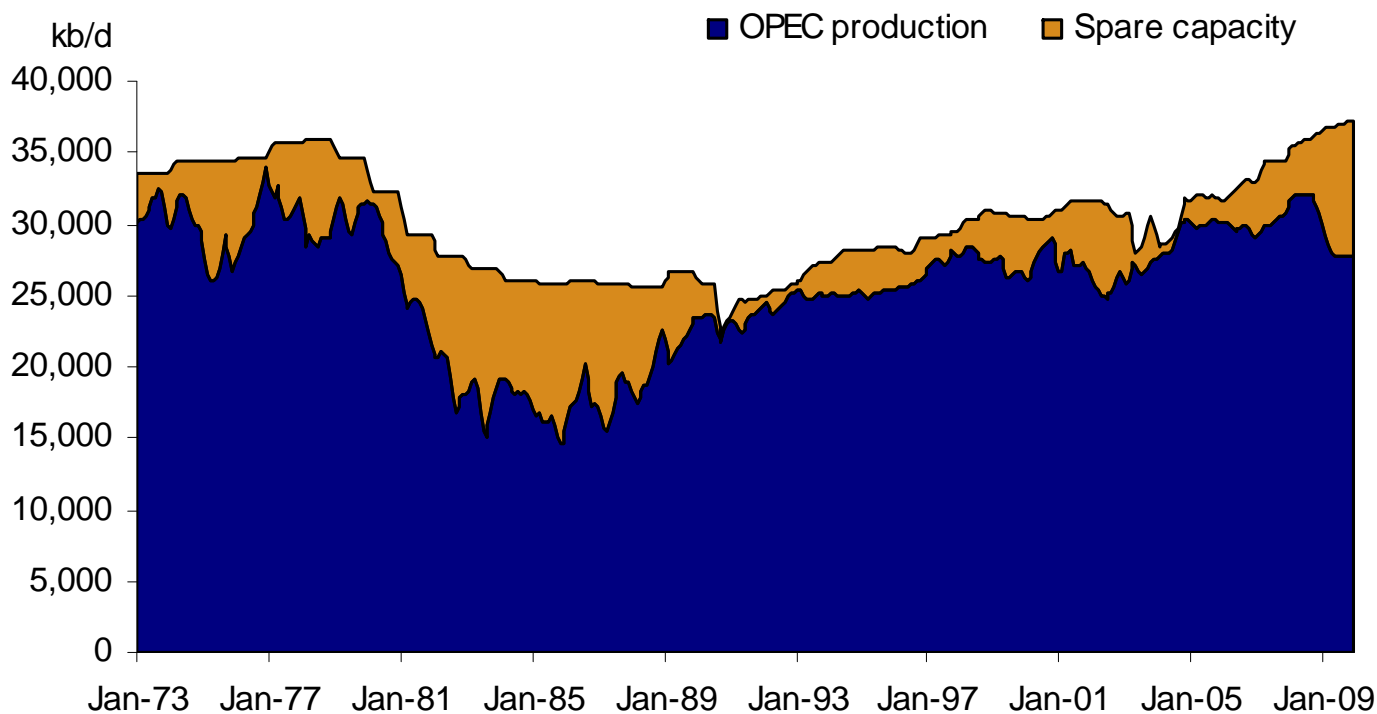
- ◆ At the start of this decade, it was commonly believed that OPEC could balance the market indefinitely. The picture for 2007 from the vantage point of 1997:
 - Venezuela: installed infrastructure capacity of 3.6m b/d going to 5.2m b/d
 - Iraq: available capacity of 2.8m b/d, rising to 4m b/d
 - Iran: installed capacity of 3.8m b/d, rising to 5m b/d
 - Nigeria: installed capacity of 2.3m b/d, rising to 4m b/d
 - ***For these four countries, a rise in capacity of 5.7m b/d: Why should anyone, including Saudi Arabia, invest in more capacity?***

- ◆ The reality of 2007:
 - Venezuela's capacity of 2.2m b/d, 3m b/d under expectations
 - Iraq's capacity at 2.3m b/d, 1.7m b/d under expectations
 - Iran's capacity at 4m b/d, 1 m b/d under expectations
 - Nigeria's available capacity at 2.1, 1.9m b/d under expectations
 - ***Total loss of capacity vs. expectations of 7.6m b/d!***

As demand rose, spare capacity vanished by 2003-04, but with demand now in decline and capacity up spare capacity has mushroomed

Saudi Arabia, other OPEC countries were surprised by the capacity declines in Venezuela, Iraq and Nigeria and accelerated upstream projects

There are good reasons to believe spare capacity will now grow



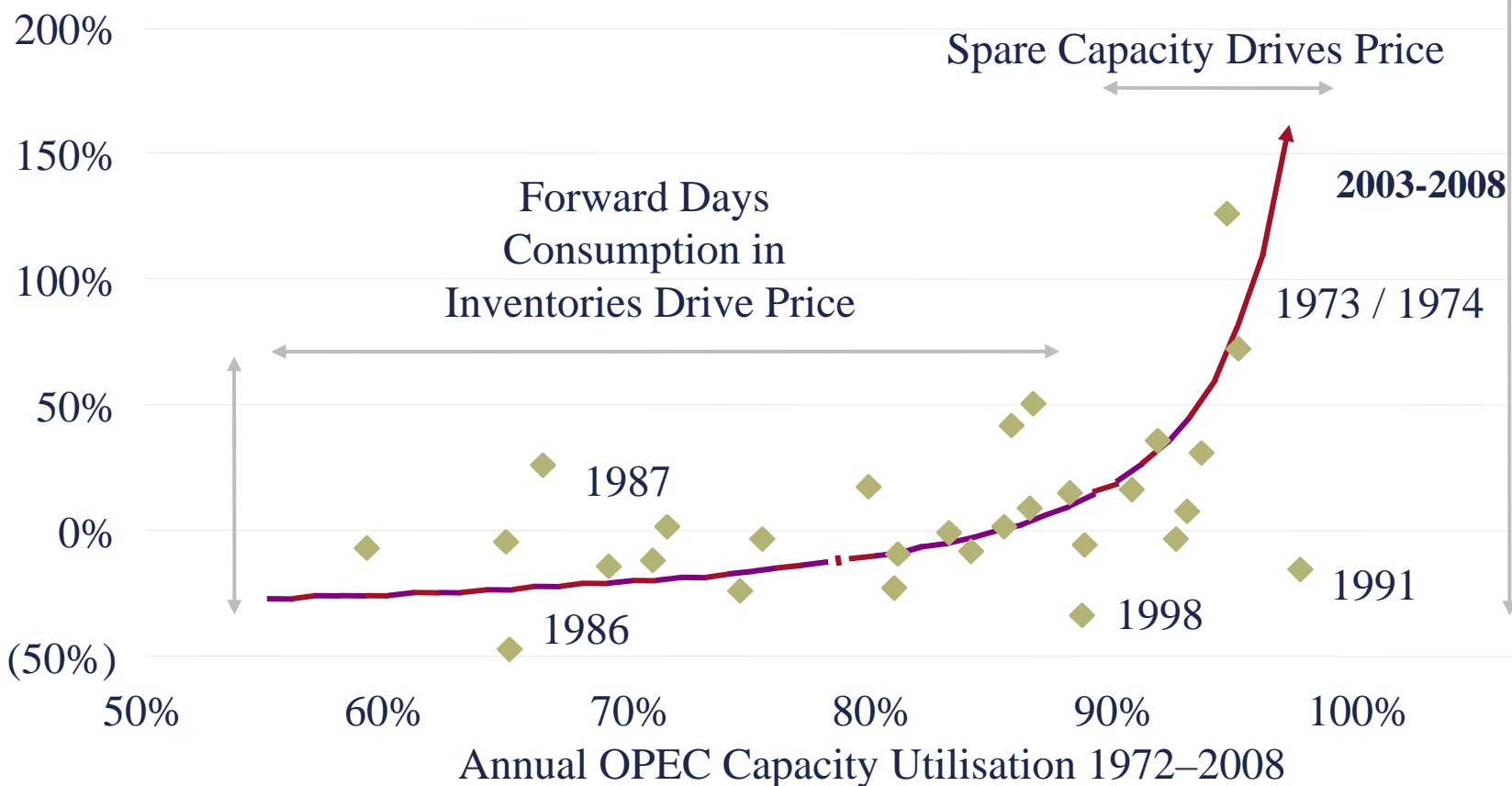
Source: U.S. DOE/EIA, EIG LCMC Estimates.

As a result, prices rose exponentially, triggering both a demand response and capex for new supply and new refining capacity

Higher prices also triggered resource nationalism, a withdrawal of acreage for investors and even higher prices

In Soft Markets, Inventories Count; in Tight Markets, Capacity Counts

Annual % Change in Real Oil Price



Source: U.S. DOE/EIA; LCMC Estimates.

Meanwhile, OPEC output will inevitably rise further in 2009

- ◆ Output cuts appear to have reached their peak in Feb/March 2009, with 3.1m b/d real reduction from Q3'08 peak of 31.6m b/d.
 - The major increments are coming from OPEC members with new significant output from international investors; but outside S. Arabia, OPEC has >1m b/d of new oil capacity growth
 - Nigeria: Balancing higher disruptions are two new developments, Akpo and smaller NGL project which together are adding 220k b/d between Q2 and Q4
 - Angola: saddled with a 1.517m b/d quota and rapidly growing field capacity, has increased output every month since March and will continue to do so. Production that had been in maintenance when quotas were assigned = 250k b/d. Gimboa (+50k b/d) and Mufumeira (+30k b/d) have already been tied in and now, in Aug and Sep '09 Tombua Landana is adding 130k b/d.
 - Iran: S. Pars oil layer now added 50k b/d; coming are Jofeir (+25k b/d), Darkhovin (60k b/d)
 - Iraq: since June is added a series of new production. Missan Oil/Weatherford started 30k b/d output rising to 160 by year-end; Addax started Taq Taq at 30k b/d in June, rising to 70k b/d by year-end; DNO's Tawke field adding 50k b/d, for a total of nearly 300k b/d '09 vs. '08, not including further debottlenecking, which could add another 200k b/d
 - Qatar: Maersk and QP have \$6billion invested in 325k b/d offshore expansion of the Al-Shaheen field scheduled for December. Unlikely to be kept wholly off market in country that has only 750k b/d of capacity to begin with and this aside from 200k b/d of new condensate flows

And Saudi Arabia keeps re-affirming its commitment to maintain a minimum of 2m b/d of capacity

- ◆ This year alone it is adding 1.55m b/d new capacity
 - Shaybah (+250k b/d) and Nuayyim (+100k b/d) in Q1
 - Khurais (+1.2m b/d in Q2)
- ◆ With production at 8.3m b/d, Saudi Arabia has 4.2 mb/d of spare capacity, with an ability to tie in the >1 mb/d Munifa field within a year of a decision
- ◆ Saudi Arabia, like the majors, was caught by surprise by the collapse in OPEC capacity in 2003 and after and embarked on a historically unprecedented campaign to deploy upstream capital to rapid development
- ◆ Spare capacity is critical for the kingdom: a *sine qua non* of international power, of power within OPEC and the country's ability to keep prices moderate
- ◆ Assuming that substantial spare capacity is maintained for the next three years or longer, oil prices should be range bound

Geopolitics point to lower prices

Despite OPEC's cuts, Saudi Arabia is content with lower prices

- The sharp drop in oil prices has pitted Saudi Arabia and core GCC countries against the rest
- OPEC hawks Iran and Venezuela, and their supporter, Russia, have high perceived “break-even” budget prices, ranging from \$80 (Russia) to \$120 (Venezuela), with Iran in between (\$100)
- GCC countries have much lower breakeven prices, ranging from <\$20 (Qatar) to \$40 or so (Saudi Arabia) with the others in between
- It's in the GCC's long term economic interest to see lower prices to spur economic growth and petroleum demand
- It's convenient as well to see the “hawkish” countries in a revenue squeeze that could impair their use of oil as an instrument of foreign policy in ways that are inimical to the GCC
- The Saudis have a history of fostering lower oil prices at existential moments (viz. 1985/86, 1989, 1997)
- **The Saudis seem willing to protect \$40 and to limit price increases to \$75**
- One question is whether there will be a serious “re-evaluation” of ties to US in light of recent hawkish Israeli behavior, but overall recent Saudi threats do not seem to be worrisome

Meanwhile for the rest of 2009 the global market will also have to contend with weaker crude oil markets

- Refinery demand for crude in Q3 has been disappointing given low margins
 - Refiners have become adept at managing margins for the time being by cutting throughput, managing yields
 - It appears that between July 1 and September 30, OECD Atlantic and Pacific will see refinery utilization falling by 2.3m b/d after a faltering increase from Q2 lows
- On the supply side, three categories of “dead oil” taken from commercial flows in 1H will be back in the commercial market
 - US added 21m bbls to SPR
 - China added between 50 and 85m bbls to SPR
 - Chinese, Saudi, India refiners appear to have added between 30 and 60 m bbls to working/mandatory inventory and pipelines with new refineries
 - Total range of 100 to 170m bbls of dead oil, or between 550k b/d and 940k b/d, will be available as ending N. Sea and N. Slope maintenance add another 450k b/d of supply

Supply Takeaways

- ◆ Just at the time that demand has fallen the long term supply response is unfolding in upstream basins: offshore Brazil, West Africa, in the five littoral states in the Arctic (US, Canada, Denmark, Norway, UK and Russia), in the GoM, deepwater Caspian, offshore NW shelf of Australia and Indonesia
- ◆ The focus on upstream depletion is temporary and is an artifact of twenty years of low investment, accentuating accelerated decline of maturing basins
- ◆ The accelerated cost inflation in the upstream has come to an end and the next three years should see rapid reduction in costs
- ◆ The first increase in supply is coming from core OPEC, especially Saudi Arabia, which accelerated capex ramp-up starting in 2003
- ◆ Non-OPEC core production appears likely to be limited until the deepwater is more fully tapped, probably not before 2011, but is unlikely to fall as peak oil adherents argue
- ◆ In the interim, for the next two-three years markets should be well supplied
- ◆ The main question is for 2010-12 – will renewed demand again squeeze markets before new fields are developed in deepwater and elsewhere? Will OPEC act to keep a lid on prices

The demand outlook: sorting out temporary and structural changes

Critical issues related to demand growth

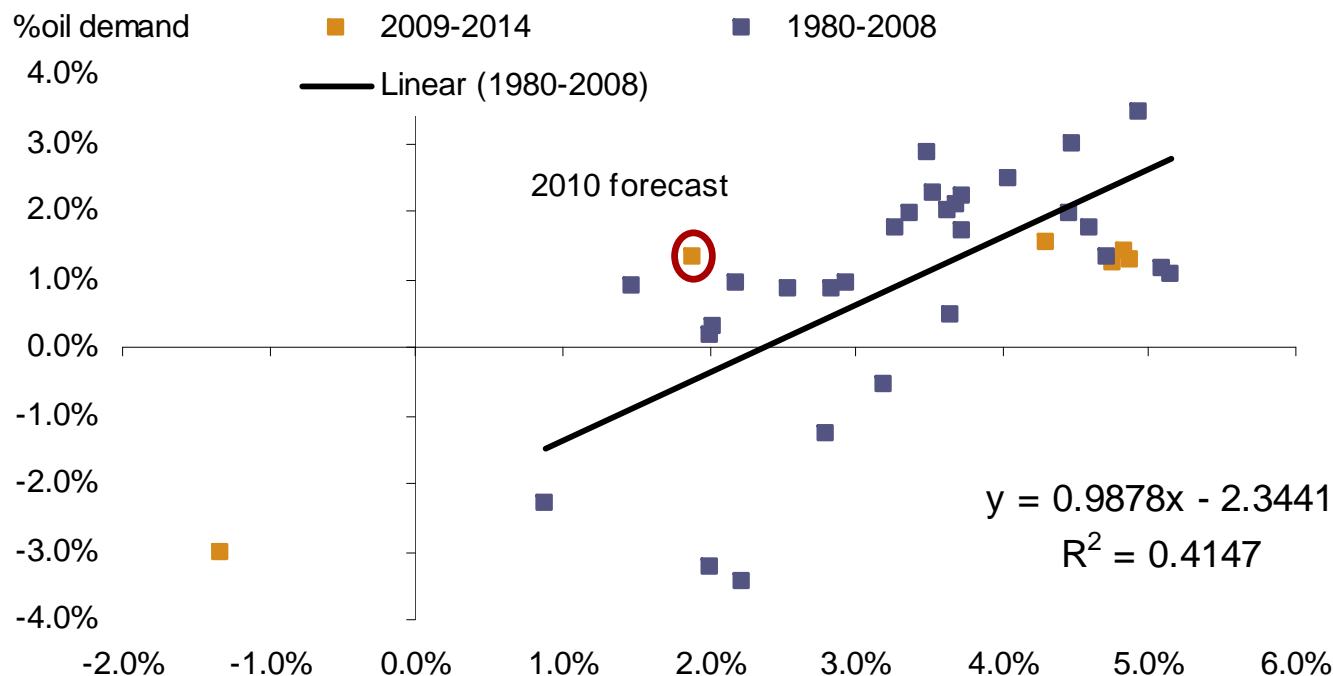
A generation of low prices created misleading rules of thumb

- US gasoline demand recently was growing by close 1.5% per annum, due to low prices, demographic, per capita income and GDP growth
- Globally, there appeared to be a 0.07 demand/GDP relationships for diesel
- Overall emerging markets seemed to have >1.1 demand/GDP elasticity for energy
- ***But history was not always like that:***
- Globally demand grew an average 7.6% for 20 years before 1973, recovering to 4.3% in late 1970s, then after 1981-2 recession, recovering to 2% in late 1980s, rebounding to 1.8% post 1990-91 downturn, reflecting a steady increase in efficiency
- ***History is replete with evidence that price spikes lead to tipping points in demand***
 - Europe: demand plateaued in 1973 after growing an average annual 8.5% for 20 years
 - Japan: demand peaked in 1973 after growing an average annual 15.2% for 10 yrs.
 - Korea: demand peaked in 1998 after growing an average annual 13.9% for 10 years
 - US now appears to have entered a period of structural, systemic change in demand for oil
- ***At what level will demand growth rebound and why? 1.3-1.5%? Lower?***
- What can we say about China, Middle East and emerging markets?

What's happened to demand so far in 2009?

- **GDP growth will be the major determinant of product demand** for the rest of 2009 and 2010 Global demand has been revised down continually since the start of the year.
- It's latest report (July 2009) sees global demand falling 2.4m b/d in 2008, of which 2.4m b/d is in the OECD and no change in the emerging markets.
- Clearly the decline in global GDP is having a profound impact on product demand
- **In hindsight, US gasoline demand growth was main driver of global demand from 1990-2005 (US gasoline was 1/9th of total global product demand; US product demand was 25% of 15 year global demand growth)**
- **But in more recent times, 2000-2008, global demand grew by 8.33m b/d, and 4.2m b/d (55.4%) was middle distillates (diesel, gasoil, no. 2 oil. jet fuel)**
- The spread of recession from the OECD to emerging markets has thus had a pronounced impact on middle distillate demand globally and the recovery from recession will also likely have a profound impact on growth in middle distillate demand
- The IEA currently projects an increase in global demand of 1.4 m b/d for 2010 (1.65%), despite a continuing decline in OECD demand of 110k b/d, the main pillars of which are China and the Middle East (800k b/d)
- Understanding product demand for the rest of 2009 and into 2010 requires an effort to indicate the likely demand picture for the rest of the year for major product demand clusters, especially for light and middle distillates.

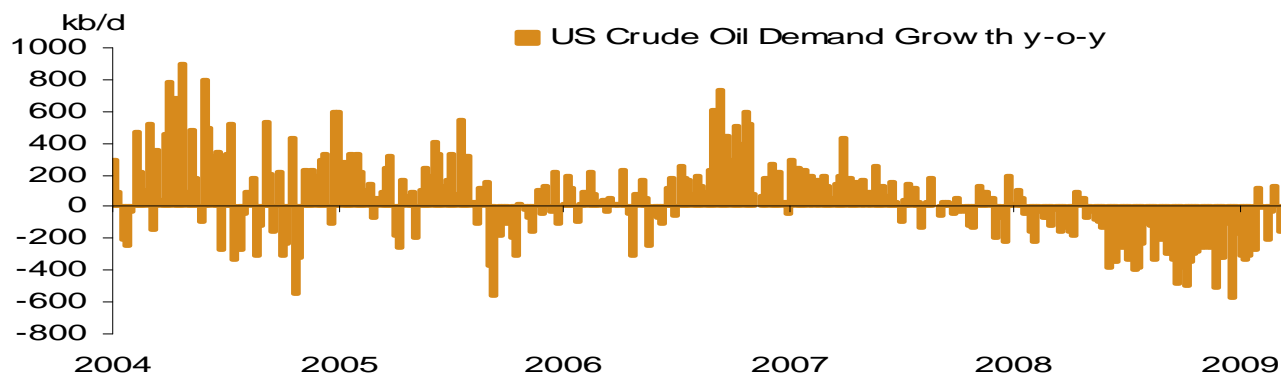
Historically global oil demand trails GDP growth significantly



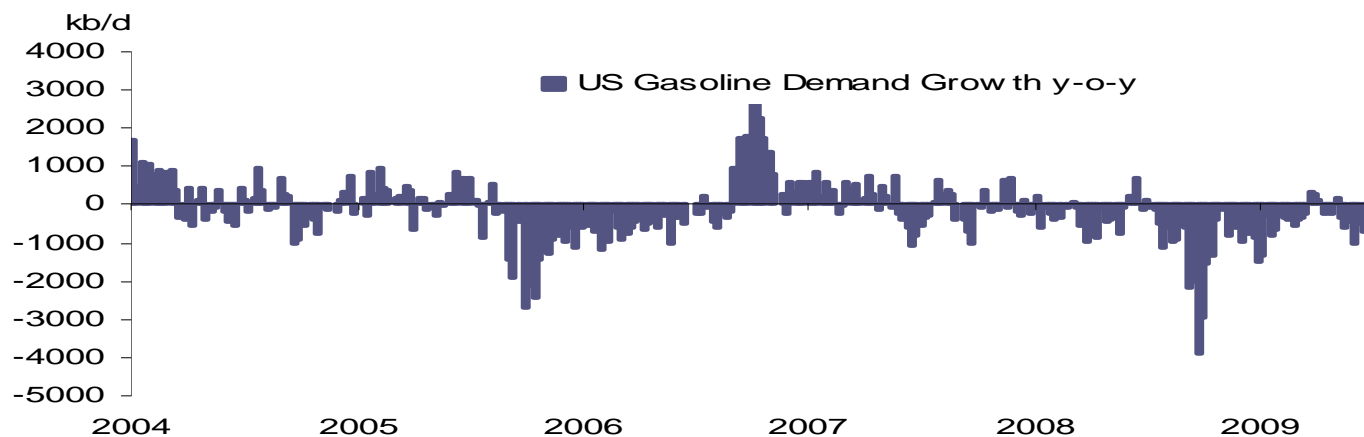
- ◆ The IEA's 2010 demand forecast sees a bounce in demand that stretches the upper end of the historic relationship between demand and GDP
- ◆ During 1980-2008 oil product demand trails GDP growth by -2.3%
- ◆ Given this top down rule of thumb and the IMF forecast of 1.89% global economic growth for 2010, oil demand should continue to fall by 0.48% next year
- ◆ Factoring in the lagging impact of 2008's historically high prices it would be surprising if next year's demand growth would be positive
- ◆ A micro level case can be made that the industrial re-start will be more energy intensive than normal given whole factory shut-ins.

US demand growth reached a turning point in Spring 2007, with gasoline demand perhaps peaking?

US y-o-y Oil Demand Growth (Jan 2004-Oct 2008)



US y-o-y Gasoline Demand Growth (Jan 2004-Oct 2008)



Source: EIA.

What about China?

The IEA's expected rebound in China's oil demand may be based on unrealistic assumptions

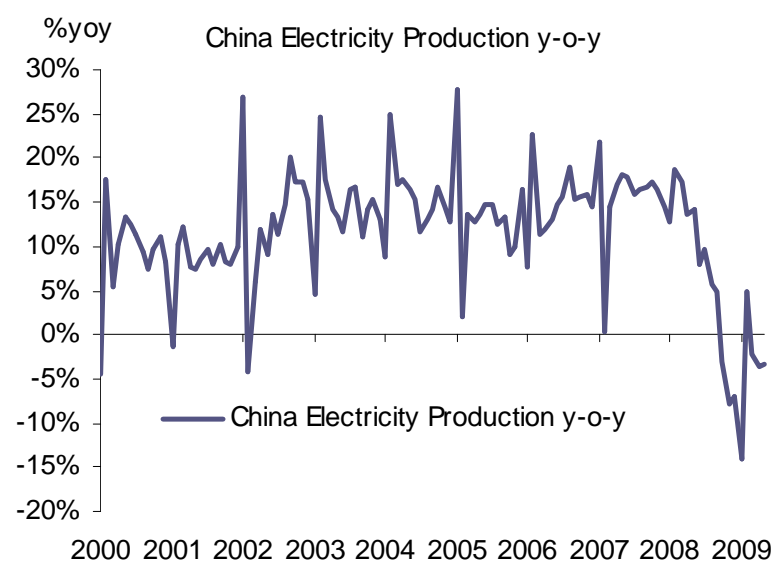
China: still a long-run story

- GDP growth has fallen to single-digits, and electricity production, historically at double-digit rates of y-o-y growth, have swung significantly negative for the first time in a decade.
- The IEA is projecting a decline of only -100kb/d from 2008 to 2009, followed by very strong +400kb/d of growth from 2010 to 2014. This is predicated on a robust rebound in the Chinese economy.
- The 4tn RMB fiscal stimulus package has contributed to output growth, but there are latent concerns about the efficacy of the package given shortfalls in governance standards in the rural areas which need investment most. The decoupling theory will be tested again.

China's GDP growth cools



Real electricity use has turned negative



Apparent Pressures on Chinese demand going forward

- ◆ Last year, non-fundamentals such as inventory increases contributed to high apparent demand from China and fed fears of a supply crunch.
- ◆ Bulk of Chinese oil demand is NOT in transportation but in industry
- ◆ The lion's share (38%) of the 4trn RMB fiscal stimulus package was allocated to transportation infrastructure, particularly railways as they formed a key bottleneck in transporting coal during the widespread power shortages of 2007.
- ◆ The power shortages and a cold winter contributed to a surge in demand for petroleum-based products, which may ease as the bottlenecks are widened.
- ◆ However, China is also building out its own downstream capabilities. The IEA is projecting another 2.4mb/d of new refining capacity added by 2014 (this ignores teapot refineries).
- ◆ The refinery upgrades will require new working commercial inventory to ensure smooth operation. Assuming they build the full government-mandated 30 days of cover, this would contribute 72mb of new one-off apparent demand growth surges.
- ◆ Combined with their continued expansion plans for their strategic stockpiles to 270mb (roughly another 50mb a year), this contributes on whole perhaps 75-100mb a year in Chinese apparent demand to 2014.
- ◆ China's long-term growth convergence and high potential from China's fast-growing car fleet guarantees a major role in world demand growth over the next decade, but this remains a long-term story
- ◆ Still, the Chinese petroleum product demand growth remains controversial.

Middle East petroleum demand growth is also slowing rapidly

- ◆ Middle East had been second pillar of global demand growth, nearly equal to total Chinese demand growth from 2005 through 2008.
 - '08 demand growth was 600 kb/d (vs. 300 kb/d in China).
 - IEA projects Middle East's '09 demand growth at 100 kb/d and back to 400k b/d (9% in 2010).
 - In fact y-t-d 2009 demand growth has been -4.5%, with big hits in jet kero (-9.2%) and fuel oil (-15.8%) and increases in naptha (10.4%) and gasoline (2%), and diesel down 1.8%

- ◆ But much of the region's recent 7.6% annual demand growth was due to one-off or transient factors
 - As much as 20% of 2007 product demand growth was for power generation because of lagging natural gas production or distribution problems, briefly transforming the region into a net fuel oil importer.
 - But as economies have slowed, so have construction and power generation requirements, recently returning the region to its status as a fuel oil exporter.

- ◆ Subsidies should continue to push growth in light product demand by 3.5% (+50k b/d) and slower growth should slow middle distillate demand to 4% (90k b/d).

- ◆ For 2009 we project incremental product demand growth of under 100 kb/d (in line with IEA) and 2010 growth at 175 kb/d

We share current views that demand will decline by >2m b/d in 2009, but believe a new paradigm replaces the older view

The old paradigm:
1.5 to 1.7m b/d demand growth

- ◆ US: +300k b/d (1.5%), led by gasoline
- ◆ Other OECD: 0k b/d (0%)
- ◆ China: +500k b/d (6-7%)
- ◆ Middle East: +300k b/d (5-6%)
- ◆ India: +150k b/d (5-6%)
- ◆ Other Non-OECD Asia: +100k b/d (2%)
- ◆ Latin America: +100k b/d
- ◆ Africa + FSU: +100k b/d

The new paradigm:
0.8 to 1.0m b/d demand growth

- ◆ US: 0-0.5% (100k b/d), with gasoline demand excluding biofuels, plateaued at 2007 levels
- ◆ Other OECD: 0k b/d (0%)
- ◆ China: +300k b/d – 350k b/d (3.5-4%), with end to energy intensive industry subsidies
- ◆ Middle East: +200k b/d (2%), with end to hyper growth for electricity, oil's use in power gen
- ◆ India: +100k b/d (3-3.5%)
- ◆ Other Non-OECD Asia: +50k b/d (1%) with market reforms
- ◆ Latin America: +100k b/d
- ◆ Africa + FSU: +100k b/d

Demand Takeaways

- ◆ The likelihood is for accelerated economic decline in early 2009 and a slow recovery (beginning late 2009), followed by a lower global demand growth path (1-1.2%)
- ◆ The US has joined the rest of the OECD as a non-demand growth country, with gasoline demand having peaked
- ◆ The end of one-off factors will trim Middle East product demand growth, especially as hyper growth subsides and the need for oil in power generation is reduced or eliminated
- ◆ The elimination or reduction of product price subsidies will significantly reduce the demand/GDP elasticity in most Asian emerging markets
- ◆ The end of China's promotion of energy-intensive industries and the reduction of price subsidies will significantly reduce that element of China's oil demand
- ◆ It's likely that when oil demand growth resumes, it will be at a lower global rate than 1.8%; the question is how much lower?
 - A safe basis for projection is a new growth path of 1.2%, or 1mmb/d
 - It would not be surprising if the new 'long-term' product demand growth path would be 1%, or about 850kb/d per year
- ◆ A realistic appreciation of future demand growth implies a lower requirement for new supply

Best case for demand growth 2009-2010

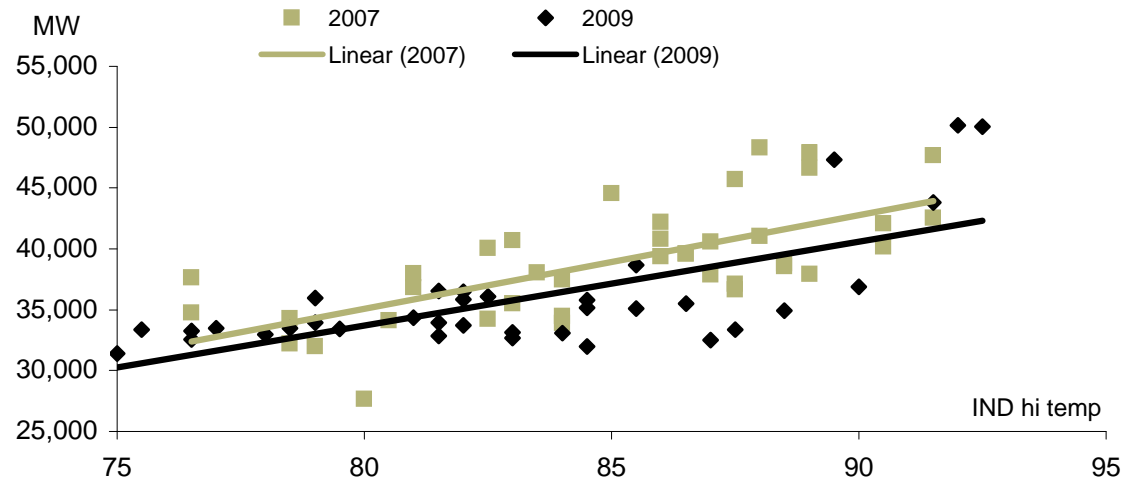
Global Oil Demand Outlook 2009-2010 (m b/d)

	Q109	Q209	Q309	Q409	2009	Q110	Q210	Q310	Q410	2010
OECD	46.5	45.0	45.7	46.7	46.0	46.4	44.8	45.8	46.8	46.0
Non-OECD	37.4	38.4	38.6	39.1	38.4	38.3	39.5	39.3	39.8	39.2
Total	83.9	83.4	84.3	85.8	84.4	84.7	84.3	85.1	86.6	85.2

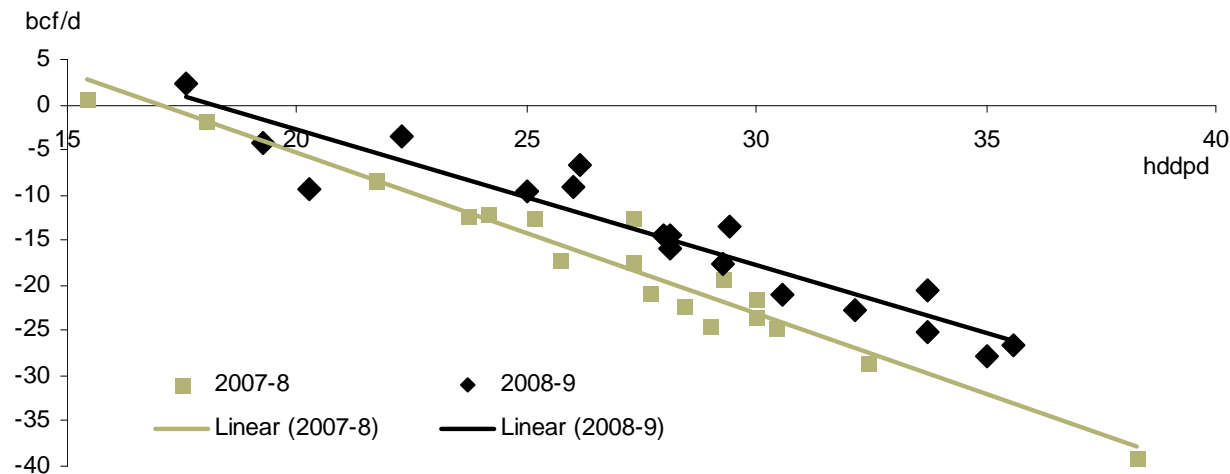
- ◆ IEA foresees demand growth of 1.4 m b/d in 2010, with slight decline in OECD and large growth in non-OECD
- ◆ This is close to impossible based either on the historical relationship between GDP and product demand growth or other elasticities...unless China enters another phase of unsustainably high growth for 12-18months
- ◆ We believe the most likely scenario is no noticeable OECD growth in 2010, with N. American growth balanced by declines in Europe, Japan; but the most robust projection we can make is growth of 800k b/d, all concentrated in emerging markets

The ghost of electricity: energy demand not as sensitive to weather changes during economic contraction

Daily Peak MISO-East Load vs. Indianapolis High Temperature (May-Jun 2009 vs. 2007)



Daily Storage Draw vs. Heating Degree Days per Day (This Winter and Year Ago)



•**Certification**

The views expressed in this report accurately reflect the personal views of Edward Kott, the primary individual responsible for this report, about the subject referred to herein, and no part of such compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed herein.

•**Disclaimer**

The material herein has been prepared and/ or issued by LCM, member SIPC, and/or of its affiliates. LCM accepts responsibility for the content of this material in connection with its distribution in the United States. This report is based on current public information that LCM considers reliable, but we do not represent that this information, including any third party information, is accurate or complete and it should not be relied upon as such. Opinions expressed herein reflect the opinion the primary individual responsible for this report and are subject to change without notice. This document is for information purposes only and it should not be regarded as an offer to sell or as a solicitation of an offer to buy the instruments mentioned in it. No part of the document may be reproduced without full attribution.