

Summer 2009: Energy Market Outlook

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Higher Energy Prices are Dimming Economic Prospects

Last Year We Said:

- **Painful Energy Prices**
 - Just getting worse for consumers
 - Refund checks not likely to help very much
 - Energy prices permeate most goods & services, so inflation is accelerating
 - Third quarter could be the weakest since 2001
- **Consumers Try to Stop the Bleeding**
 - March gasoline use declined Y-O-Y, first time in 29 years
 - What's discretionary and what's not?
 - Mother Nature could make it easier or harder
- **Temporary versus Structural Changes**
 - Consumer behavior seems to be changing, but they might revert to their old ways when prices come down.

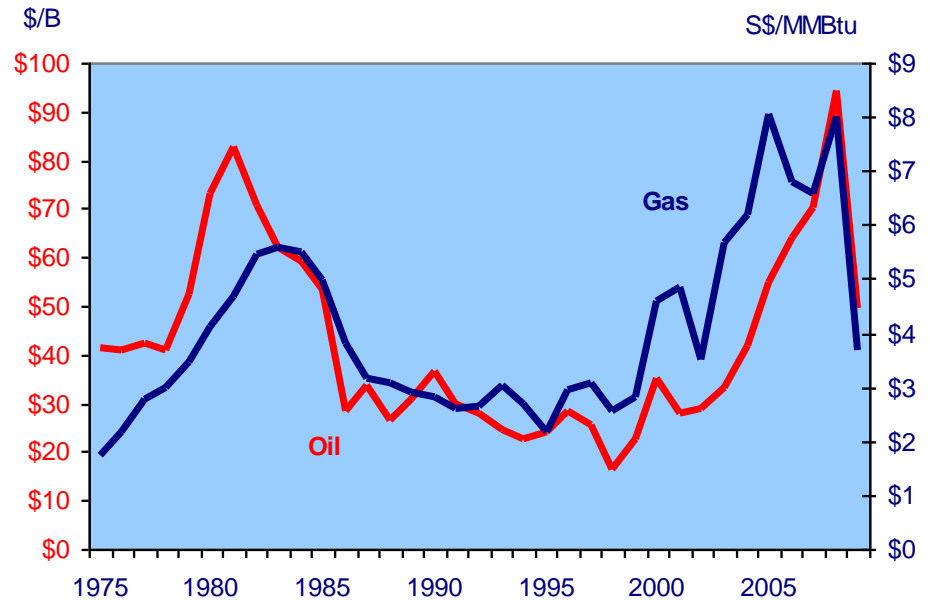
Theme: Energy Markets are Highly Cyclical

- **Positive Economic Signs**
 - Consumer sentiment is improving
 - Transfer payments are holding up disposable income
 - Manufacturing inventories are low
 - Stimulus spending peaks in 2nd half of 2009
 - Increasing credit availability due to massive injections of liquidity by the FED
 - Equities and home prices may have bottomed
 - China's economic signals are more positive
- **Signal that An Energy Market Inflection Point might be Occurring**
 - A few forecasts are beginning to show energy demand growth by year end
 - Oil & natural gas supply growth is decelerating, possibly declining
 - The oil & natural gas storage surplus might be peaking
- **Equity/commodity markets tend to be a 6 month leading indicator**
 - Does another "inventory cycle" loom?

Inventory Cycles for **Oil** and Gas

- Rapid demand growth strains available supply
- Higher prices needed to ration demand
- High prices promote investment in new capacity and speculators rush in
- Higher prices lower demand just when new supply arrives
- Lower price required to shut in production
- Lower prices stimulate demand, but discourage supply investment
- And.....
- **Is this a change in the long cycle, similar to the early 1980s, or another mini cycle?**

REAL (\$09) OIL (RAC) & GAS (Wellhead)

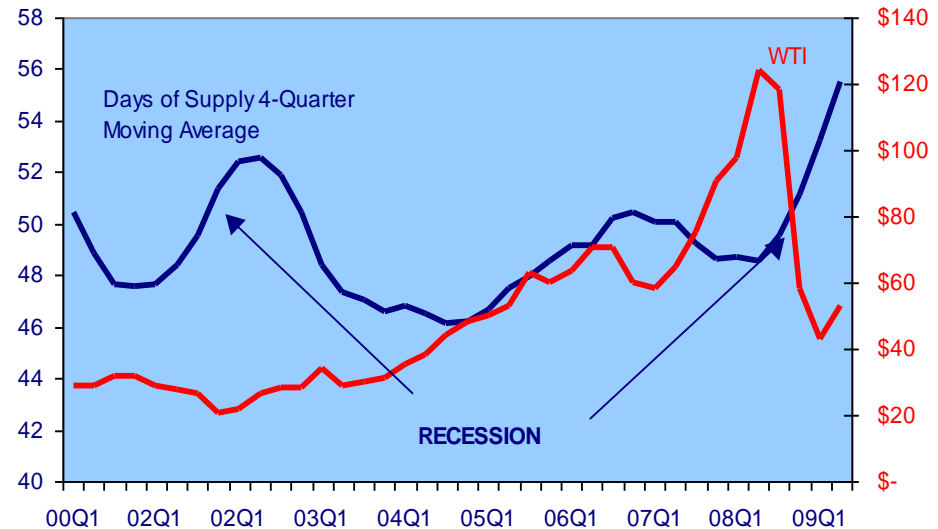


Source: EIA (STEO)

Small Demand Changes = Large Stock Changes

- US crude stocks are off the chart
 - Induced by record contango
 - Refinery runs near decade low as product demand plummets
 - Inelastic crude production
 - Days-supply of crude/products close to a 20-year high
- OECD days-supply over 62 days, an unprecedented level
- Stocks at sea ~100 MMB
- Working off the glut will take time—higher demand and/or lower supply

US OIL STOCKS (Days Supply) & WTI (\$/B)

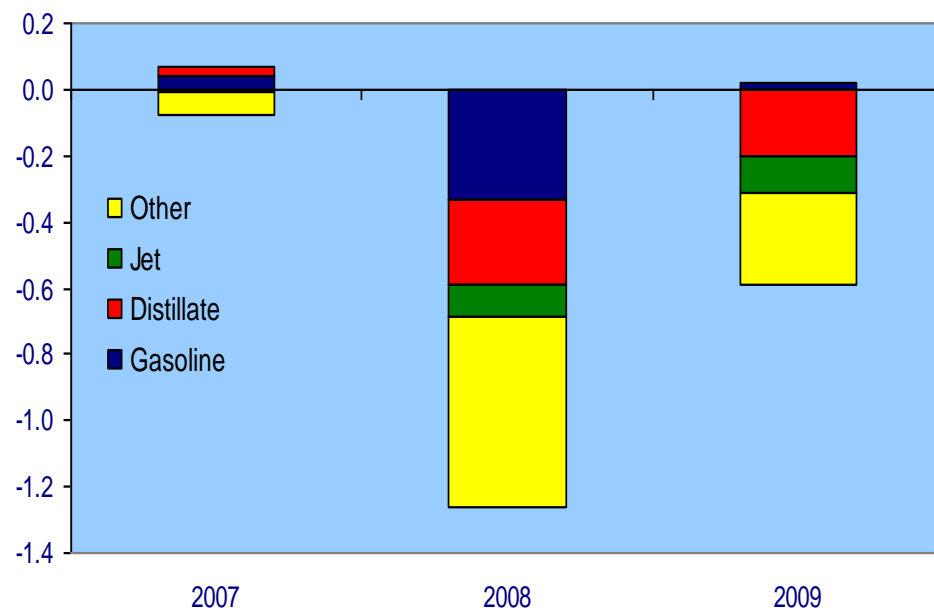


Source: EIA (STEO)

Working off the Glut: A US Demand Perspective

- Negative income (GDP) effects
 - US GDP down 6.1% in Q1
 - Q2 effects from the flu pandemic & Chrysler bankruptcy
 - Transport fuel use has plunged as did feedstock use
 - 2009 demand the lowest in 12 years
- Positive effects
 - Lower prices might spur US gasoline demand growth
 - Low inventories of manufactured goods portend a turnaround
- **Key Signal: Industrial production grows and distillate & feedstock balances tighten**

US PRODUCT DEMAND CHANGES – MMB/D

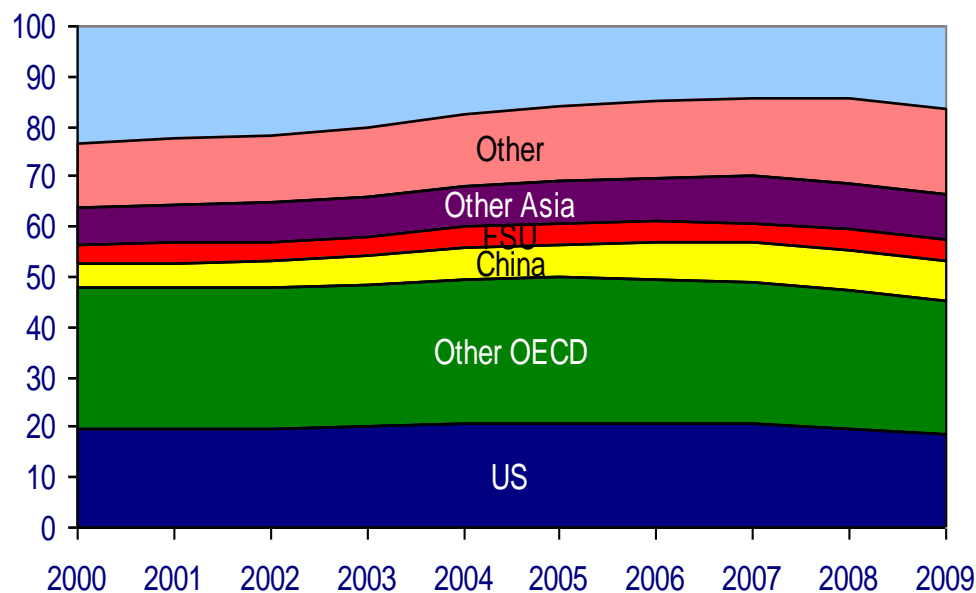


Source: EIA (STEO)

World Oil Demand – Starting from a Lower Level

- Regressed five years, or longer
 - 2009 world oil demand is down 1.9-2.6 MMB/D from 2008 and the lowest since 2004
 - OECD oil demand could be the lowest since 1994
 - FSU demand is following the OECD
- Asia cannot offset west in 2009
 - China looking at the smallest demand growth in 2 decades
 - Asia and other developing countries should rebound by 2010
- Social/economic changes & carbon legislation might cut OECD oil demand beyond the recession?

WORLD OIL DEMAND – MMB/D

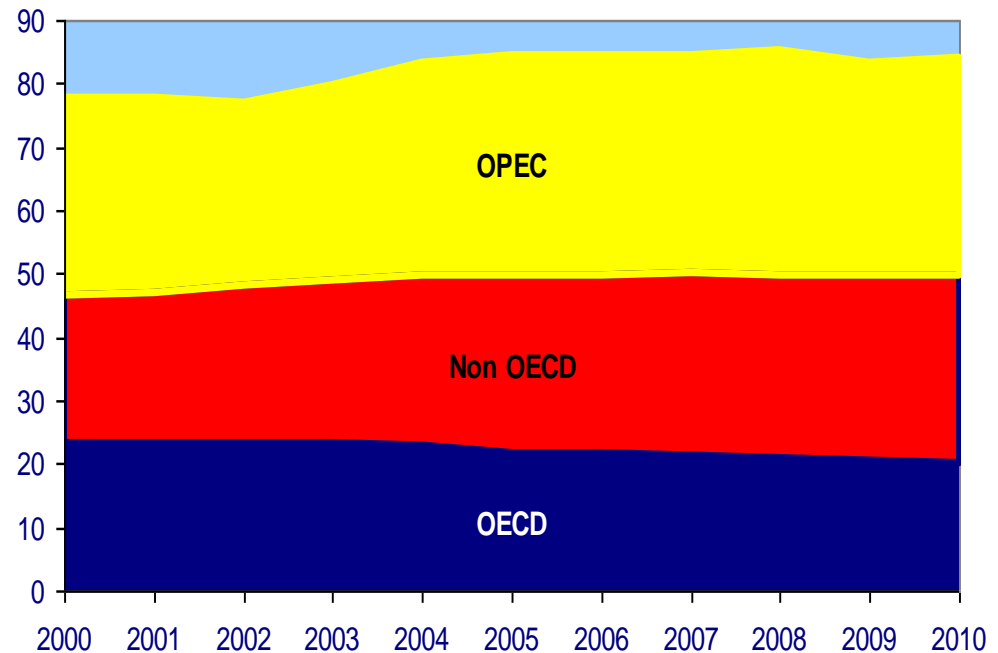


Source: EIA (STEO)

Working off the Oil Glut: A Supply Perspective

- **Less Investment in 2009-10**
 - Independents lead cut backs
 - Less EOR spending
 - Bio fuel investment slowing
 - Change in emphasis to non conventional liquids
 - Canadian oil sands expenditures slow
- **Proactive OPEC, only to a point**
 - Cuts post Sep-08 were too small and too late
 - Little stomach for more cuts and less revenue for new production
 - May 28 meeting, a non event
- **2009-10 likely to see flat-to-declining non OPEC oil output—could continue beyond 2010**

WORLD OIL SUPPLY – MMB/D



Source: EIA (STEO)

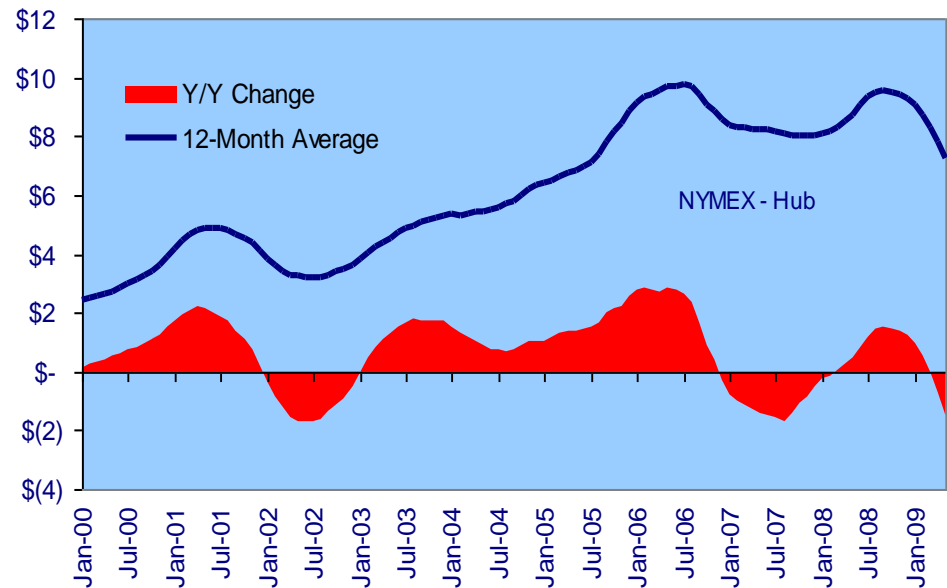
Watching the Oil Market Drivers

- Leading Indicators
 - Trends in inventory changes: Crude, Gasoline, Distillate...
 - Economic Data: Manufacturing, Imports, Exports, Freight Movements, Sales
 - Investor/Speculator Activity: Ratio of Long/Short, Open Interest
 - US Dollar: Versus Euro and other currencies
 - Inflation Trends: Monthly CPI/PPI, L-T Bond Yield, TIPS Yield
 - Weakening Contango – Moving towards Backwardation
 - Distillate demand and storage
- Coincident Indicators
 - NYMEX, ICE, etc.
- Lagging Indicators
 - Forecasts of oil demand, supply and price

US Gas: Looking for the Bottom

- 12-month strip is about 20% below the 2000-08 average
- Storage is heading for a new record peak
- US gas production continues to show Y/Y gains
- Surplus LNG is showing up at US terminals
- Gas intensive manufacturing continues to contract
- Coal fighting to hold onto marketshare
- **Good or bad? Depends if you are a producer or consumer**

US GAS PRICE CYCLES - NYMEX HUB

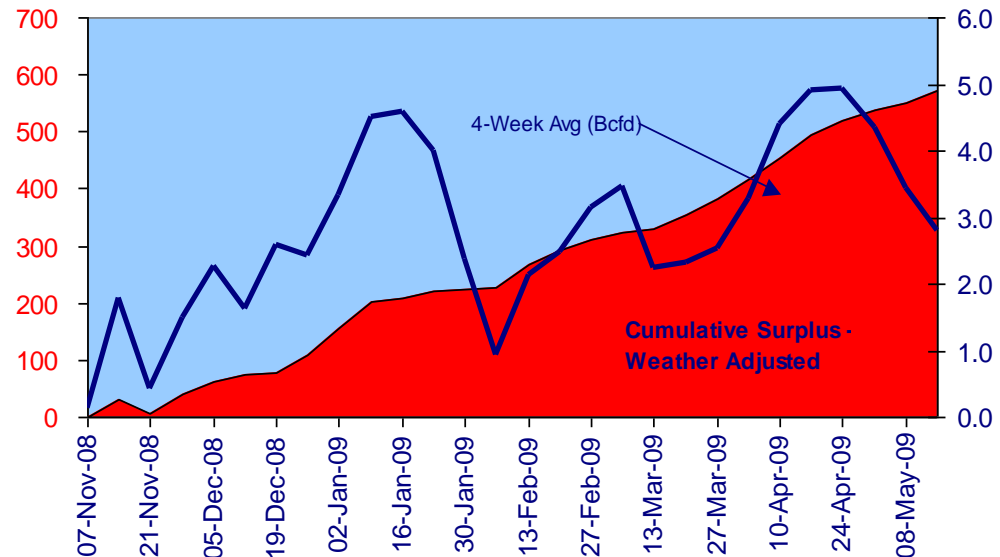


Source: DTN

Surplus Has Not Stopped Growing

- DD-Storage models show a structural surplus averaging 3.0 Bcfd since 11/1
- Storage is about **570 Bcf** higher than the weather adjusted 5-yr. avg.
- The weekly surpluses have been choppy, with the past 4 weeks declining from a peak of 5.0 Bcfd
- Take this same Imbalance to 10/31 and storage fills to 4000+ Bcf
- **Something Has to Give Because the EIA Estimates that Capacity is Only 3800-3900 Bcf**

WEATHER ADJUSTED SURPLUS vs 5-YR AVG.

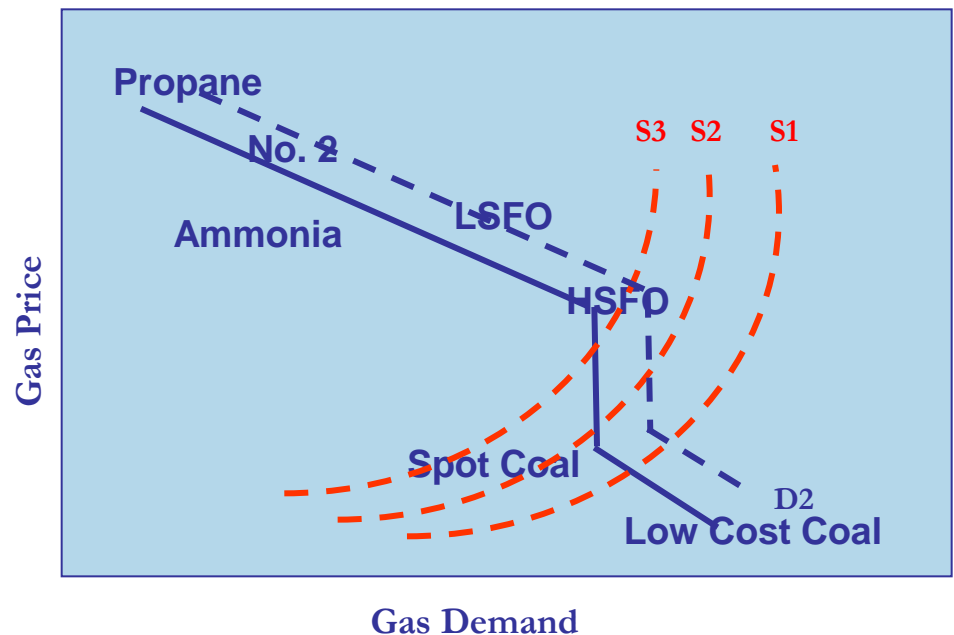


Source: EIA & SENA

Minimal Price Elasticity this Summer

- Except for Jan-Feb gas has been capturing all oil switchable loads
- Summer gas might capture some coal loads, but
- 12-month average electricity generation is 2.5% lower than 2008
- Industrial gas demand is at its lowest rate in 20 years
- Households are reducing use intensity (demand/GWHDD)
- Lower gas prices will do little to raise summer gas demand

NOTIONAL GAS DEMAND-SUPPLY CURVES

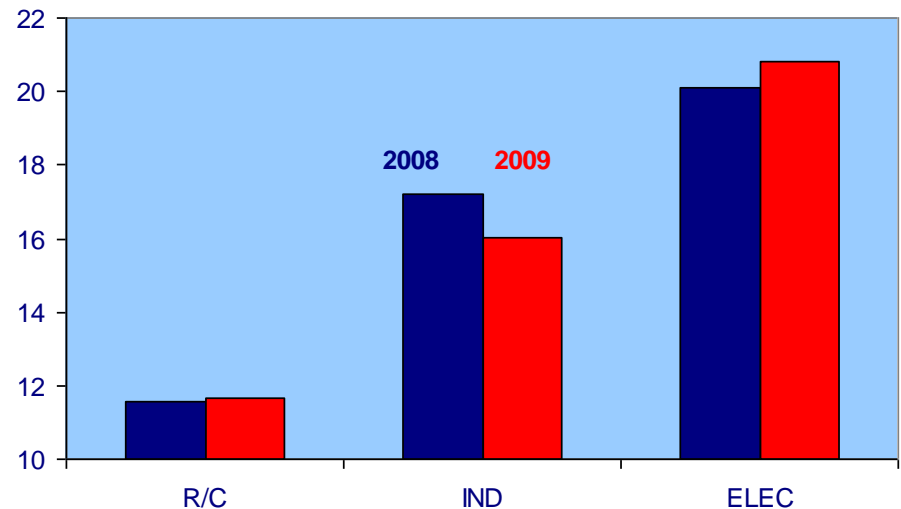


Source: SENA

Summer Gas Use: It Needs to be Very Hot

- Apr-Oct gas demand projected to be nearly 1% below 2008—an inventory impact of about 75 Bcf
- Industrial gas use projected to fall 7% if US economy bottoms in Q3
- Electric generation gas use rises 3.5% because of some gas for coal switching
- A 10% hotter summer only adds about 100 Bcf to demand
- **Don't look for demand growth to offset the supply surplus this summer**

US SUMMER GAS DEMAND (Bcfd)

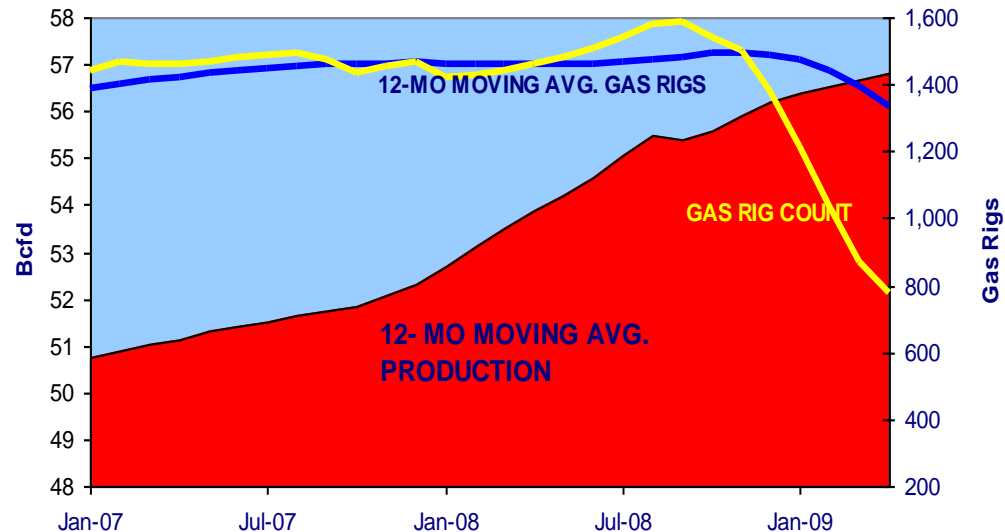


Source: EIA

How Elastic is US Gas Production?

- Gas drilling has dropped like a rock
- But gas production is still growing
- New pipelines are connecting well completed in 2008
- Producers are high-grading and B-E costs are down
- Production declines will show up eventually
- Will the declines come before storage reaches capacity?

US GAS PRODUCTION & DRILLING

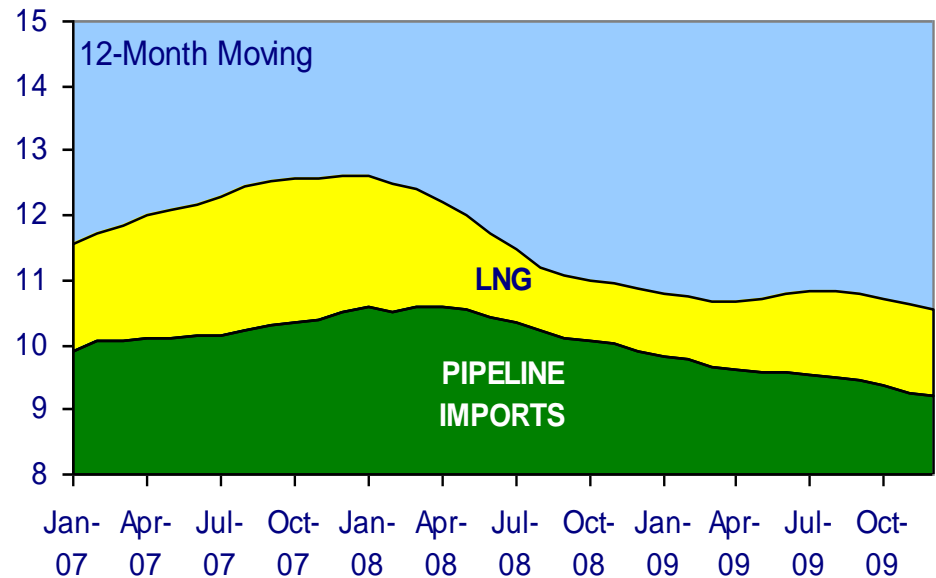


Source: EIA & Baker-Hughes

Gas Imports: A Solution or Problem

- Canadian gas exports to the US are slumping
 - ❑ Past year has seen the lowest total since the early 1990s
 - ❑ Production has declined post 2007
 - ❑ Oil sands and power generation demand is growing
- LNG imports are projected to jump in 2009 due to
 - ❑ Weak Asian/European LNG demand
 - ❑ About 4 Bcfd of new liquefaction capacity
- **Through the Fall LNG growth should offset Canadian declines**

US PIPELINE & LNG IMPORTS (Bcfd)

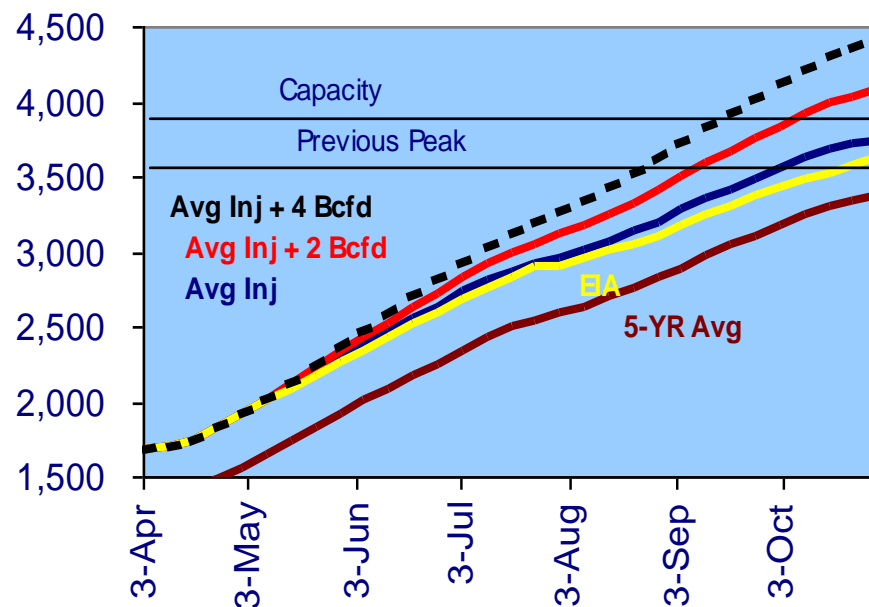


Source: EIA

Washington (DC) Has the Answer

- Inflation for Gas Demand
 - Summer gas consumption is forecast to fall about 0.4 Bcfd
 - Summer “unaccounted for” gas is up about 1.5 Bcfd
 - Apparent Demand rises 1.1 Bcfd, or about 235 Bcf vs 2008
- Deflation for Gas Supply
 - Summer gas production is forecast to be about flat to 2008, down 1.7 Bcfd from 09Q1
 - Net imports are about flat, with Canada down and LNG up
- A Balanced Supply-Demand Budget
 - Storage injections are down 1.0 Bcfd from 2008
 - October 31 storage only hits 3621 Bcf

WORKING GAS SCENARIOS (Bcf)



Source: EIA & SENA

Gas: Summer-Fall Take-Aways

- Gas demand growth is unlikely to balance the market
- Gas demand is price inelastic for now, but not GDP inelastic
- Hotter summer and hurricane shut-ins are wild cards
- Surplus LNG will come to the US as long as storage isn't full
- Strong odds for a record high storage level by 31-October
- There are lags between gas prices, drilling and production
- Producers are more efficient and drilling costs are lower
- US gas production is more price elastic
- **Less price volatility due to elastic supply and LNG availability**

