

Prospects for Energy Integration in the GCC

An Analysis of the GCC Energy Sector

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Main Discussion Points

- GCC Energy Sector Overview
- GCC Energy Crisis: Power and Natural Gas
- Sustained Analysis of the Crisis
- Posited Solutions
- Future Outlooks:
 - Islamic Project Finance: A Growth Field
 - Increasing Share for GCC Banks in Project Finance



Overview of the GCC Energy

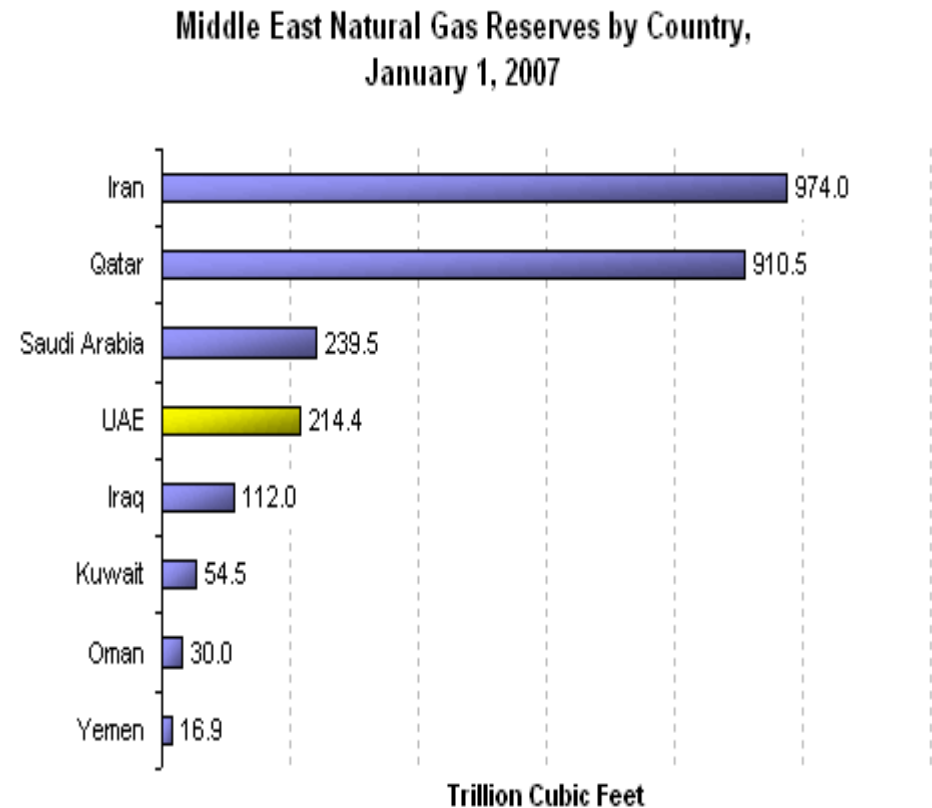
Sector:

Statistics

- **Oil-The GCC is home to nearly 45% of the world's proven oil reserves**
 - It produces about 15 million barrels per day (b/pd) for the international market, due to drop in oil price, OPEC made substantial production cuts to shore up price. (i.e. approximately 4 million b/pd in cuts)
 - =1,000 Billion barrels of proven oil reserves
- **Natural Gas-The GCC Accounts for 25% of the World's gas reserves**
 - But the GCC's share of world gas consumption is rising rapidly, primarily by rising consumer and industrial demand.
 - The region is experiencing an extreme "gas shortage" that may impact its economic growth.
- **Renewables-**
 - Solar (CSP)
 - Renewable Energy Technology
 - Carbon Capture Storage

Overview of the GCC Energy Sector: Statistics Part Two

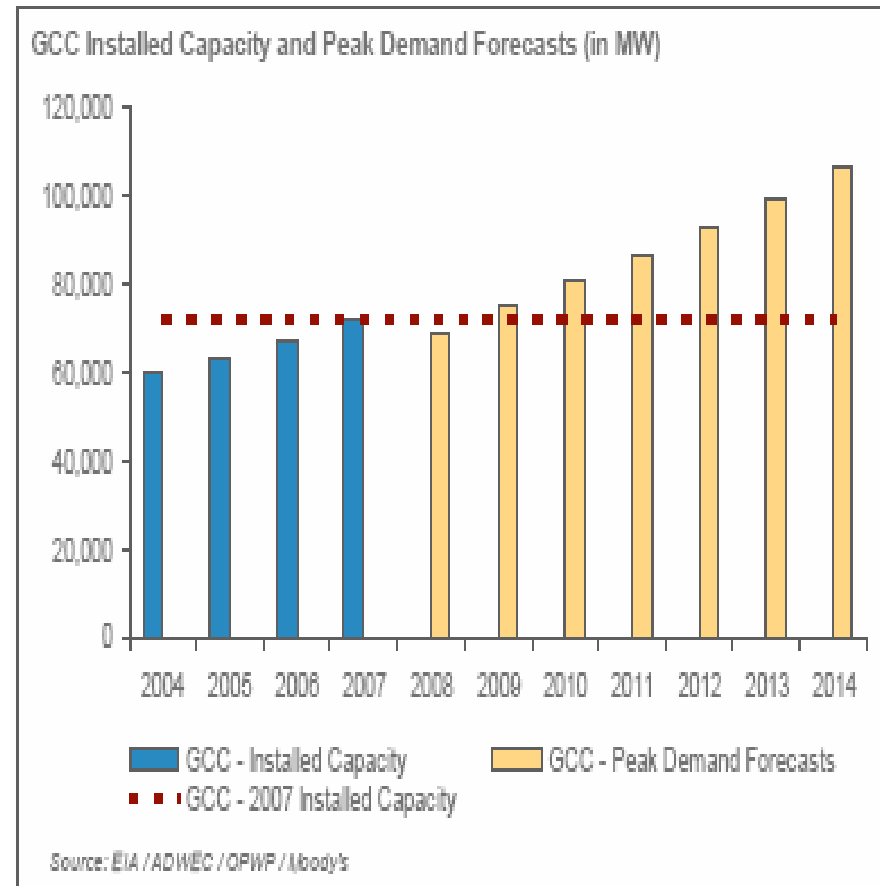
- **Arabian Gulf Region home to some of the largest natural gas reserves**
 - Iran-974 tcf (World's Second Largest)
 - Qatar 910 tcf –World's #1 LNG exporter (World's third largest)
 - Saudi Arabia 239 tcf (world's fourth largest)
 - UAE 214 tcf (world's fifth largest)



Source: Oil & Gas Journal, Jan. 1, 2007

The Energy Crisis

- The Electricity Sector
 - GCC will need to add 60 gigawatts (GW) of additional power between 2009-2015, which represents 80% of current capacity.
 - Outside of the Dolphin Project-Little Intra-GCC gas trade. Qatar ships more gas to Asia than Kuwait.
 - Demand Growth has been at 8% to 9% a year.
 - The fastest rate of growth in the world
 - The GCC members have pledged up to \$100 bn investment in the power generation sector for the next several years



Natural Gas Crunch

- Entire region is experiencing an extreme gas shortage-natural gas is used for power generation
 - Kuwait has experienced crippling blackouts
 - Saudi Arabia announced a moratorium on all new gas fired plants (new demand met by oil or heavy fuel)
 - Oman restricted its LNG exports to make up its domestic gas demand
 - UAE faced a major gas deficit of 1 bn cf/d in 2007-Northern emirates have electricity and water (desalination) shortages as a result



The Drivers of Gas Demand

- The sustained oil price boom from 2001-2008 significantly increased economic expansion GCC-wide.
- Increase in oil revenue led to a corresponding increase in economic expansion via major industrial projects.
- Official government focus on economic diversification by industrialization and rapid increases in population (sheer numbers and real estate development) put increased upward pressure on gas demand.
- Most electricity generation is produced by gas
- The increase in oil prices-due to linkage- and region-wide gas shortage put enormous pressure on gas prices.
 - “Gas Bubble” created in GCC: Increased use of natural gas, consumer, power and industrial + low economic incentive for IOCs/NOCs for E&P= increased chasm between demand and supply
- GCC Gas demand is set to grow at 6.6% per annum, nearly twice than the rate for oil demand (2.9%)

The Whys:

- The Secular “Truths” about the GCC Gas Sector: Little Prospect for Additional Supply Online Soon
 - Biggest Suppliers will not come to rescue
 - Qatar has Moratorium on additional supplies from the gigantic North Field until a field feasibility report concluded, perhaps until 2012. Qatar feels that its production may be overextended.
 - UAE gas is “sour” and “tight” making its E&P complex
 - Iraq as a potential supplier has too many complexities
 - Iran is facing many multifaceted problems:
 - Sanctions regime scaring off potential investors
 - Facing its own problem supplying the domestic market: too much demand, too little supply. 2nd largest gas supplies in world, but must import gas from Turkmenistan. Iran had two major supply disruptions during winter, which led to disaster in the cold North.
 - Pricing disputes with potential customers (i.e. Salman field)

Crux of Gas Shortage

Administrative Prices tend to add disincentives to gas production.

Average gas cost for development projects hovers around \$4/MMbtu. Long term regional contracts rarely break out of \$1.50/MMbtu

Some market evolution, some short-term bridge contracts have reached \$5/MMbtu, i.e. Dolphin bridge supply and Crescent-Iran bid.

2007 DOMESTIC PERSIAN GULF FEEDSTOCK PRICES

Country	Price, \$/MMbtu
Egypt	1.19
Iran	0.35
Oman	0.90
Qatar	0.87
Saudi Arabia	0.75
UAE	0.75

Source: Natural Gas Market Review 2007

GCC Strategies to cope

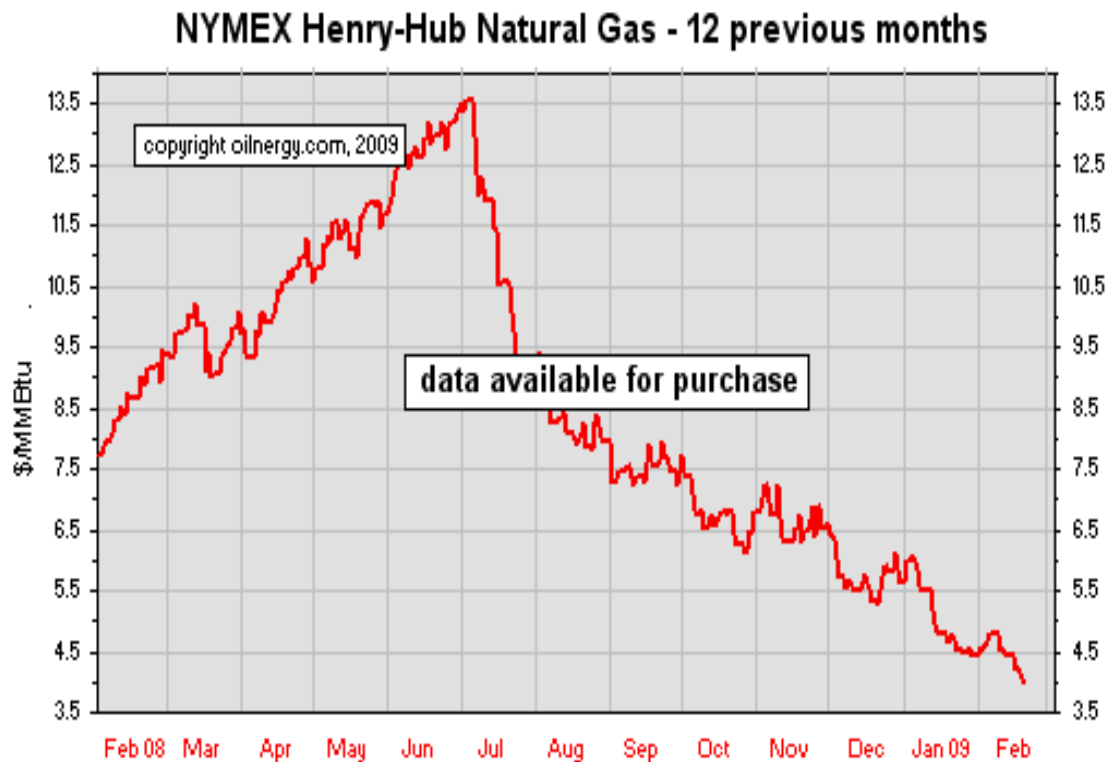
- Renewable energy
- Nuclear energy
- Oil fuel
- Conservation Campaigns (i.e. UAE Heroes)
- Coal (Dubai planning 4 coal fired plants)
- Natural Gas Imports (i.e. Dolphin)
- GCC Interconnection Project

What is needed?

- Minor Price Liberalization necessary to make E&P attractive
- Development of GCC Gas “Price”
 - Perhaps around \$5/MMbtu consistently, even better around \$7/MMbtu
 - With a higher price, the “*true*” demand of gas will be known
 - Highest price in region was offered by Crescent for Iran gas exports, but negotiations are still stalled.
- Financial Crisis may upend all the pronouncements by driving down rapid economic expansion, but unlikely to have a major impact, as many of the drivers are structural, and relatively independent of fluctuations.

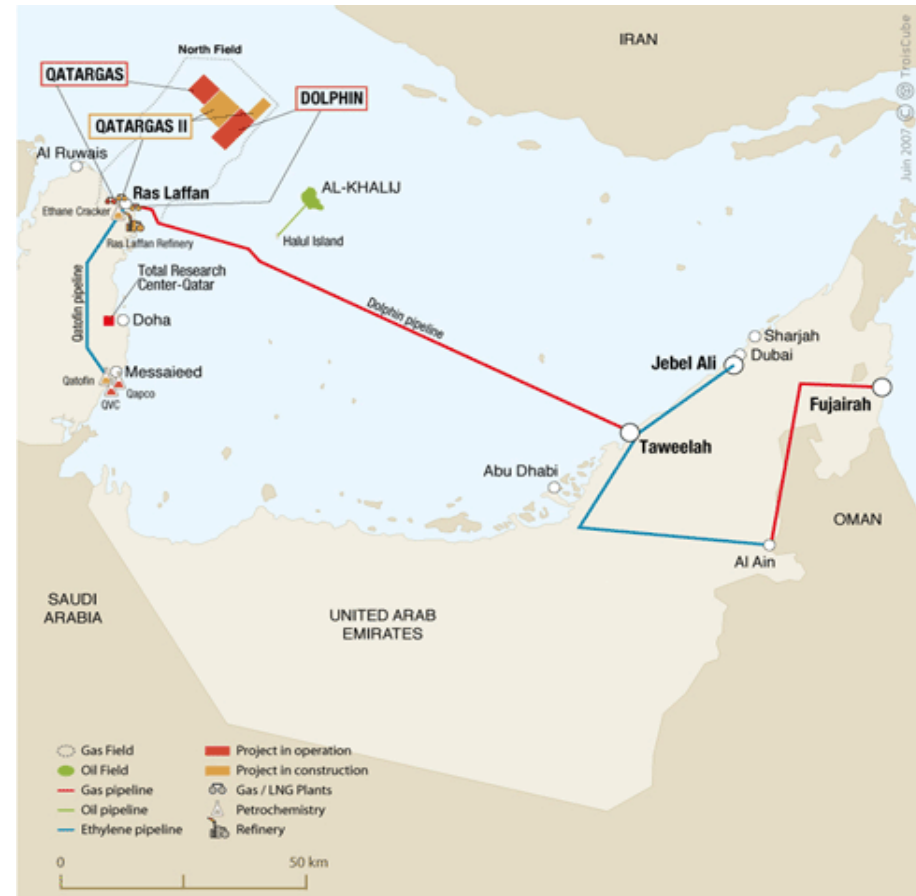
Henry Hub Natural Gas Price Index

- Sustained drop in Natural gas prices Feb. 2009 \$4.40 (avg)
- The drop in gas price should make accord easier between consumer price and producer price.



Strategies to Cope part One: Gas Import

- Dolphin Project \$10 Billion Project that successfully transports gas from Qatar's North Field to UAE and Oman
- Phase One export 2 bn cf/d out of total capacity of 3.2 bn. First successful instance of intra-Gulf gas sales
- Drastically boost Intra-GCC trade.
- Any further expansion will depend on price agreement
- Dolphin took off much of the pressure, but more energy is needed.



Strategies to Cope: Part Two: The Arab GCC Interconnection Project (GCCIP)



GCC Interconnection Project cont.

- Responsible for linking the power systems of all GCC nations, and possibly Yemen. Phase one to be completed early 2009.
- Increase efficiency throughout the overall system and save billions of \$\$\$ by sharing reserve capacity, thus avoiding redundancy.
- Each GCC member investing billions of dollars into boosting domestic capacity.

Wheeling vs. Imports

- With the advent of the GCC IP many of the issues inherent with the importation of natural gas (i.e. pricing, maritime boundaries, etc.) are forestalled
- Wheeling is the technical term of transporting the electricity from local grids for use in another area.
 - With the use of smart grid (smart meters), the electrical demand of the system can be monitored accurately.
- Both import and wheeling may be used in conjunction to buttress the energy system and ‘deepen” the trends of energy integration.

Financial Crisis=Unparalleled Opportunity



危機

Danger

Opportunity

- The financial crisis brings significant opportunity for the region to deepen energy integration and increase scope of energy projects.
- GCC has about \$3 trillion tied up in overall infrastructure projects, and at least 10% are in trouble due to credit illiquidity.
- In terms of energy projects, MENA region has \$650bn, while the actual projects to be carried out are \$520 bn. A drop of \$130 bn, accounted for by Saudi Arabia, Qatar, Iran, UAE, Algeria, Egypt and Libya.
- But project delay now affords potential to take advantage of lower project costs.
 - Due to decline in construction costs, i.e. raw materials and contractors' costs.
 - Even though the NOCs have liquidity, contractors may find financing tight.
 - Drop in commodities across the board, oil, as well as industrial raw materials.

Oil



vs. Gas



- Gas projects have been continuing, with new projects announced.
 - Conoco-Phillips and Adnoc moving ahead on AD big shah gas field
 - Aramco appointed Khalid al-Falih as CEO, may be SA is placing long term strategic emphasis on gas development
 - Shell looking at capturing flared gas in southern Iraq for sale.
- While oil export projects are slowing down around the region
 - Falling oil price is curtailing investment in most upgrading projects.
 - i.e. SA and Kuwait delayed capacity increases from Khafji joint field.

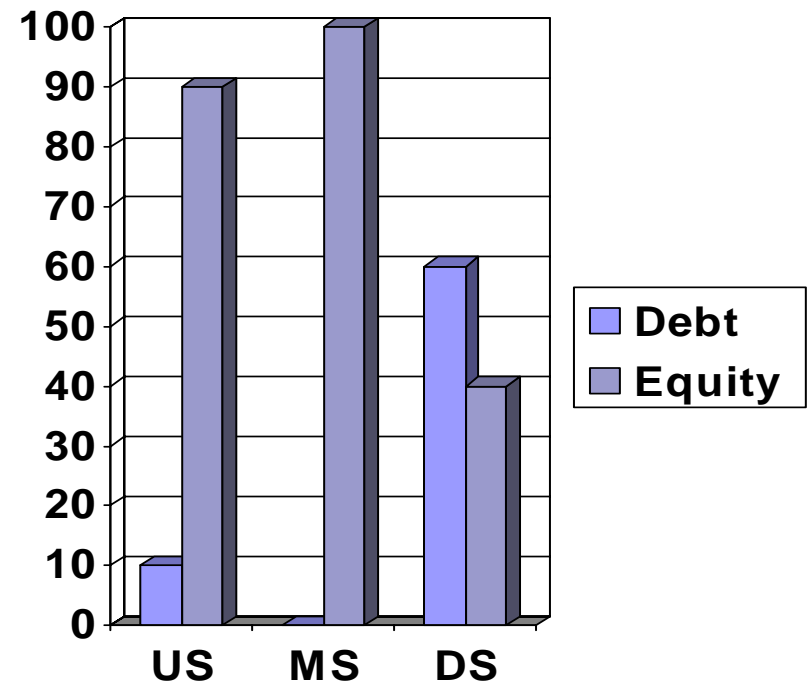
Funding Gas Production



- Investments in gas sector are met generally in one of three ways:
 - Internal Resources derived from the national oil company (NOC) or international oil company (IOC)
Equity=retained earnings
 - Investments from the international capital markets (such as Qatar's LNG projects)=debt investment
 - Occasionally from Foreign Direct Investment

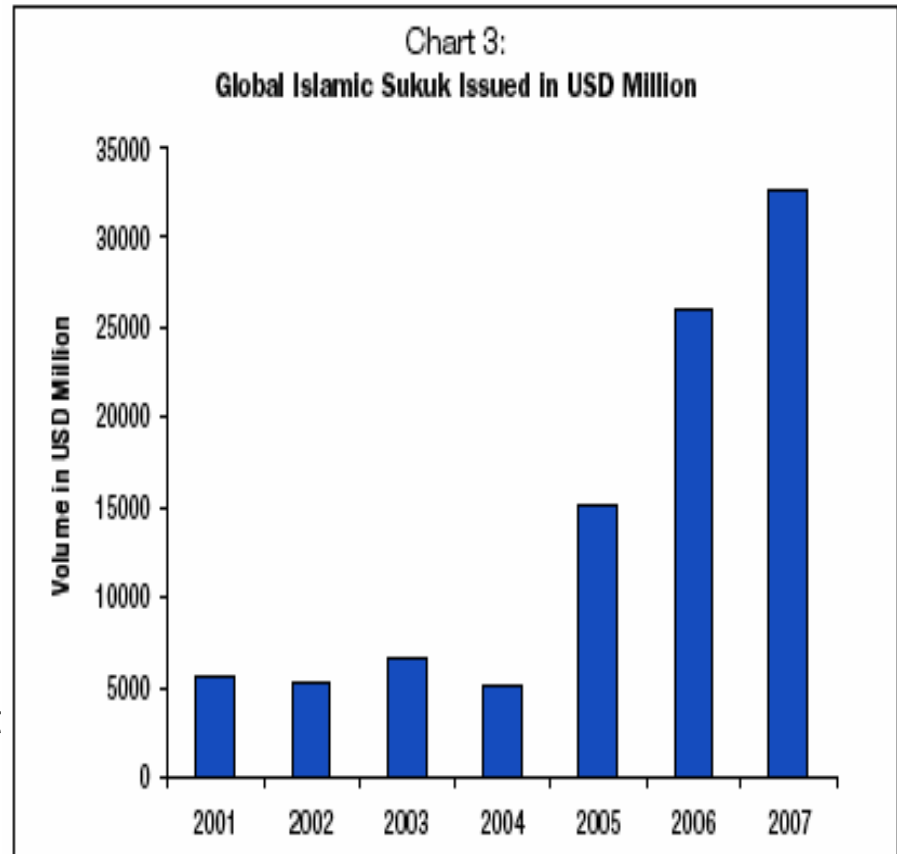
Debt/Equity Ratio of Gas Projects

- Generally, energy industry taps internal equity (retained earnings) to fund the highly risky, but more profitable upstream and midstream activities
- But, relies more on debt and external equity for less risky downstream activities-especially under project finance structures.
- Energy market will most likely transition to more debt financing in the up and mid stream, if oil prices remained depressed
- NOCs and IOCS will find their equity position increasingly hampered: LOW OIL PRICE=LESS FREE CASH
- But the current market environment is not positive on speculative projects. Still many ??? on debt financing for downstream.



The Silver Lining: Regional banks and Islamic Finance

- The energy sector needs \$48 bn of debt financing this year 2009, but this exceeds by 23% the all time record of \$39bn achieved in 2006 when the market was at the peak.
- This amount can't be met by the current market conditions.
- GCC banks can step in and leverage project finance with Islamic financial instruments (specifically *sukuk*)
- For 2008 nearly all GCC banks still made a profit: few Western banks were that fortunate.
- No reason for regional banks to be left with the “crumbs” of project financing (bridge loans or short term financing).



The Key



- The only way that Islamic finance will grab an increasing share of the oil and gas mega projects is if the GCC bankers:
 - Increase the size of the Islamic offerings
 - Add value by establishing differentiated products
 - Develop easy to understand value frameworks on how energy firms may incorporate the offerings.
- GCC governments need to standardize Islamic Financial Instruments region-wide, such as Saudi Arabia did with the 2006 Capital Markets Law to facilitate large scale O&G offerings.
- GCC Governments should marshal their fiscal stimulus plans around gas development
 - i.e. As King Abdullah's \$400 Billion Energy Infrastructure plan
 - A focus on moving up the value chain as well with high value petrochemical production.

One Word about WTO-Dual Pricing



- There is a potential challenge from Western petrochemical firms who allege that GCC firms are benefiting from “subsidized” (or hidden subsidies) gas pricing for internal market.
- Due to difference between domestic gas price and price of exported gas.
- Same issue Russia dealt with ascension talks for WTO-different price for domestic industrial consumers and for sale in Europe. EU alleged it was “energy dumping.”
- EU and US also wanted Saudi Arabia to reform its domestic gas price to its industrial users as well, in that it operated as an direct subsidy to its petrochemical sector which is in competition with the Western firms.
 - While energy has taken increased focus in WTO ascension talks (Russia and Saudi Arabia), other GCC countries may not have an actionable issue for price discrimination, as all industries are provided low price gas and feedstock, not only certain ones. But the potential is there for action to be brought.

Synopsis

- Due to the increasing gas needs regionally, GCC countries will have to invest more in GCC gas development.
- Gas can only be developed profitably if there is a “GCC price” that takes into account production cost, i.e. “sour” or “tight” gas.
 - Most likely \$5/MMbtu, best case \$7/MMbtu
- GCC countries are moving away from oil export projects, and towards developing natural gas production for regional (GCC) use.
- Due to the low oil price, equity financing of oil and gas projects will be diminished, and there will be more of a transition to debt financing on the international market.
- With the exception of Qatar, most of the gas is associated gas, thus, when oil production is cut (OPEC quotas) to strengthen price floor, gas production falls as well.
 - Either hold petroleum quotas firm, or explore more non-associated gas deposits.

Synopsis cont.

- Due to the international financial crisis, credit is basically frozen, energy companies will have to turn to regional banks.
- Regional GCC banks and SWFs (along with ECAs) are the few institutions with enough liquidity to fund major gas projects.
- There has been a sustained drop in commodities prices (i.e. steel and industrial material) and project construction costs (due to delays/cancellation of other major projects) now is the time to drastically expand natural gas production.
- Optimally, if the GCC countries can move beyond political disputes, a pan-GCC natural gas pipeline, should be constructed as well, to truly build an integrated energy system.
- GCC Governments should use their enormous fiscal stimulus plans to build the energy infrastructure needed now and for the future.
 - May have to provide sovereign guarantees to get the market churning.
- Islamic financial investments of large scale energy projects has increased significantly, and makes sense to meld with gas project finance
 - as lends to greater transparency (i.e. Enron)
 - Is asset based (not based on leveraged products)
 - Accords with the traditional social and cultural mores of the region.

Thank You for Your Attention

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