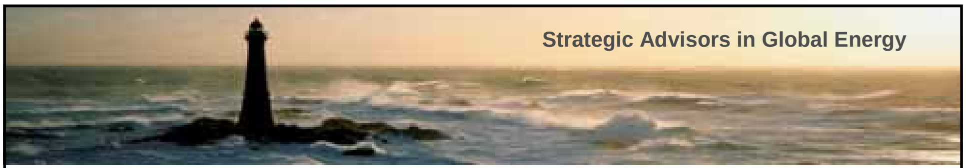


Global Forces Shaping the Outlook for the Oil & Gas Industry in Latin America & the Caribbean

Prepared for ARPEL
by Fareed Mohamedi, Partner and Head of Markets and Country Strategies

23 April 2009

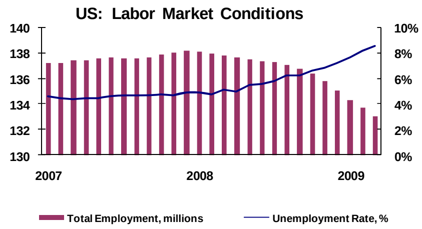
Executive Summary

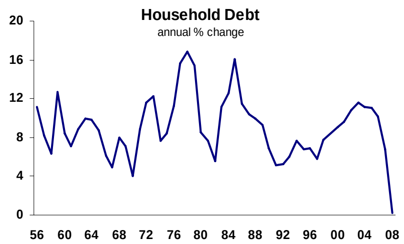
- The global economy is at a major point of transformation – the old system -- US consumes and China produces -- is unsustainable
- Historically, the declining power usually resists giving up control and the rising power usually is too cautious to assert a greater degree of control
- The global oil distribution system is changing reflecting the rise of China
- But without clear global leadership and the impending changes on the geopolitical level, energy insecurity has intensified
- Consumers fear the coming shortages and producers fear energy transformations that will diminish the need for oil
- Latin America will be profoundly affected by either of these changes but it will affect the regional states in different ways
- Certainly in the event of global shortages the major oil producers will benefit but will be vulnerable to more rapid consumer country responses away from oil
- Speeding up economic diversification, building effective state capacity and dependence on a more varied fuel mix will reduce the pain of adjustment

Global Economics

US economy consumers give up

- **Abundant evidence of radical change in behavior of US consumers:**
  - Retail sales, personal consumption are nose-diving
  - Rebounding savings rate
  - Household debt declined in third quarter 2008, first time since 1952
- **This has a direct bearing on steep falls in global manufacturing and exports**
  - Can the world economy find a substitute for US final demand?
  - Can the US economy adapt to a radically different growth model?

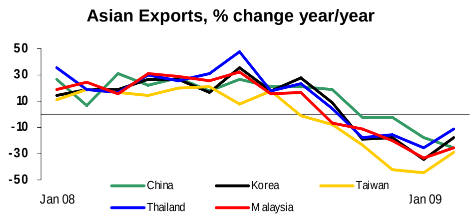




World Economy: Falling Off The Edge

Manufacturing, exports have plunged since September

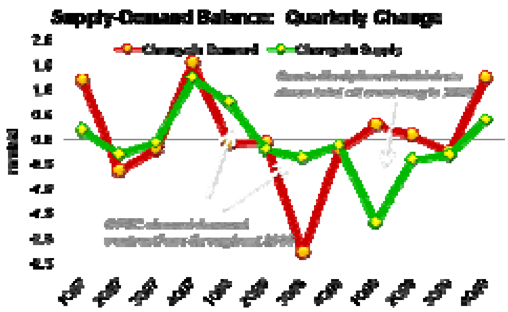
- **This is an inflection point, unusually hard to forecast**
- **First half of 2009 certain to see sharp falls in growth rates throughout the world**
- **De-stocking partly to blame—some signs this may be bottoming out**
- **Secondary impacts yet to come, especially from job losses**



Stimulus in US, China and elsewhere will help—but no recovery is possible without restoring the financial sector to health

OPEC Adjusts Supply-Demand Balances

Total oil inventories beginning to clear

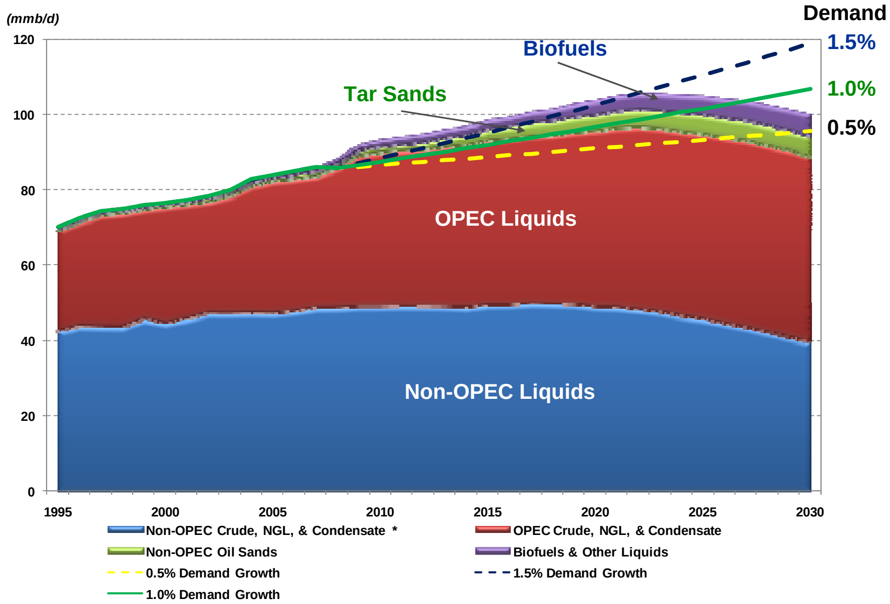


- Implementation of OPEC cuts should begin to register significant draws from commercial inventories in 2Q09
- Continued production at or just below current levels should bring OECD commercial inventories by year's end
- Though OPEC could elect to adopt a more aggressive posture—especially if economic woes intensify—the current stress on compliance should achieve aims without potentially threatening the global recovery

The Age of Energy Insecurity

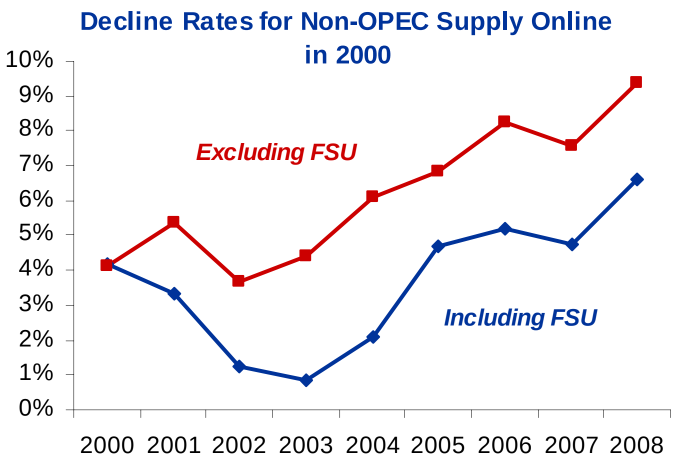
- Global energy insecurity: Is this still true?
- Destabilizing force in global economic and political relations:
  - Industrialized countries question the intentions and capabilities of the major resource holders
  - The competition for access to energy resources from the newly industrializing countries in Asia
  - The major resource holders question the sustainability of demand and the new obligations assigned to them
  - The populations of the major resource holders demand a greater share of the country's revenues
- Supply side risks to demand side risks: Is that permanent?
- Governance shifting from inside the sector to outside forces

Supply Crunch Still Exists But Has Now Become a Post-2020 Issue

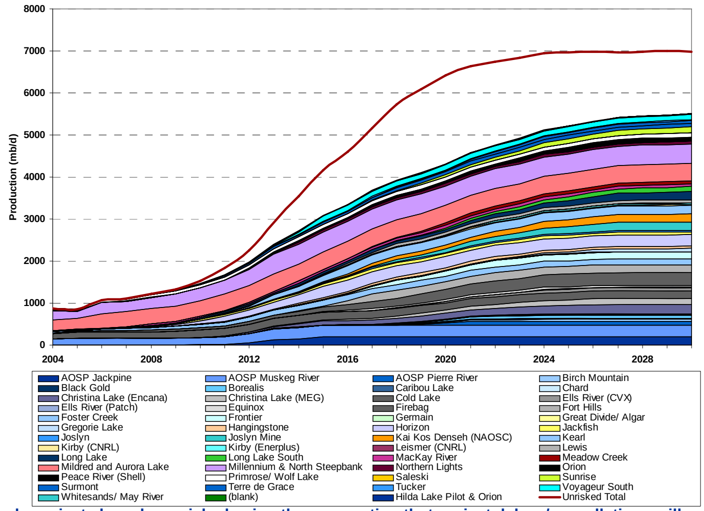


** Includes Refinery Gain*

High Prices could not Provide Enough Incentive to Arrest non-OPEC Decline Rates



High Cost Canadian Oil Sands will Be Delayed

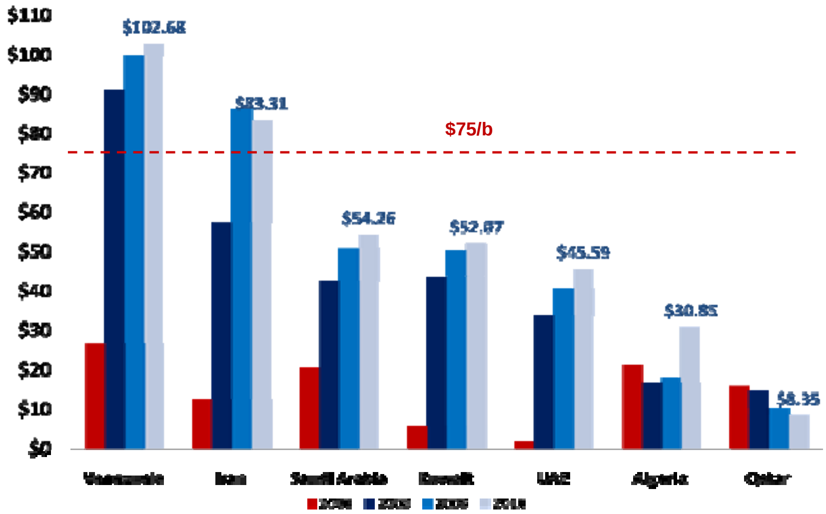


- All oil sands projects have been risked using the assumption that project delays/cancellations will accelerate in a low price environment.
- About 1.5 mmb/d of production capacity is lost by 2030.
- Risked every project by phase to determine potential delays (150 different phases) taking into account financial stress of smaller players;

OPEC Threshold Prices: Not Enough For Some

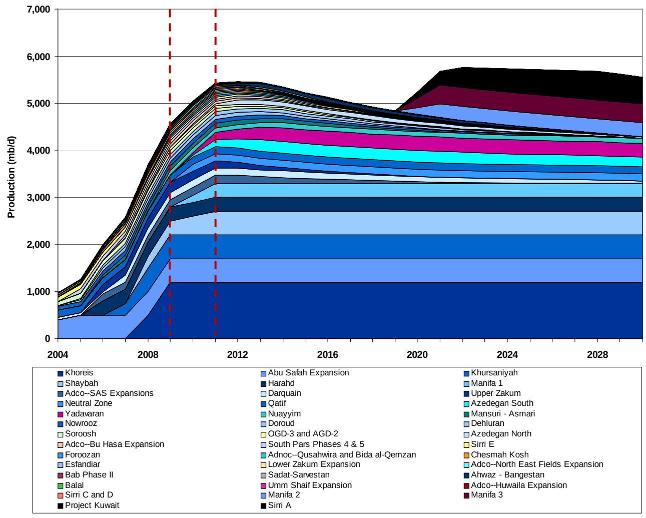
WTI $/b

Price Needed to Balance External Accounts mid-2008



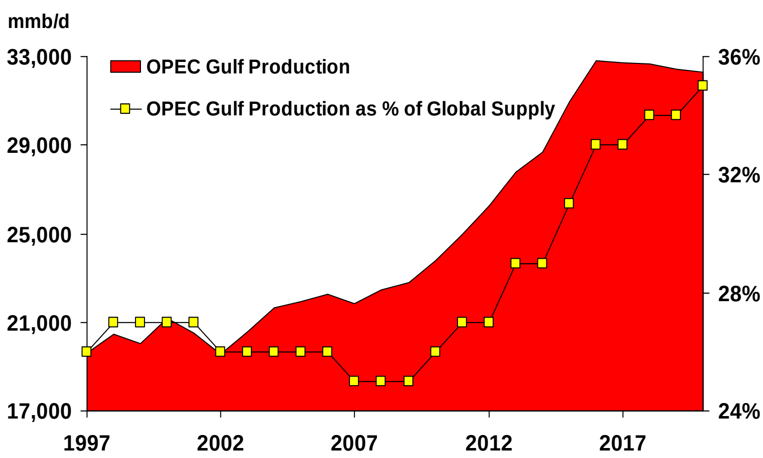
(Imports of Goods & Services – Non-oil Exports)/
Total volumes of Liquids Exports

New OPEC Supply is Coming: Capacity Expansions are Mostly Complete or Underway



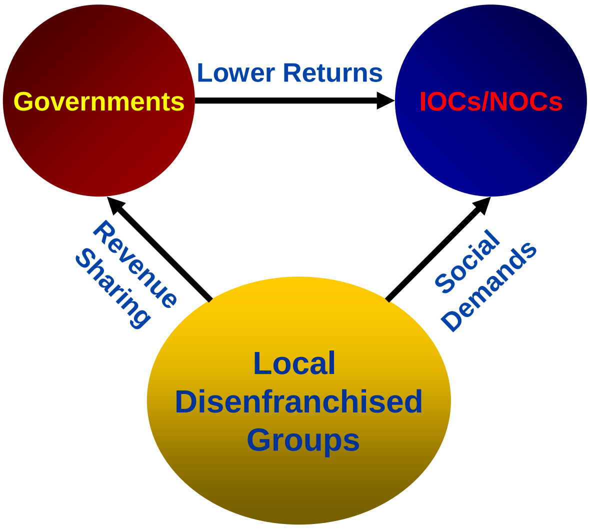
- **3.5 mmb/d of new capacity added from Saudi Arabia, Iran, and UAE over the last 5 years.**
- **Another 1 mmb/d will come onstream in the next 2 years.**
- **Only 3 discretionary projects that could be significantly delayed which equal only 1 mmb/d: Project Kuwait, Manifa 2, and Manifa 3.**

Long Term Worries: World Depends On The Gulf



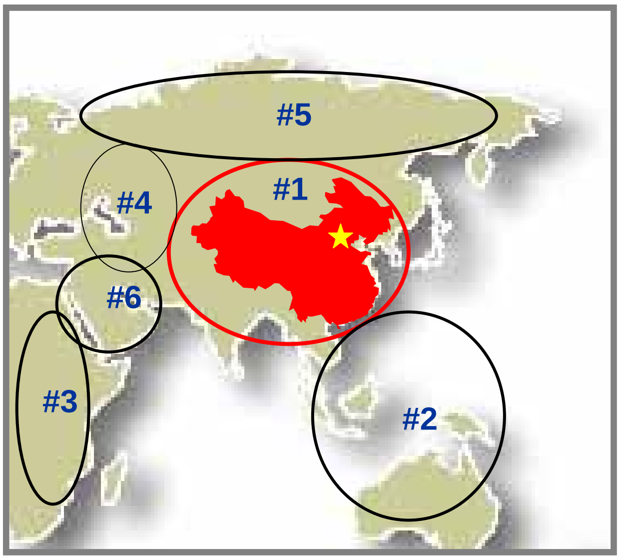
Pressures for National Distribution of Income

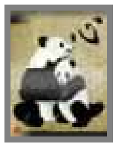
- Disenfranchised groups want their share
- They either capture the state or blackmail companies
- Can IOCs/NOCs be promoters of economic development?



China: Regional Oil Sourcing Preferences

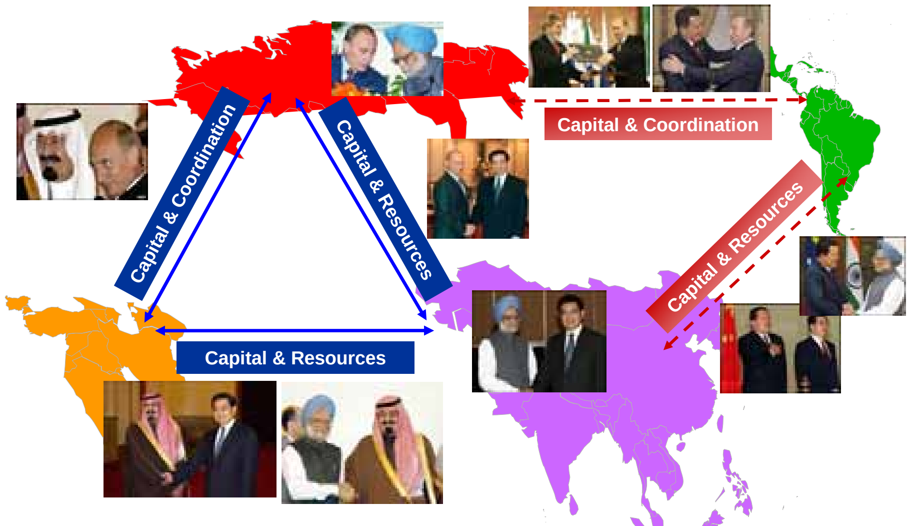
Dragon Zone (Local)





Panda Zone (Global)

The Emerging Energy Architecture



- Neo-Globalization requires a new energy architecture
- A number of multi-lateral efforts are already underway to this end

The United States & Latin America

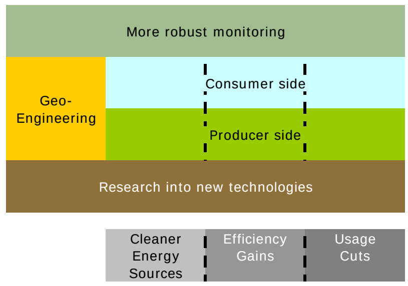
Dangers and Opportunities

- US President Barack Obama headed to Trinidad & Tobago committed to “re-set” and improve relations with Latin America
- Energy has become a critical issue of engagement, but it is narrowly focused on renewable energy, mitigating climate change and improving energy security
- Nonetheless, the multilateral energy agenda may be once again overshadowed by issues that preoccupy the US electorate—narco-trafficking, immigration and trade

Grass Root Changes: GHG Mitigation Policies

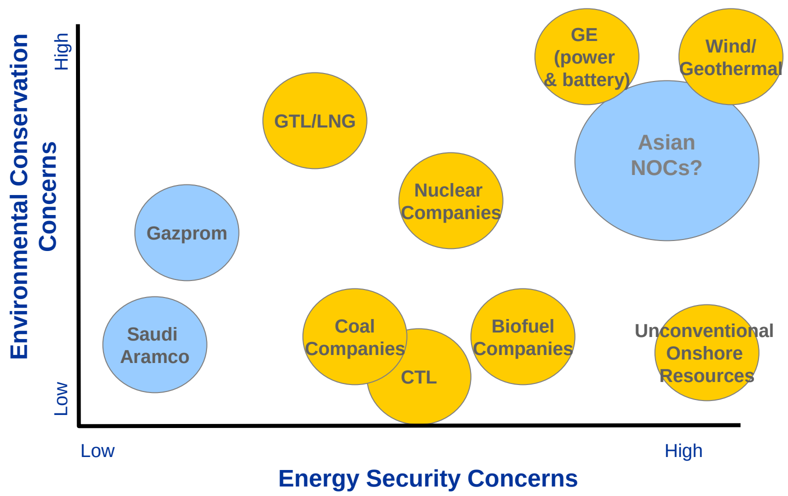
The California Experiment

- Interagency standardization of “green accounting”
- Improved inventory of emissions & sinks
- PIER project researching fuel cells & efficiency
- Green criteria for all state fund investments
- Lawsuits to improve CAFE standards
- Lawsuits to improve air quality standards
- Incentives for use of public transit
- W. Coast Governors’ Global Warming Initiative
- “Avoided cost” externalities utilities assessments
- Fuel economy mandates for all vehicles
- Carbon risk-based electricity licnesing
- Zero-emissions mandate for light vehicles
- Landfill methane collection
- Carbon storage by reforestation
- Carbon sequestration rice straw project
- Dairy manure to fuel conversion
- Energy savings for all public buildings
- Low-emission Vehicle & clean fuel mandates



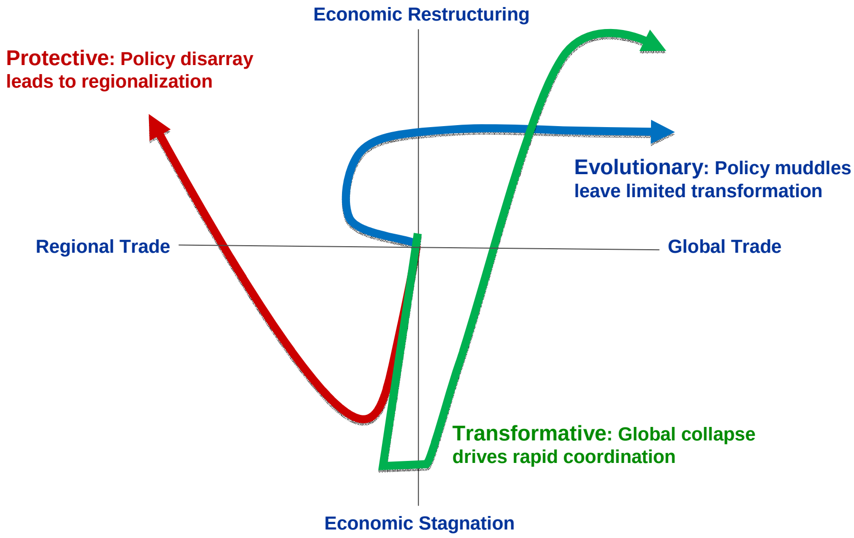
Both an attempt to identify policies that work and a recognition that many different approaches will be required.

Oil Era: Post-Oil Era 2010+ (Consumer Driven)

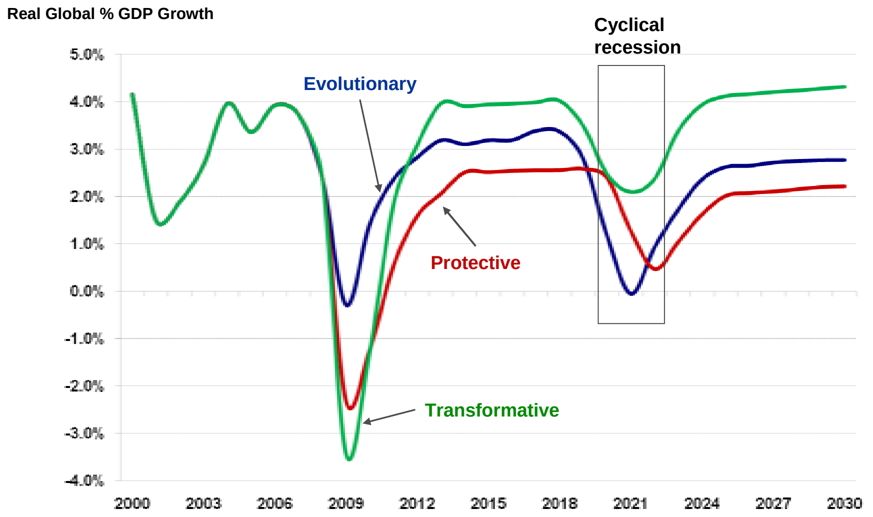


No one in control, but successful actors will be those who become “energy providers”

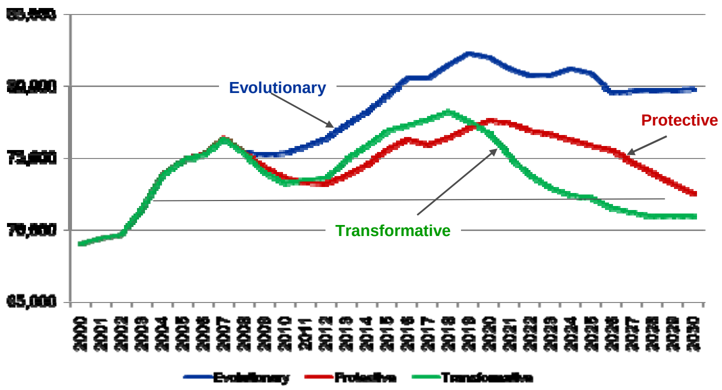
PFC Energy Long Term Scenarios



Global GDP Scenarios

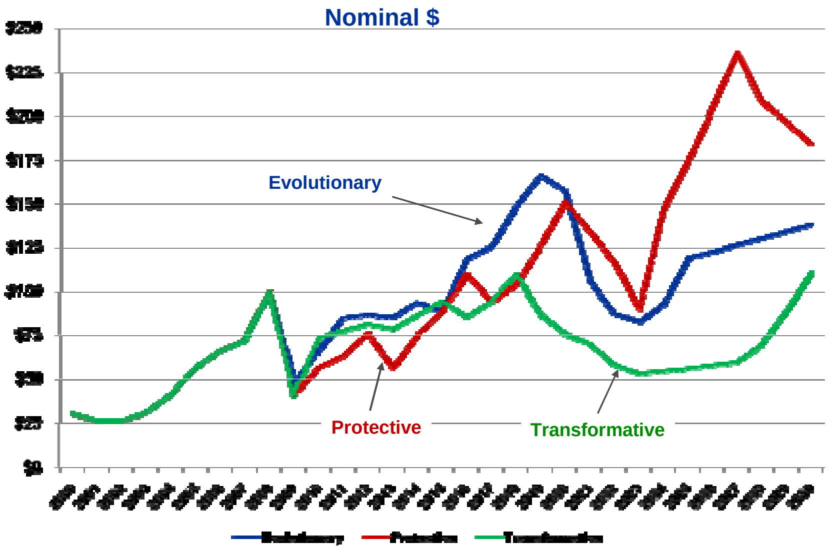


Global Refining Demand for Crude Returns to 2008 Levels by 2011 at the Earliest



- **Evolutionary**: Efficiencies and biofuels adoption are delayed, resulting in the highest demand for crude consumption
- **Protective**: Lower crude demand comes with lower economic activity, but energy security issues drive higher biofuels rates as well
- **Transformative**: Greatest government impulse for alternative energies as well as aggressive measures to curb demand

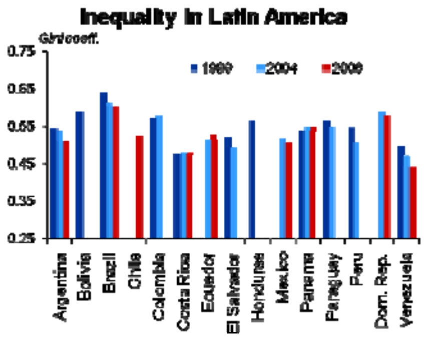
Oil Prices can be Managed close to $75/barrel by OPEC after Demand Recovers in 2010



Regional Summary

- Latin America has registered significant growth averaging 4.9% since the last global recession, but continues to be bogged down by persistent inequality and poverty
- Over the last decade, two camps—the Activists and the Gradualists—have emerged seeking to address the region's poor wealth distribution and to improve social welfare
- As part as of this response, the region has backed further industrialization and the energy sector often plays a critical role
- Indeed, Latin America is an energy powerhouse and in an era of "Energy Insecurity," this sector also provides the region with a strong geopolitical card
- While the recent global financial crisis is dampening economic growth in the region, much of Latin America is on substantially stronger fiscal footing to weather the slow-down
- But if an energy transformation takes place it will be vulnerable to falling oil revenues and being left out of the new global energy developments

Problems of Growth and Inequality



- Major approaches have evolved in recent years to address Latin America's structural problems, particularly inequality, poverty and longer term growth.

Latin America Tries A Variety of Models

Countries throughout the region recognize the shortcomings of an exclusively pro-market economic model and are adapting new ways to address them

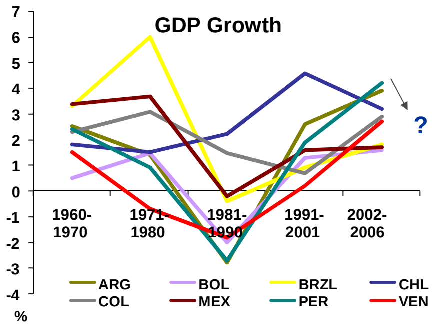
Activists

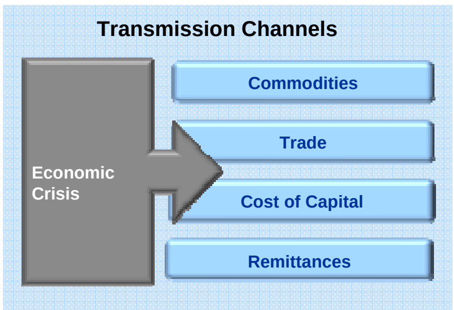
- Countries include Venezuela, Ecuador, Argentina and Bolivia
- Resource-rich with weak industrial bases and vulnerable to commodity busts
- Institutional experimentation
- Personalist administrations that tend to pursue divisive politics

Gradualists

- Countries include Brazil, Chile, Colombia and Mexico
- Centrist policy agenda that favors growth, but considers improved distribution to remedy inequality
- Political consensus over FDI that minimizes regulatory volatility
- More local state capacity and developed institutions to respond to resident concerns

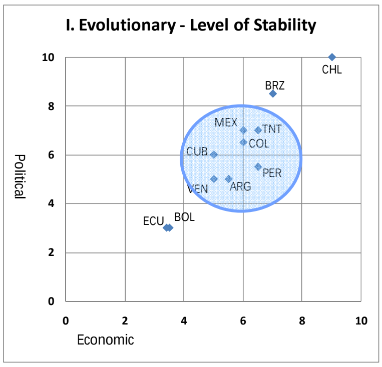
How Vulnerable Is Latin America?





- There are numerous transmission channels that impact Latin America, but the region is more resilient than in the past due to:
  - Tamed inflation
  - Fiscal prudence
  - Reduced external debt
- As a result, some countries are more resilient
- Some countries are likely to repeat the cycle

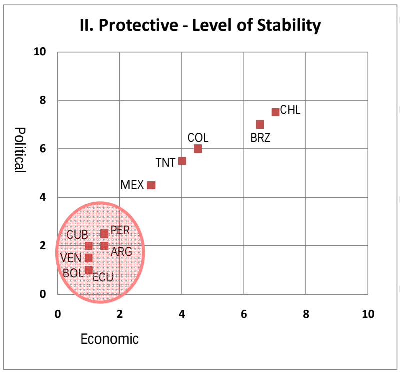
Scenarios – I. Evolutionary



Global conditions: *The world economies barely muddle through 2009, with massive stimulus programs and regional focus causing slow recovery beginning 2010 and eventual return to global trade and growth*

- **Activist governments are vulnerable as export revenues fall, revealing inefficiencies and corruption**
- **Gradualists are on firmer economic footing as these governments are more fiscally prudent, and can better weather the downturn (e.g., countercyclical policy)**
- **State capacity is critical as those countries that tend to fare better also have more pro-active local governments to respond to rising unemployment**
- **Regardless of the political camp greater emphasis will be placed on favoring domestic firms, whether in the public or the private sector**

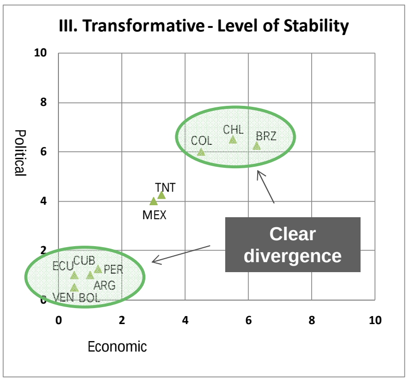
Scenarios – II. Protective



Global conditions: *Growing regionalization and trade barriers increase globally; America looks inward*

- **Activist governments are severely weakened as export revenues plummet due to the severity of the downturn**
- **Any economic growth is constrained by domestic capital as global credit remains scarce**
- **Forced reliance on the local Latin market as the US remains in the economic doldrums and Chinese growth is domestically driven**
- **Brazil potentially emerges as major economy that region depends on**

Scenarios – III. Transformative



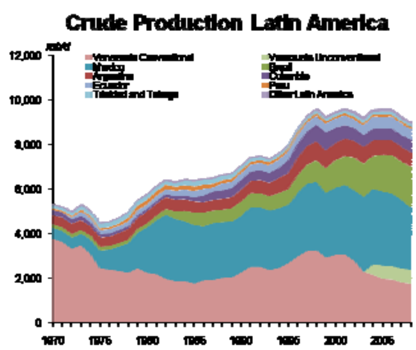
Global conditions: *International financial infrastructure collapses; after a very deep recession in 2009 and 2010, world leaders unite to reform global institutions and financial policies, creating a new path to a more regulated and coordinated globalization; increased focus on rebuilding a green economy*

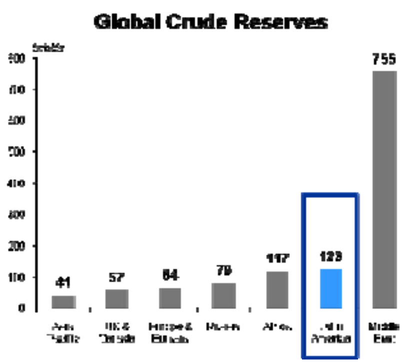
- **There is divergence in the region as 'gradualists' are able to manage the downturn and may even emerge stronger**
- **Activist regimes struggle as reduced government spending in basic services and high unemployment trigger unrest**
- **Intra-regional tensions *within* particular countries escalate**
- **State failure is a possibility as some states are increasingly incapable of responding to local needs**
- **More economically diversified countries are more resilient economically because of their ability to create new 'green economy'**
- **Only those countries with the strongest institutions survive**

Despite High Prices, Oil Sector Output Was Flat

Level production + demand growth = less crude for export

- **Latin America holds the second highest proved reserves levels in the world after the Middle East and contributes 9 mmb/d of crude production.**
- **But production has stagnated, driven largely by declines of major producers (Mexico and Venezuela).**
- **Oil demand growth has outpaced the global average.**
- **Leaving less crude for export.**





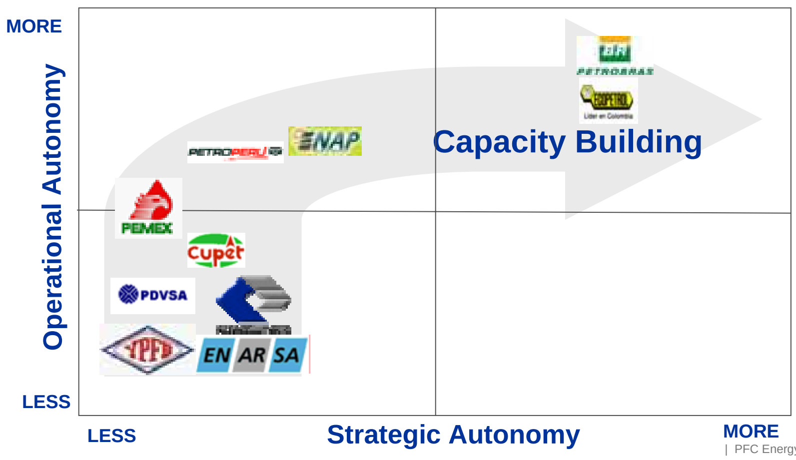
Governments Increased Dependence on Oil/Gas

- Higher oil prices increased expectations for all stakeholders
- More social mobilization as locals demand more from governments
- Energy viewed as a lever for development
- NOCs seen as the appropriate institutions but not given the appropriate tools
- Greater demands on private sector companies as states feel they are not capturing any upside

Governments See NOCs As the Way Forward

Greater dependence but lower autonomy

- Economic crisis could to lead to greater government call on many NOCs but a reduction in autonomy and investment levels may not help governments achieve their revenue needs.
- NOCs with higher strategic and operational autonomy before the crisis and oil price drop are likely to be less affected, though not free from government pressure.



Financing/Technology Require Varied Approach

Moving forward, lower oil prices and production in most countries will result in a revision of contract terms offered to foreign firms

But the process will not be smooth

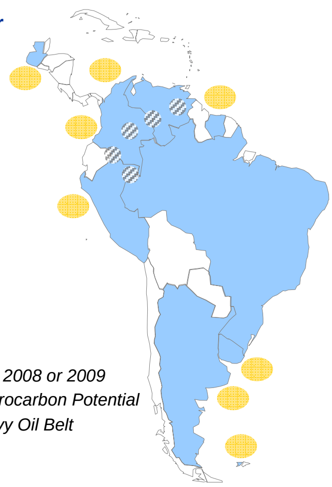
- Oil-dependent governments under fiscal pressure
- Stagnating or declining oil production
- End of “easy oil” and NOCs lack technical expertise
- NOCs financial autonomy curtailed
- Push for industrialization and local development

→ **Growing role for foreign investment –private and state-related**

Varied Approach Has Already Begun

New opportunities with the end of “Easy Oil”

- **The region is offering opportunities in unconventional heavy oil and increasingly offshore**
- **These new prospects also offer new opportunities for foreign investment as these new projects require:**
  - Substantial capital
  - High-end technology
- **Numerous countries have understood the need to license new acreage (2008-09)**
  - Argentina
  - Barbados
  - Brazil
  - Colombia
  - Guatemala
  - Peru
  - Suriname
  - Trinidad
  - Uruguay
  - Venezuela



- *Bid Round in 2008 or 2009*
- *Offshore hydrocarbon Potential*
- *Andean Heavy Oil Belt*

Varied Approach Should Benefit Wider Economy

A new energy actor-- the Locally-owned Oil Service Companies (LOSCs)

The high oil price environment facilitated a rise in Locally-owned Oil Service Companies (LOSCs).

Countries with a growing number of LOSCs

Colombia. The government seeks to become an "oil services hub. "

Venezuela. Chavez has proposed a PDVSA service company, but given the NOC's own challenges, it is unclear how effective the local company will be.

Trinidad. Instead of just petrochemicals, the government also aims to develop and export its service expertise.

Mexico. Given the constitutional constraints, service companies—local and foreign—are the preferred providers.

Bolivia. YPFB announced its intention to have its own service company to address its drilling needs, yet it is unclear whether such a state company can deliver.

Brazil. Petrobras' recent sub-salt discoveries will require substantial operational and equipment support and LOSCs will be expected to step up.

Mexico's Challenges

Pemex and the transformation of the sector

The present situation is unsustainable and the new energy reform may not be sufficient.

- **Upstream Challenge**
  - Cantarell mega-field in steep decline
  - PEMEX's strategic alliances with the IOCs /NOCs unlikely to yield much-needed technology transfer

- **Downstream Challenge**
  - PEMEX has historically prioritized E&P spending over refining

PEMEX

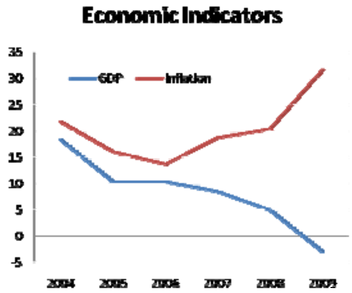
- **Political Challenge**
  - 'Mexican nationalism'
  - Multiple energy reform choices
  - Campaign calendar limits political will for reform

- **PEMEX Finance Challenge**
  - The PIDIREGAS debt mechanism is being phased out

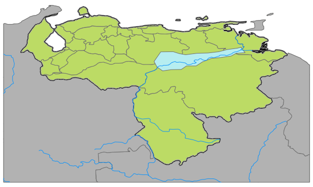
- **Fiscal Challenge**
  - Recent tax reform too modest to wean the state from overdependence on oil revenues
  - US economic slow-down will further dampen tax revenues

Venezuela's Challenges

Venezuela is more receptive to FDI



Venezuela's Orinoco Belt

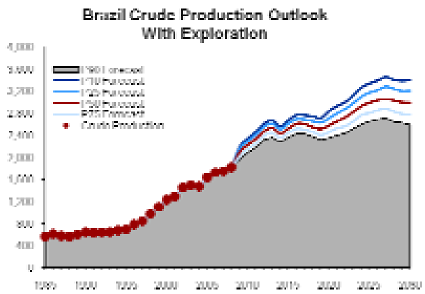


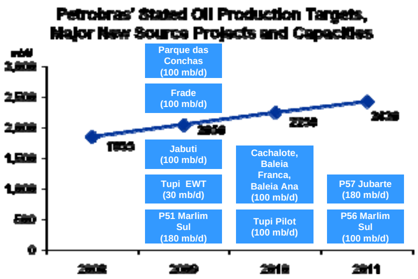
- **In response to the slowing economy, the Chavez Administration announced more substantial adjustments in March, increasing taxes and debt**
- **On the oil front, development of the Orinoco Belt is critical since any expansion in oil production will result from these heavy oil projects**
- **The requisite technology and high capital costs of the Orinoco Belt projects will provide new opportunities for a variety of companies—state controlled or private—that have the requisite technology**

Brazil's Challenges

Poised to strengthen leadership position

- **Brazil is likely to emerge in a stronger leadership position after the crisis subsides**
  - Sound economic footing
  - Relatively strong political institutions
  - Growing voice in international arena
- **Brazil's growing role in the energy sector parallels this strengthening**
  - Deepwater and biofuels technology leader
  - One of the most dynamic NOCs in the world
  - Center of most important discoveries in recent history
  - Burgeoning local service industry

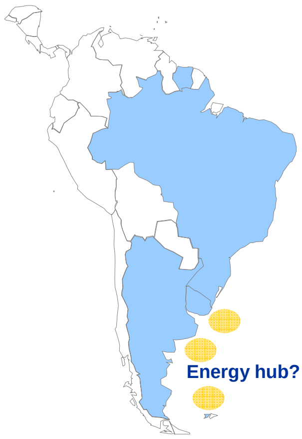




Conclusion

Non-traditional areas favorably positioned due to the recent pre-salt discovery in off-shore Brazil.

- **Brazil's sizable Tupi discovery has spurred exploratory interest in other areas of the South Atlantic (e.g., Offshore Argentina and Uruguay), which may lead to the creation of a new energy hub**
- **But the resource size in the traditional oil producing zones will also continue to provide substantial supplies if some of the funding and institutional constraints are overcome**
- **Plus, most importantly, the region has the resources to be part of the global transformations – energy and in other economic areas**



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- **Washington, D.C.**

Main regional offices are shown in blue.

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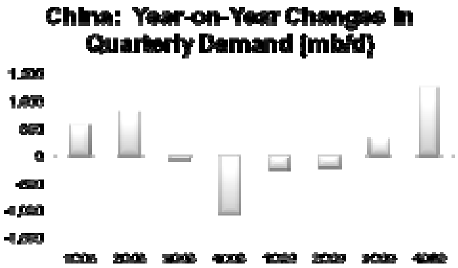
The Unites States

Foreign affairs will take a backseat

- **For all the great expectations and recent travel, foreign policy will not be a priority for the Obama Administration—the issues that matter most to the US public are essentially domestic in nature, primarily the economy**
- **US foreign policy will primarily be focused on managing crises through diplomacy as the Obama Administration deals with the domestic economic crisis**
- **Obama has sought to change the style of US policymaking, and has launched initiatives in the Middle East, in Afghanistan and with Iran.**
- **The United States is less willing or able to lead globally, but no other country can or will replace it; this fact will shape the global geostrategic environment in the medium term**

China: 2009 Weakness in Context

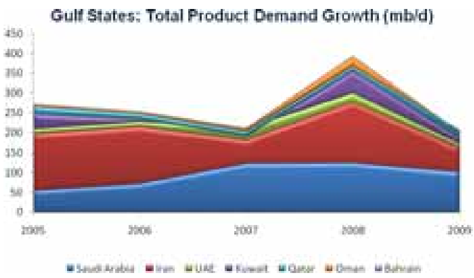
- **Reflecting the global patterns of demand, Chinese consumption of oil tells two stories of 2008**
- **Pre-Olympic construction led to a surge in 2H08 demand**
- **But the dramatic collapse in activity in 4Q08 offset most of these gains**

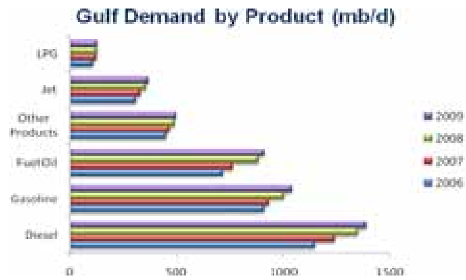


  - Construction began tailing off after the Games, impacting diesel and LPG demand
  - But the hard hits to investment and exports in 4Q08, impacting diesel for investment and transportation, as well as gasoline, jet fuel and bunkers
- **Beijing's stimulus program should spur construction activity, lifting oil demand, but the impact will increase throughout the year**
- **1H09 year-on-year comparisons will continue to suffer in the context of the strong pre-Olympic performance**

The Resilience of Middle East Demand

- **Oil demand in the Middle East remains robust, supported by effective government action aimed at stabilizing their economies**
  - Lending rates have been eased and emergency credit facilities have been made available
  - Direct infusions of government funds into banks and equity markets
  - A step-up in government spending to revive investor confidence and support the private sector
- **Structural demand factors and generous price subsidies also remain in place, putting a floor under oil consumption**

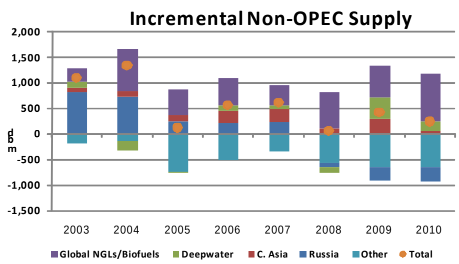


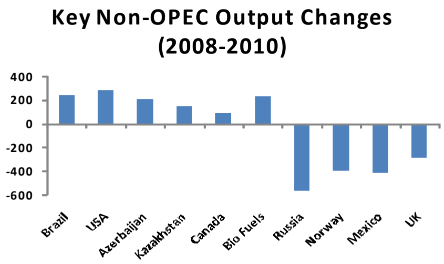


Non-OPEC Supplies Flat to Declining

Significant growth in OPEC NGLs

- **Non-OPEC supply will increase a marginal 0.1 mmb/d in 2009 after registering a 0.2 mmb/d decline in 2008**
  - Increases in deepwater output in Brazil and the US, from major developments in Central Asia, tar sands in Canada and biofuels
  - But major decreases in the North Sea, Mexico and Russia substantially offset
- **2010 output should fall a further 0.6 mmb/d**
- **Significantly augmenting non-OPEC supply are OPEC NGLs that increase by 0.3 mmb/d in 2009 and by 0.7 mmb/d in 2010 after many delayed projects finally come on stream**





Implications for Oil and Gas Sector

Competition for partnerships a challenge for many Latin American NOCs

Lower prices have reduced the financial and technical capabilities of nearly all the "Market, Technology and Finance Seekers"– they will be the focus of the "Strategic Resource Seekers". "Challenged NOCs" will therefore face steep competition for investment.