

Will We Have the Right Stuff?

Current and Future Natural Gas Supply as Feedstock

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CERI Petrochemical Conference
June 4, 2007



Current and Future Gas Supply Trends

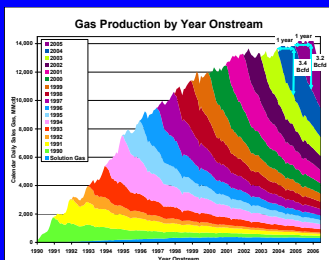
- Western Canada supply
 - Current trends
 - Fundamentals of short term supply
 - Is unconventional gas the right stuff?
- Canadian supply in longer term
- US supply projections
- LNG – the genie in the bottle



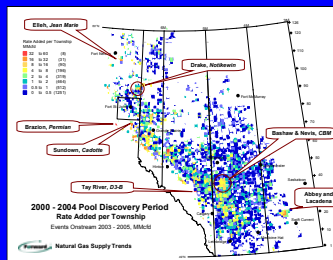
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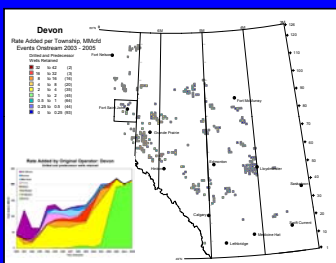
Forward Energy Group Inc



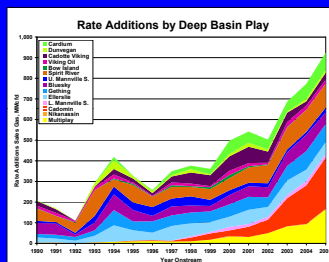
Supply Trends



Plays and Sources



Operator Benchmarking

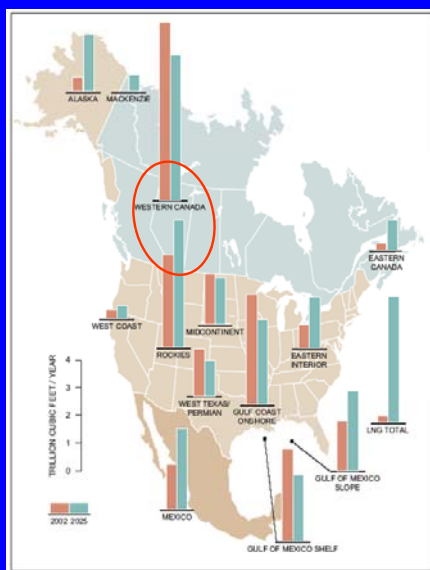


High Impact Areas



Better information for E&P strategies

Gas Supply Regions in North America



Balancing Natural Gas Policy, NPC (2003)

WCSB

- Largest natural gas supply region in North America
- Produces 6 Tcf per year
- Supplies over 23% of North American consumption

LOWER 48

- Supplies over 72% of North America's demand
- Produces 19 Tcf per year

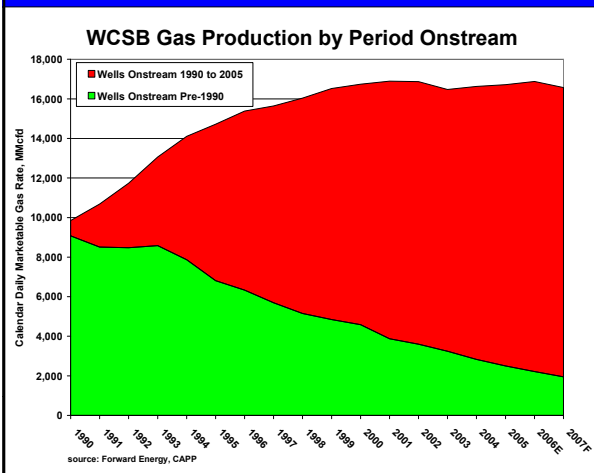
LNG

- Future swing supply source



Continental market

Supply by Period Onstream



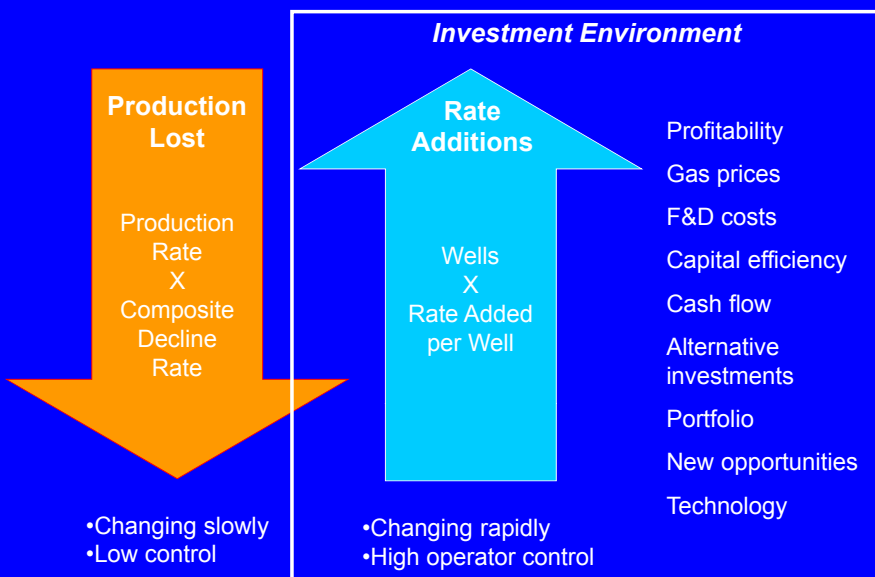
- Total production grew by over 70% from 1990 to 2001
- Total gas production recovering slowly since 2001
- Wells onstream since 1989 produce 85% of gas
- Decrease of 300 MMcf/d in 2007 due to reduced gas drilling



2006 production estimated at 16.9 Bcfd

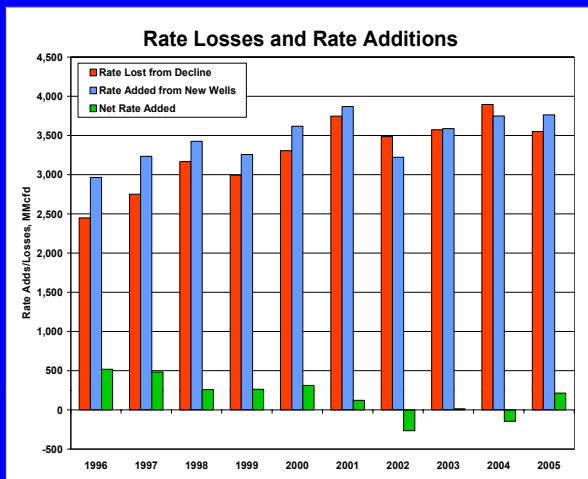
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Competing Forces on Gas Supply



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WCSB Rate Losses and Rate Additions



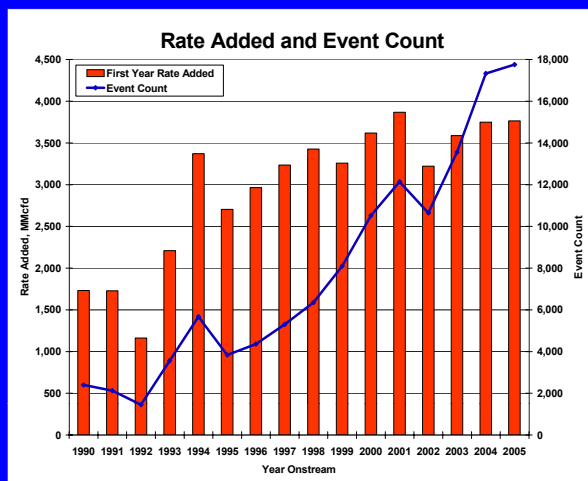
- Rate loss from decline increased from 2.5 Bcfd to 3.9 Bcfd in 2004
- Annual rate loss has averaged 3.7 Bcfd since 2001
- Net rate added has been decreasing
- 2002 correction may be a useful model for 2007



Rate losses and rate additions close to balance

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Rate Additions by Year Onstream



- Supply additions were 1.7 Bcfd in 1990, rising to 3.9 Bcfd in 2001,
- Rate additions averaged 3.6 Bcfd from 2001 to 2005
- Events are the new connections that provided the new rate additions
- Connections lag drilling

- Since 2000, rate additions static but the number of connections has increased 69%— this is the treadmill!

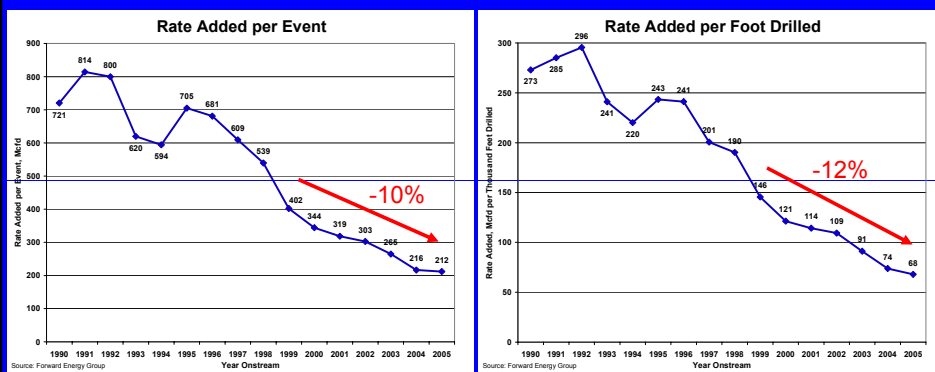


Connections increasing more rapidly than rate additions

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Rate Added per Connection



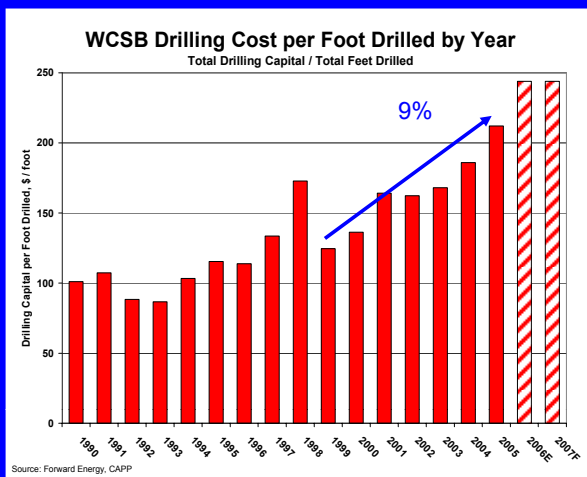
- Production replacement per foot drilled has decreased by 12% per year
- In 2005, the same event connected and foot drilled resulted in only 30% of the 1995 rate additions per unit
- Supply from previously-unprofitable, lower deliverability opportunities increased in response to higher prices and improved technology

Decreasing results for same activity is the consistent driver of F&D cost increase



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Drilling Cost per Foot



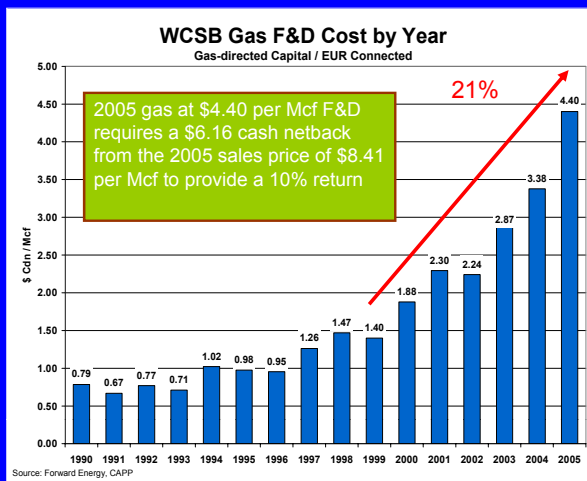
- Total drilling capital / Total feet drilled
- Cost per unit has been increasing at 9% per year since 1999
- Rapid cost increases in 2005 (14%) and continuing at least 15% into 2006



Cost inflation is accelerating, driving F&D costs

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Gas F&D cost



- Gas-directed capital / extrapolated recovery in newly-connected zones
- Increasing at 21% per year since 1999
- Most of F&D cost increase is in lower EUR per well

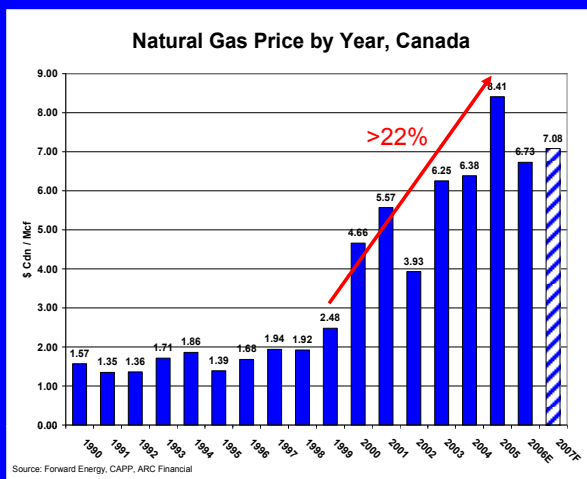
- To sustain investment return, increasing F&D cost must be matched by increasing netback and therefore, increasing price



Increasing costs threaten profitability and investment

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Gas Price



- Increased at > 22% per year between 1999 and 2005
- Commodity price increases supported projects despite increased F&D cost
- Estimated 20% decrease in price in 2006

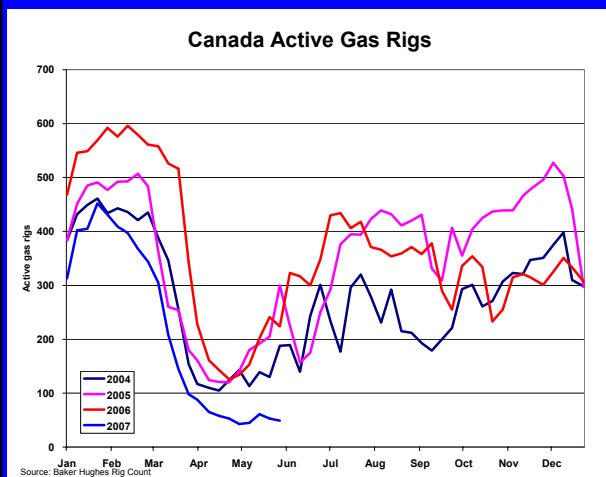
- Rate additions at increasing F&D costs sustained by increasing prices
- Activity and rate adds will decrease when price decreases



What happens when gas prices decrease?

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Drilling Response



- Active gas rigs dropped below 2005 levels in August 2006
- Dropped below 2004 levels in October
- Year to date 2007 active gas rigs are 56% of the comparable 2006 period

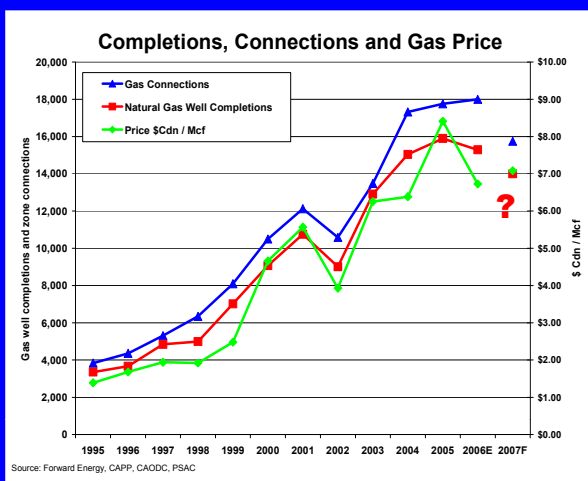
- Operators have announced reduced shallow gas and CBM programs
- Lower utilization rate of shallow rigs



Rapid response after a record first half of 2006

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Drilling Response



- Connections and completions flat 2004 to 2006
- CAODC and PSAC forecasts 2007 gas completions down 20% to 30%
- We assume a 10% decrease in activity

- Decrease in rate added depends on rate added per new event



Lower drilling = lower production

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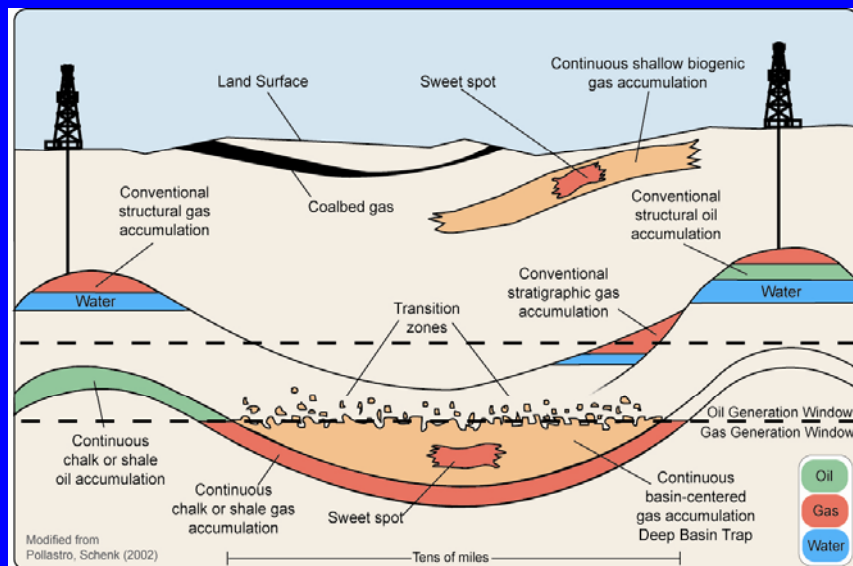
Profitable Production Replacement

- F&D costs have been increasing rapidly
- Decreasing rate additions and reserves per well has been the major driver of increased F&D costs
- Cost inflation has been a recent contributor
- Increased gas commodity prices supported investment at the increased F&D costs until 2006
- Current slowdown in drilling will result in lower supply, higher gas prices and, in time, lower input costs
- WCSB gas F&D costs are less competitive with US basins due to stronger Canadian dollar



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Gas Accumulation Types



Will unconventional gas rescue WCSB supply?

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What's in a name?

CONVENTIONAL

1. Discrete gas pools in pervasively water saturated rock - aquifer
2. Only high quality reservoir accumulates gas in place
3. Discovery is uncertain, recovery is certain
4. Discovery process is efficient
5. R&D to increase success
6. Remaining resource, in small undiscovered pools, is small
7. "Official" view of WCSB remaining resources

"Glass is mostly empty"

UNCONVENTIONAL

1. Pervasive gas saturated accumulations - gasifer
2. Very large gas in place in reservoir of all qualities
3. Discovery is certain, recovery is uncertain
4. Recovery is inefficient but improves with technology
5. R&D to improve recovery and characterization
6. Remaining resource in lower quality reservoirs is large
7. Industry view of WCSB remaining resources – believed in US

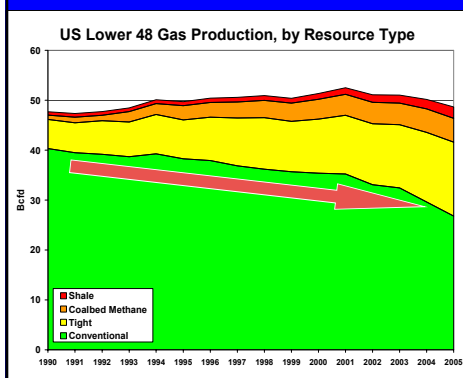
"Glass is mostly full"



Models define how we evaluate potential

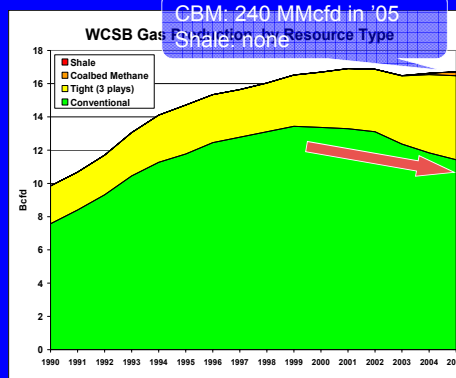
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Gas Production Profiles



US Lower 48

- Conventional gas in decline
- Tight gas in lower 48 over 30% of 2005 total
- CBM and shale gas significant



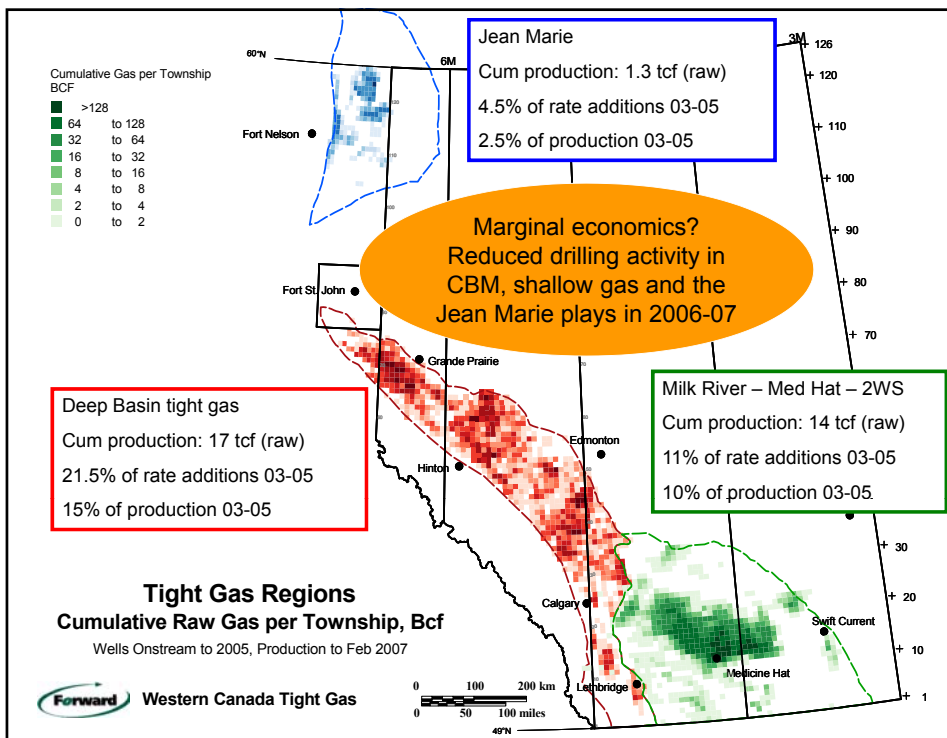
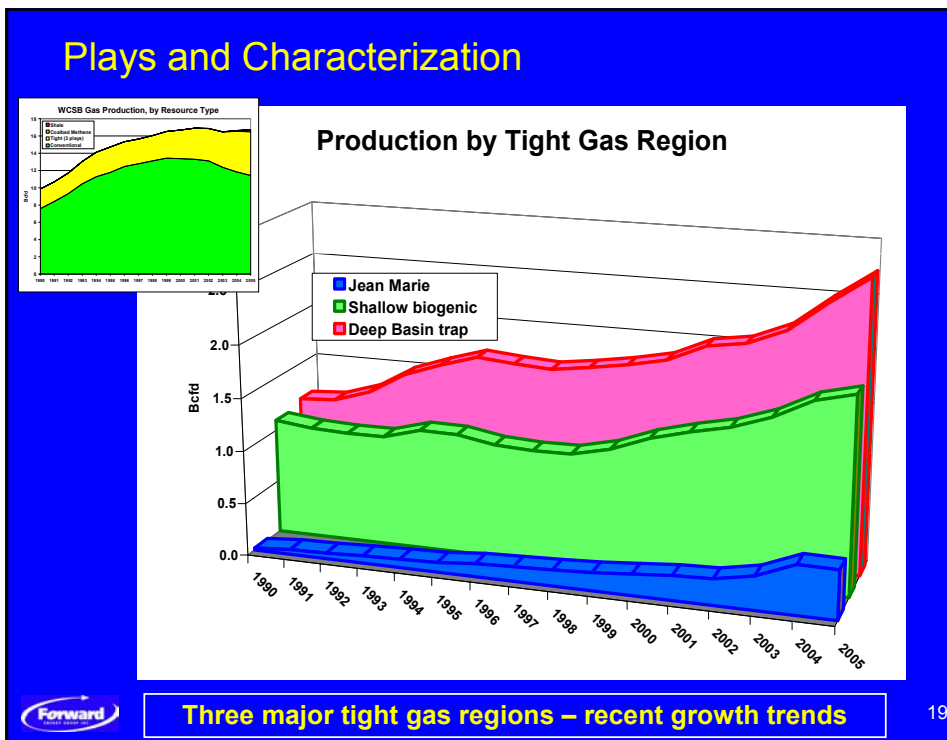
Western Canada

- CBM growing rapidly
- Tight gas not reported – estimate over 30% of 2005 total
- Conventional gas in decline



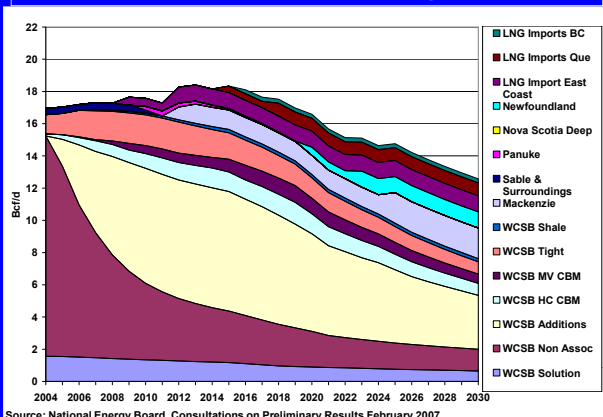
Better understanding of unconventional gas required

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Illustrative long term supply outlook for Canada

Natural Gas Production Outlook – Continuing Trends Scenario



Source: National Energy Board, Consultations on Preliminary Results February 2007

- Continuing Trends preliminary scenario
- Decline of WCSB conventional & limited replacement
- Unconventional from WCSB grows
- Mackenzie onstream in 2012, East Coast LNG earlier

Base case assumes business as usual, 2.8% economic growth
Assumes gas price of \$7/mcf US Henry Hub

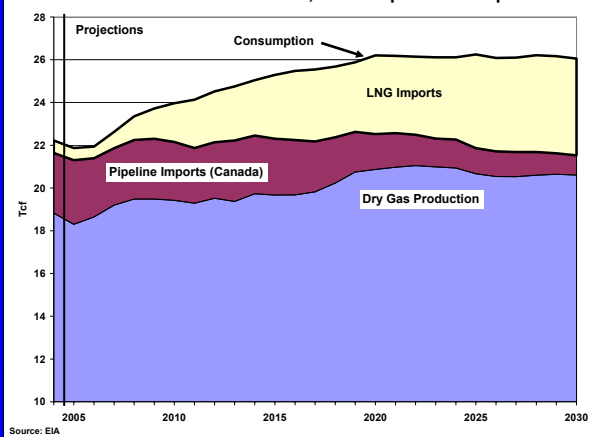


Unconventional, Mackenzie and LNG required

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Long term supply/demand outlook for United States

US Natural Gas Production, Consumption and Imports



Source: EIA

- Gas consumption increases in medium term until electrical switches to coal
- US gas production grows despite recent declines in Gulf
- Pipeline imports from Canada decrease
- LNG is plug number to meet consumption

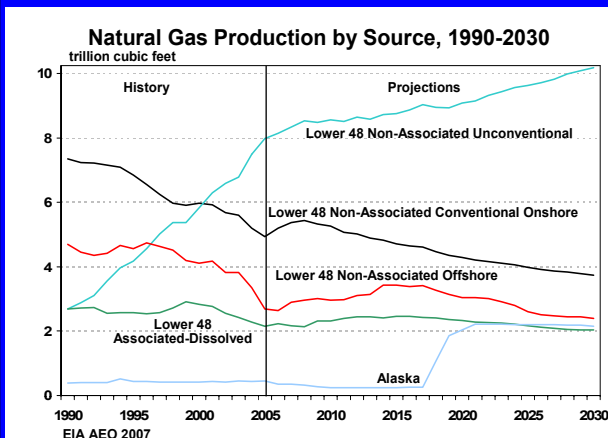
Base case assumes policy neutral: no carbon taxes affecting coal
Forecasts prices of \$5-\$6/mcf Henry Hub (\$US 2005) over period



Greenhouse gas policies would limit new coal generation

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US Dry Gas Production base case



- Unconventional growth is slower, gas shales growing
- Short-term production hiccup
- Reverse declines in Gulf of Mexico by tying in Deepwater oil and gas fields
- Assumes Alaska pipeline in 2018

Actual US production flat despite record onshore drilling
Gulf of Mexico offshore production declining – not just hurricanes!



A generous production forecast

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LNG Supply



Unconventional largest single source of supply

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Will We Have the Right Stuff?

- Challenge to sustain production profitably in WCSB
 - More feet drilled for less gas production and reserves
 - Supply costs and F&D costs are increasing
 - Uncompetitive costs and economics for WCSB gas projects will reduce reinvestment
- Unconventional gas, Mackenzie and LNG
 - Will be required to replace declining WCSB output
 - Project economics are challenging, supply timing uncertain
- US production is forecast not to meet consumption
- LNG will be the swing source for North America



Yes . . . but volatile supply won't be cheap!

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