



23rd IAEE North American Conference

Mexico
October 19 - 21, 2003

Paul Ziff, CEO
Ziff Energy Group

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Houston

Calgary

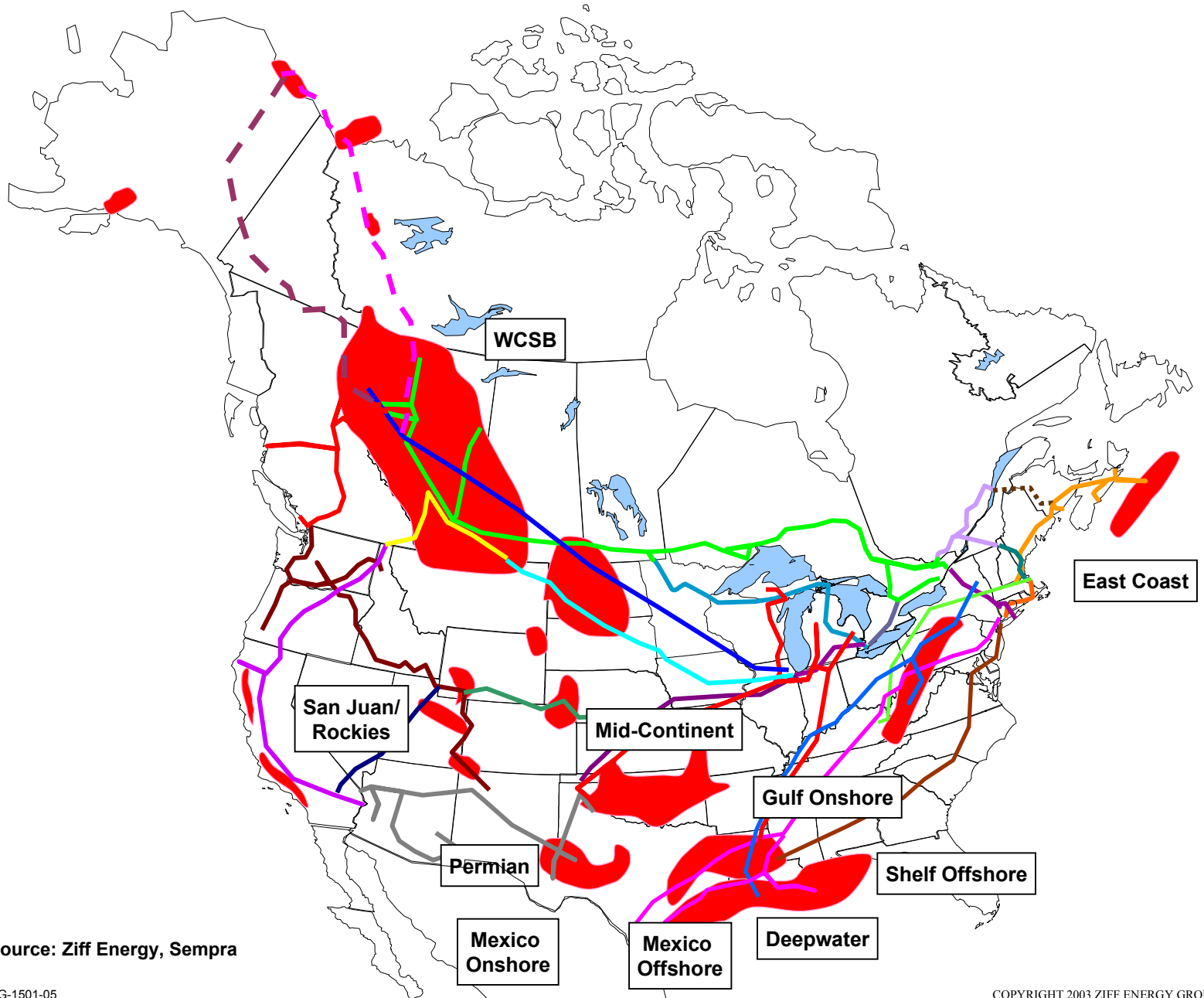
ziff
ENERGY
GROUP

North American Gas Supply Sources





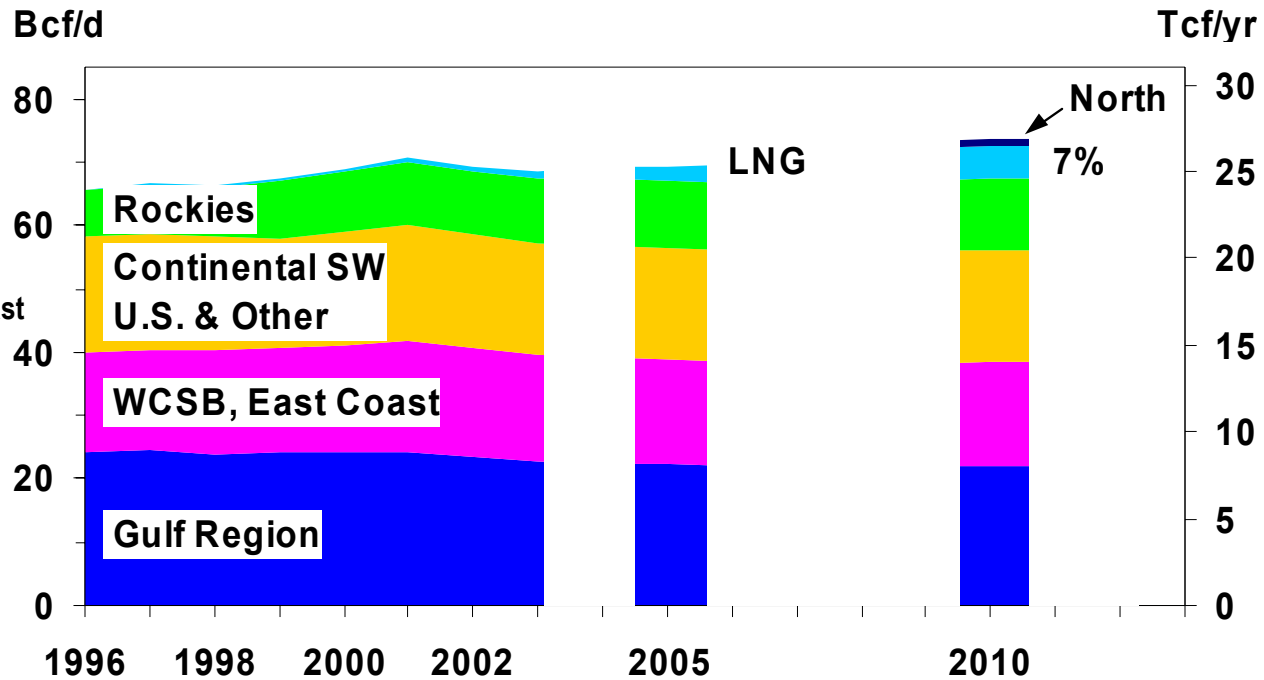
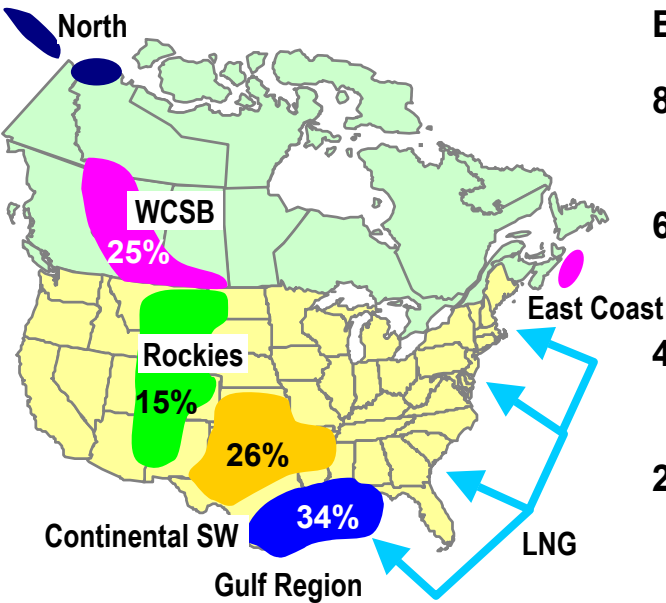
North American Gas Basins and Production



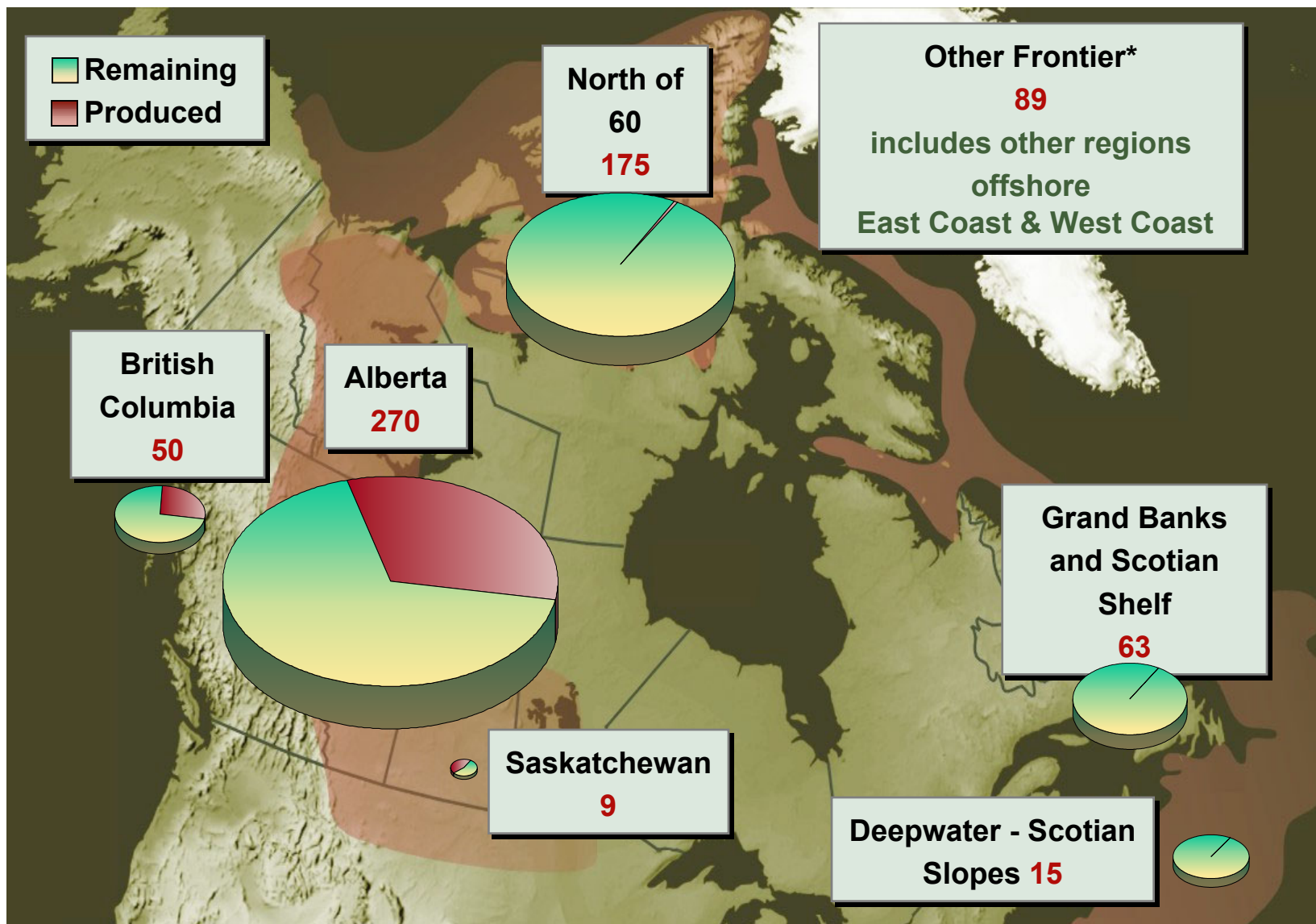
Source: Ziff Energy, Sempra



North America Supply Outlook



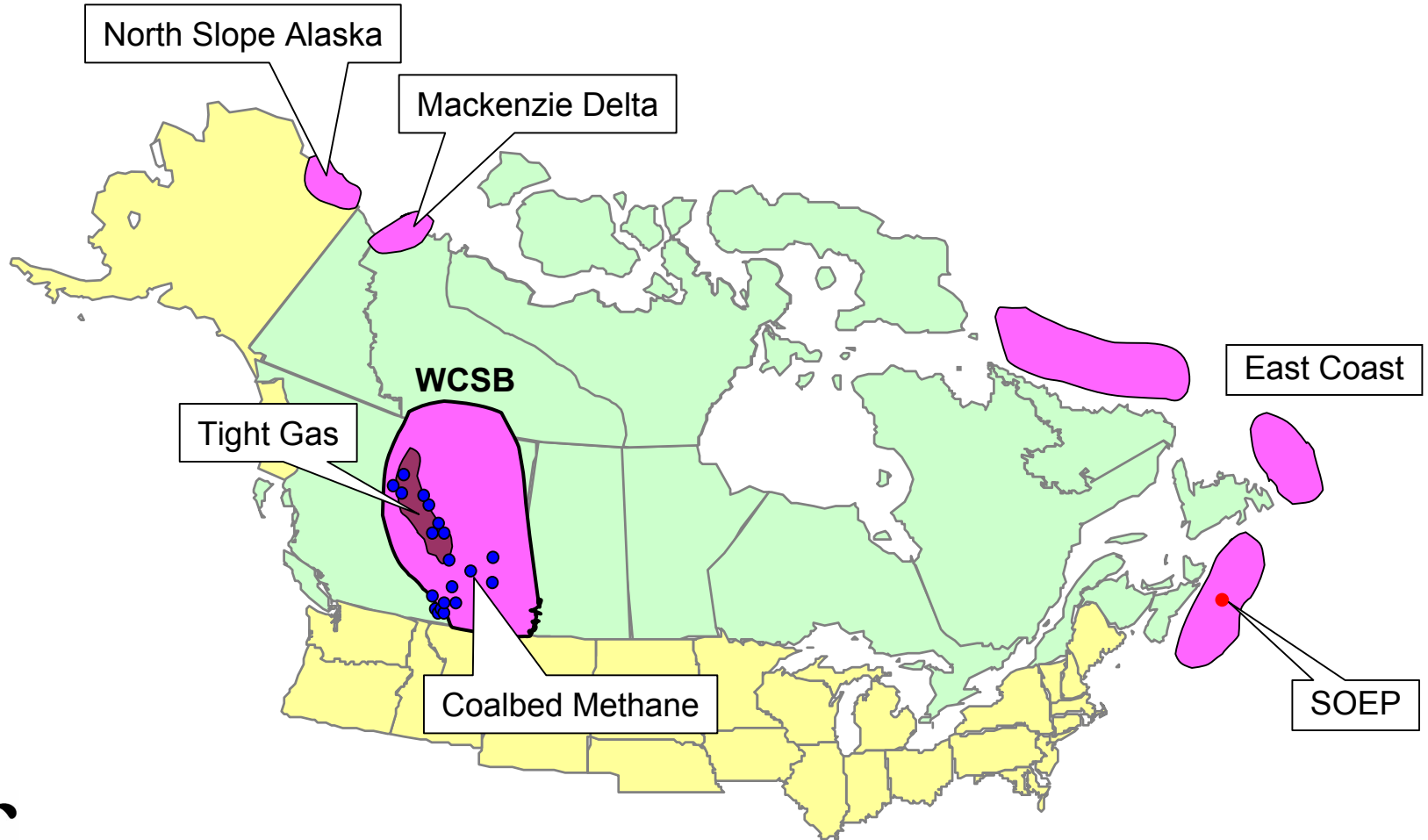
Ultimate Potential of Natural Gas (Tcf)



Source: Various NEB Reports

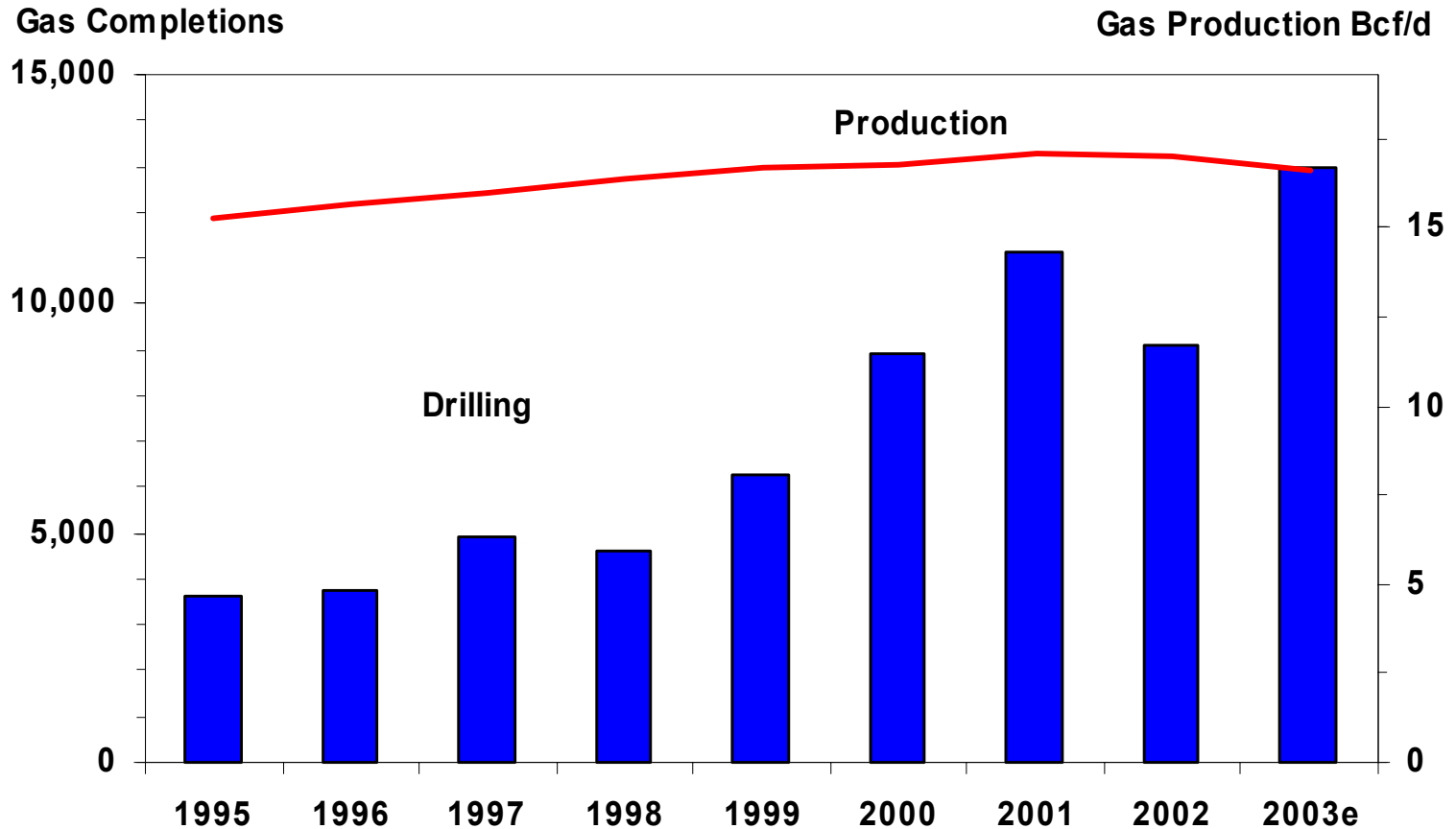


Canadian Gas



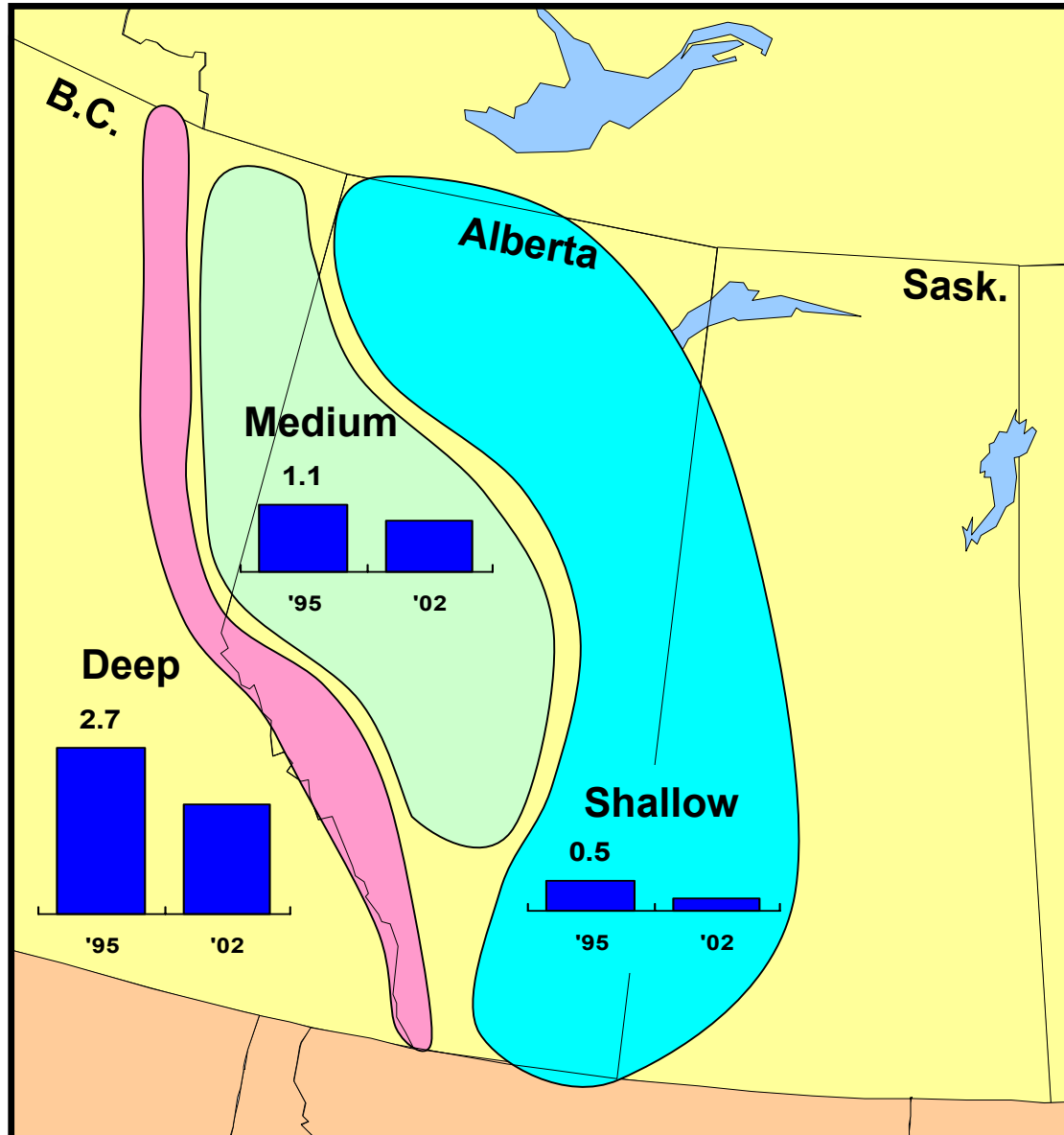


Canada: Drilling is *Not* Increasing Gas Production



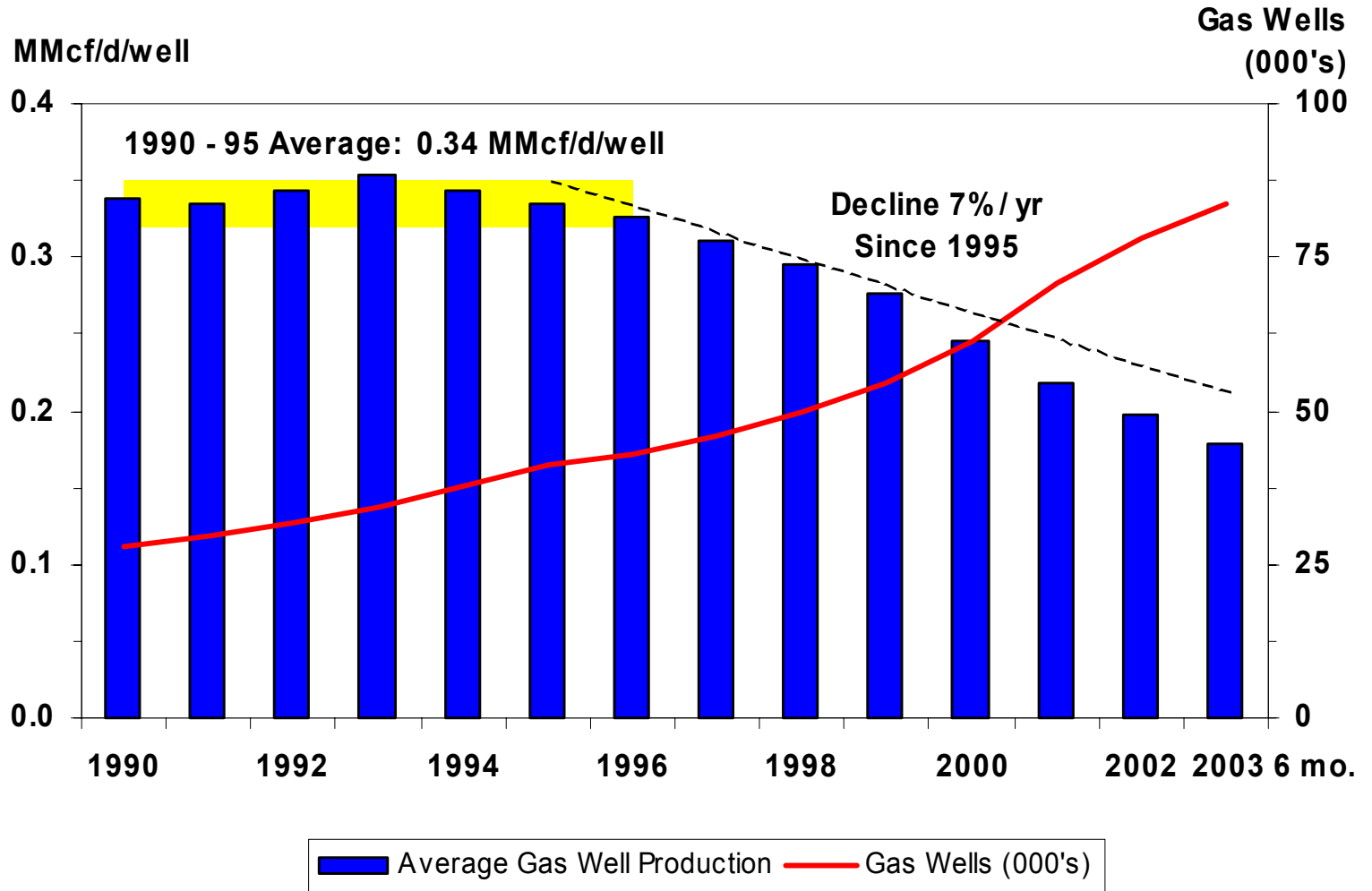


Average Productivity of New Gas Wells (1995, 2002), MMcf/d/well



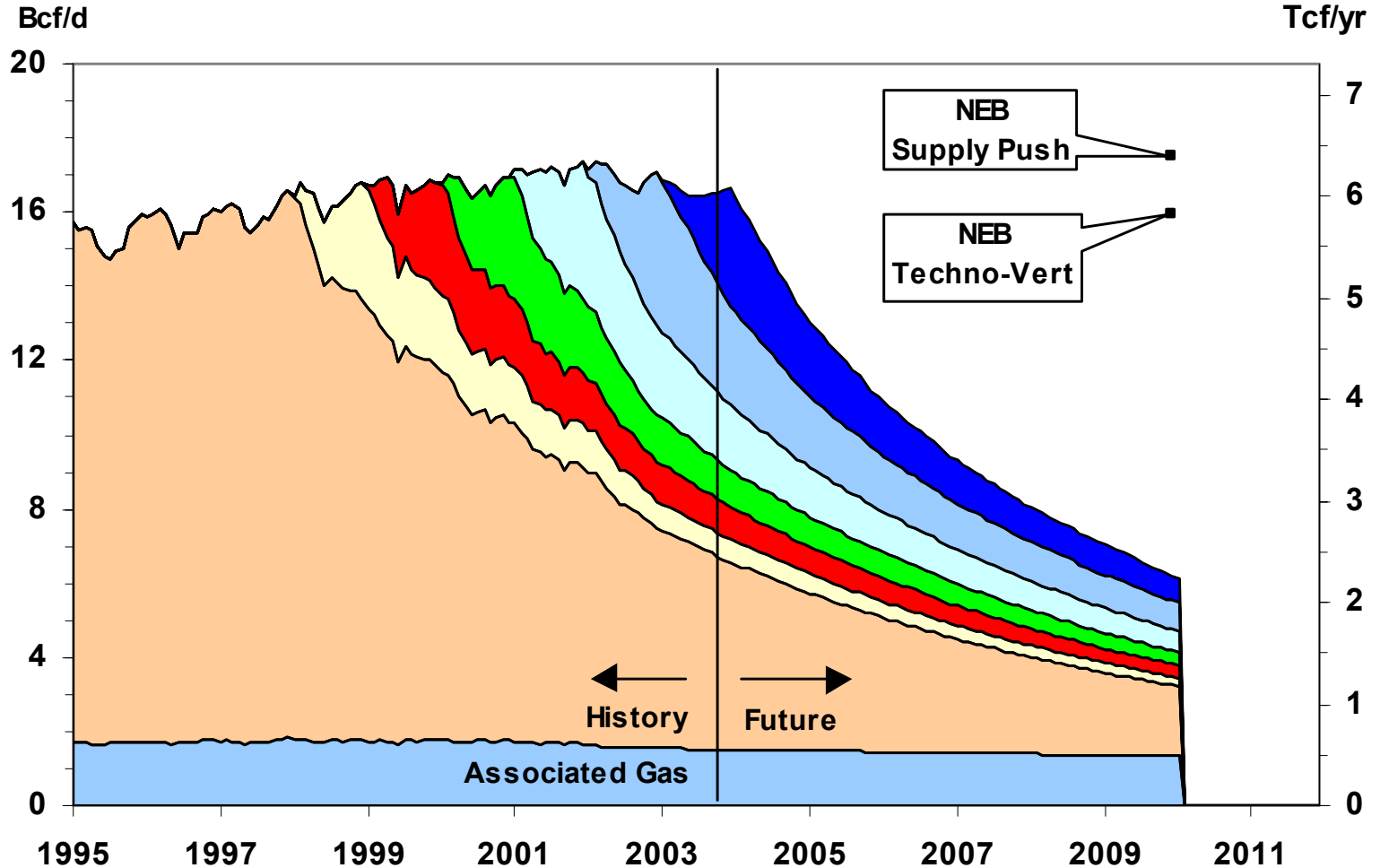


Average Gas Well Production (WCSB)



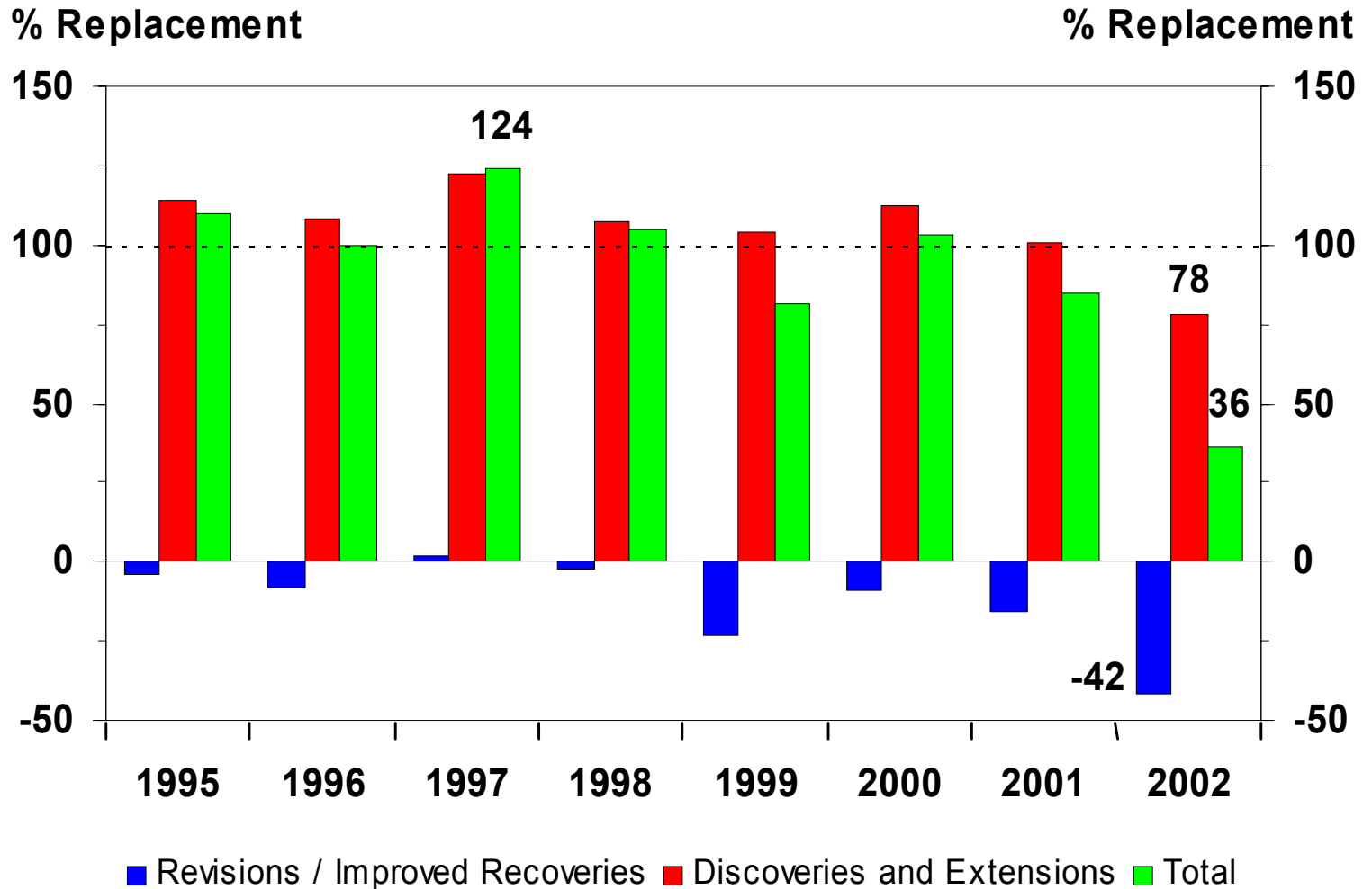


WCSB Gas Production Outlook



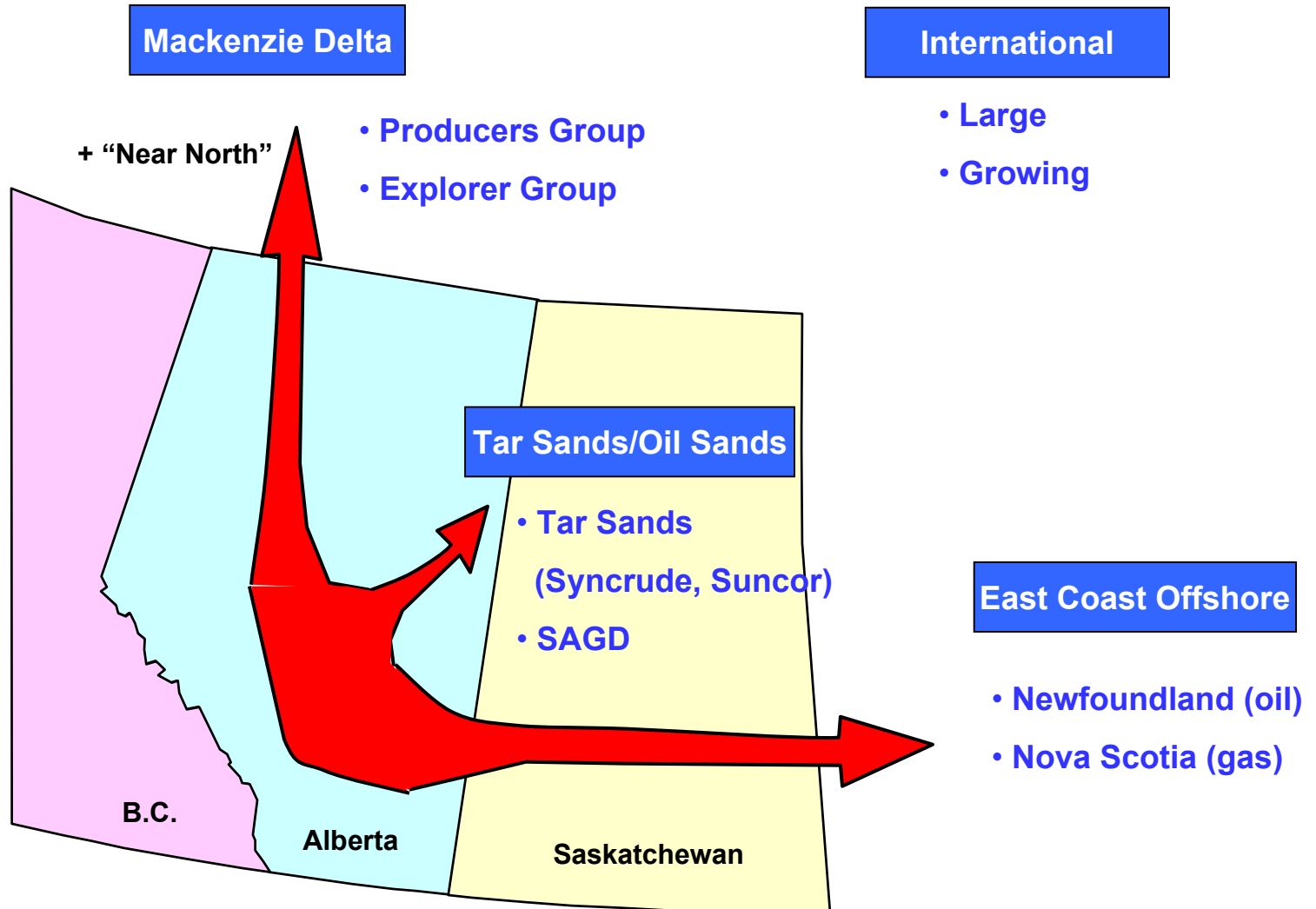


Canadian Reserve Replacement Top 30 Companies

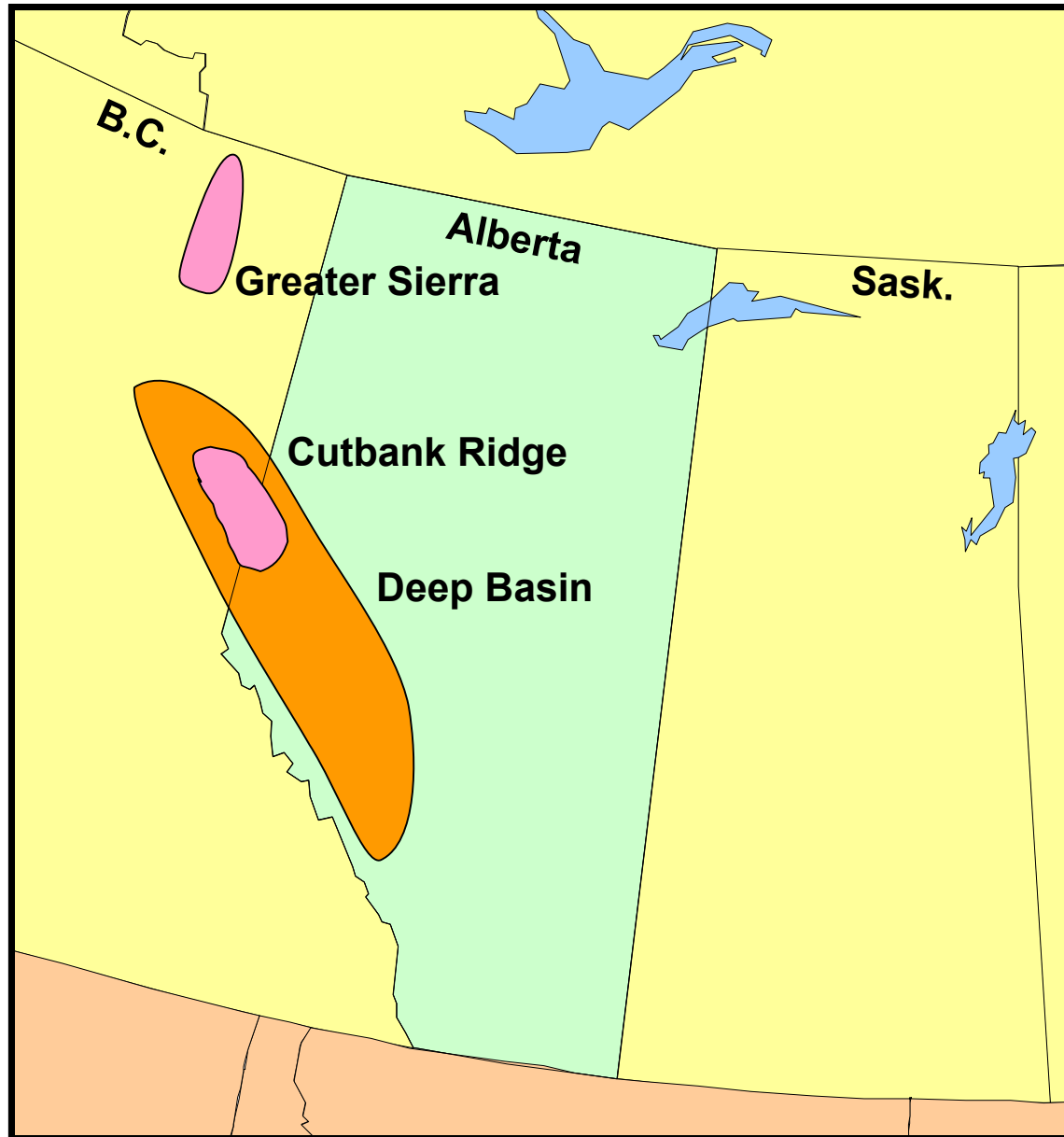




Large Producers \$ Migration from Western Canada

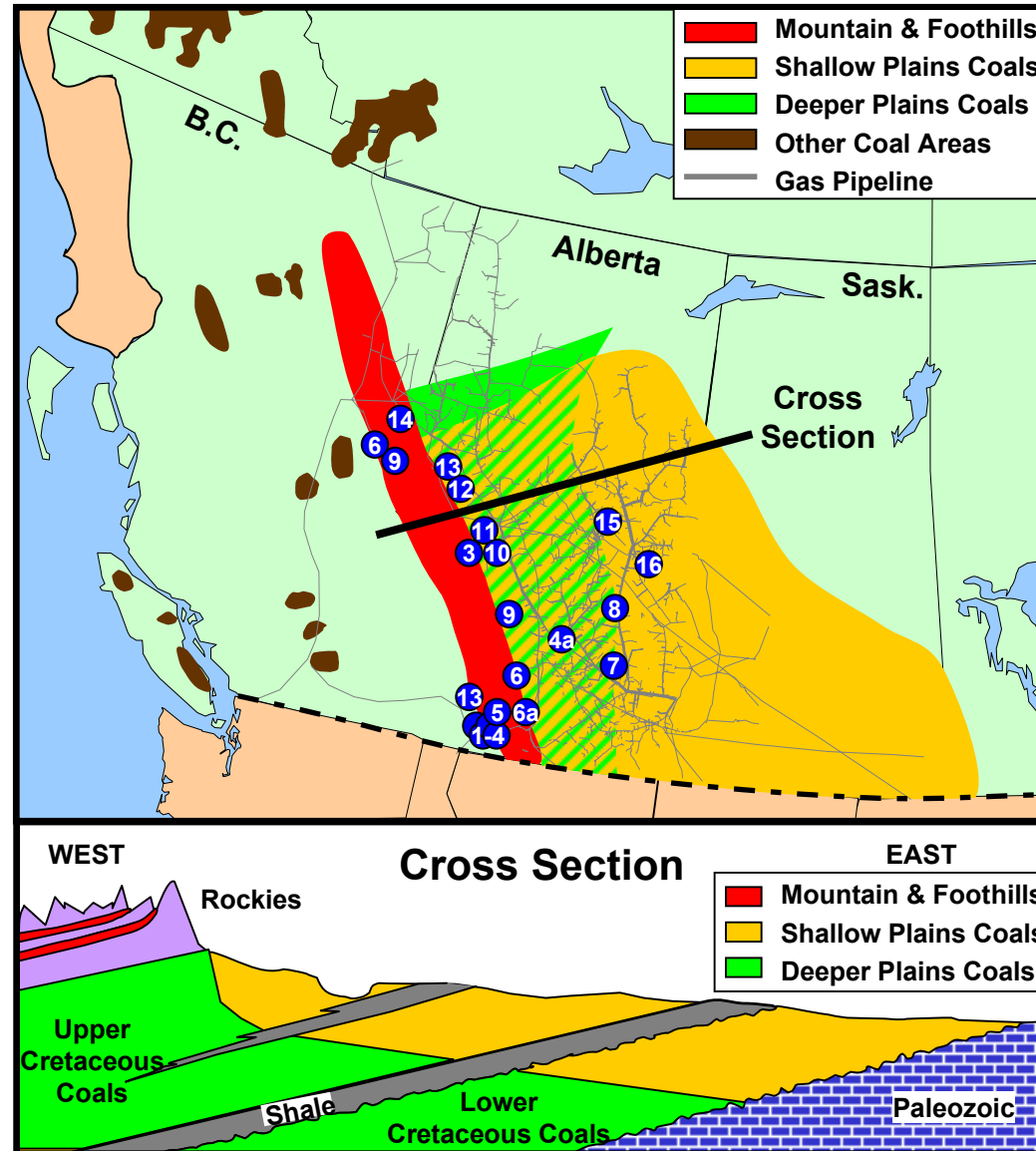


Tight(er) Gas Region



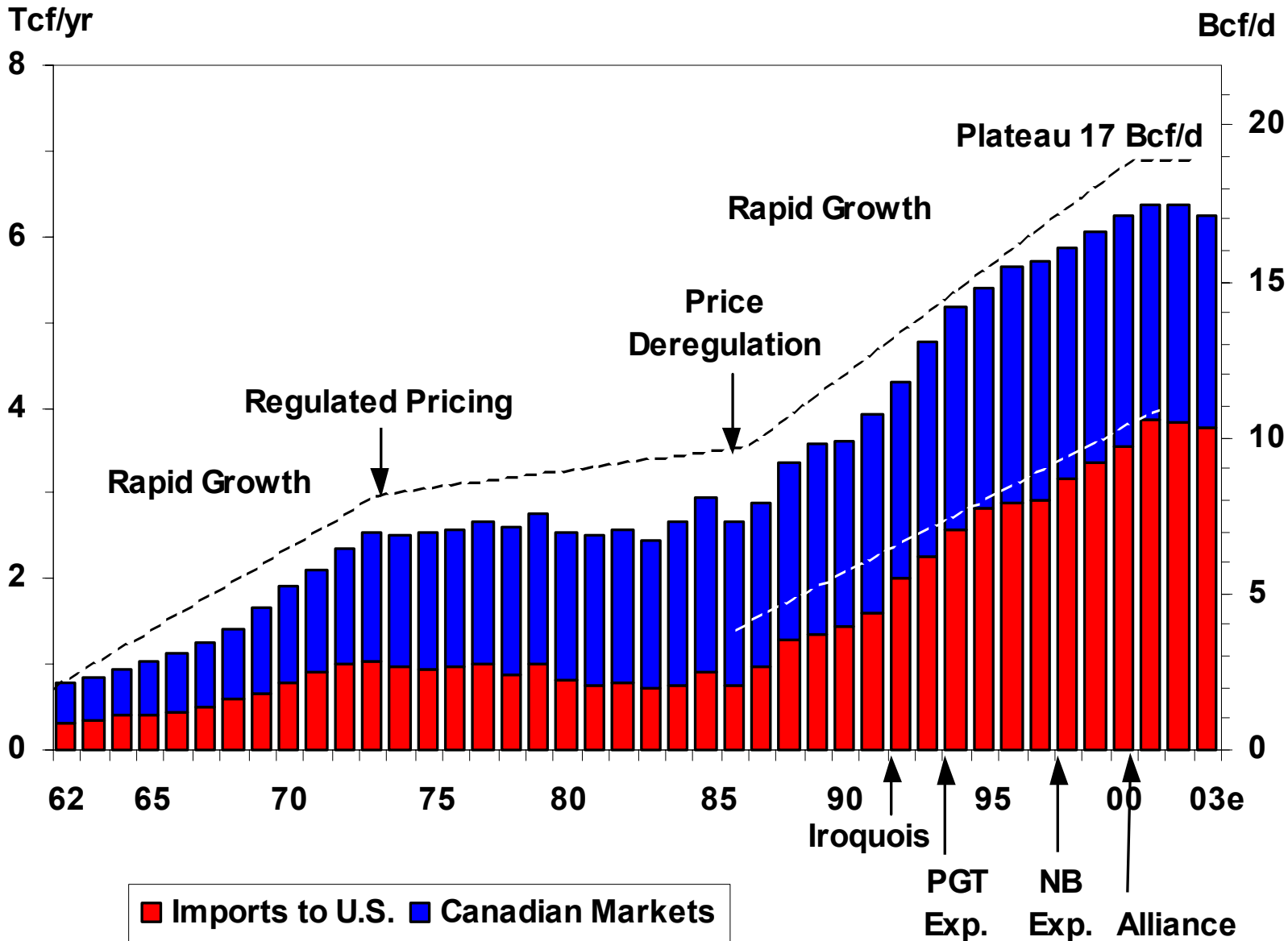


Potential WCSB Coalbed Methane Regions





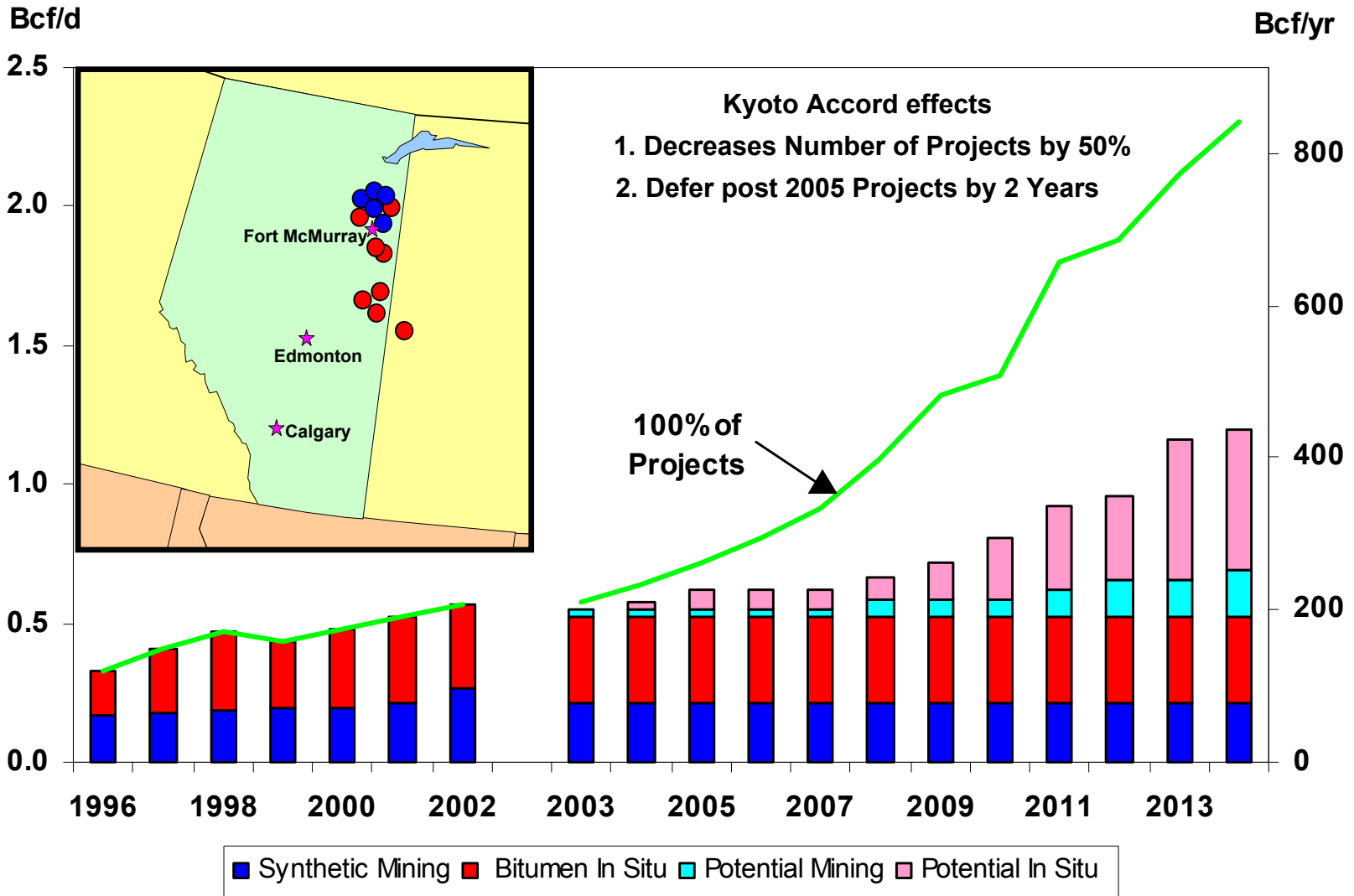
Canadian Gas Exports



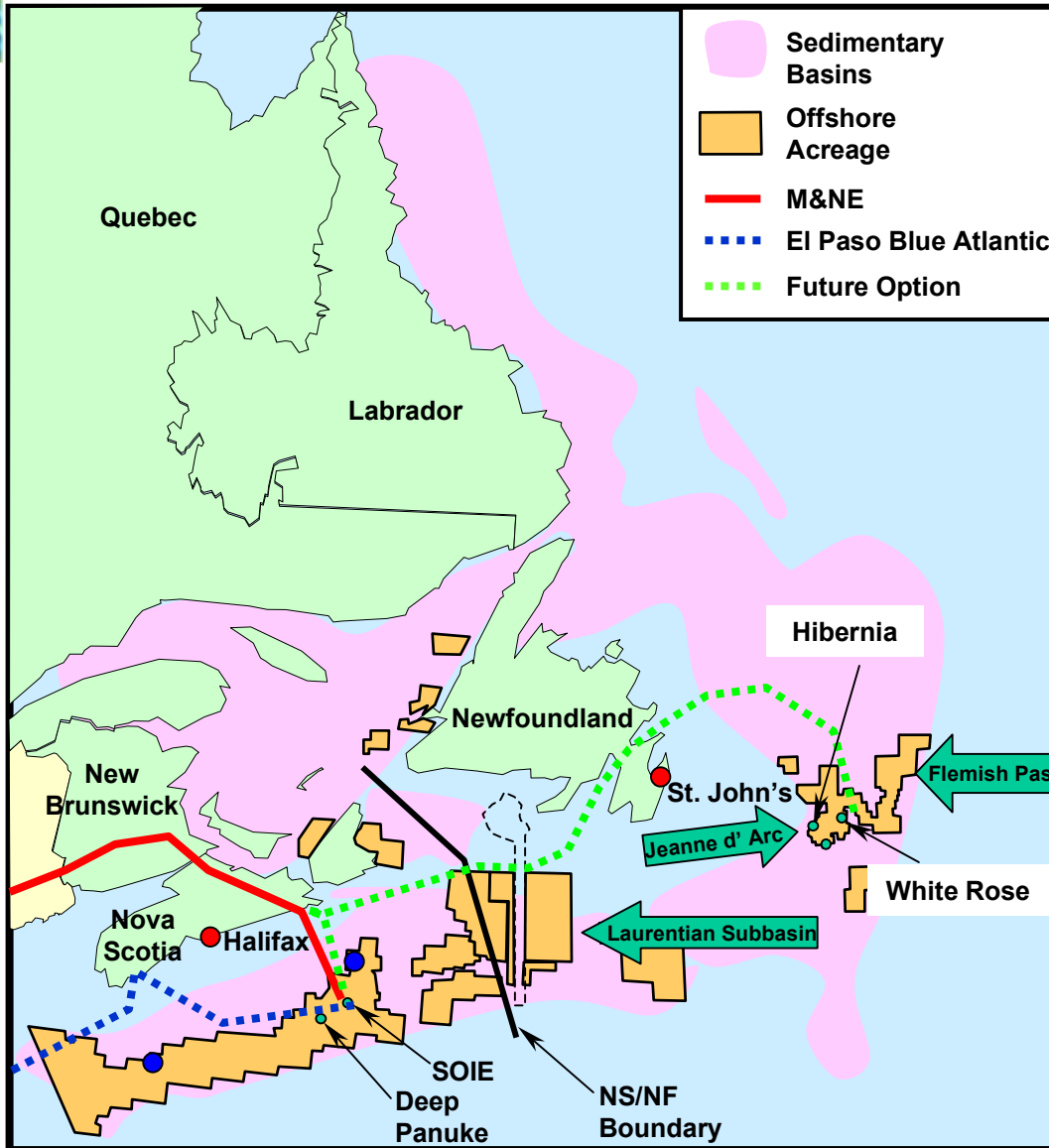


Gas Requirements for Oil Sands

(50% of Projects @ 80% LF)



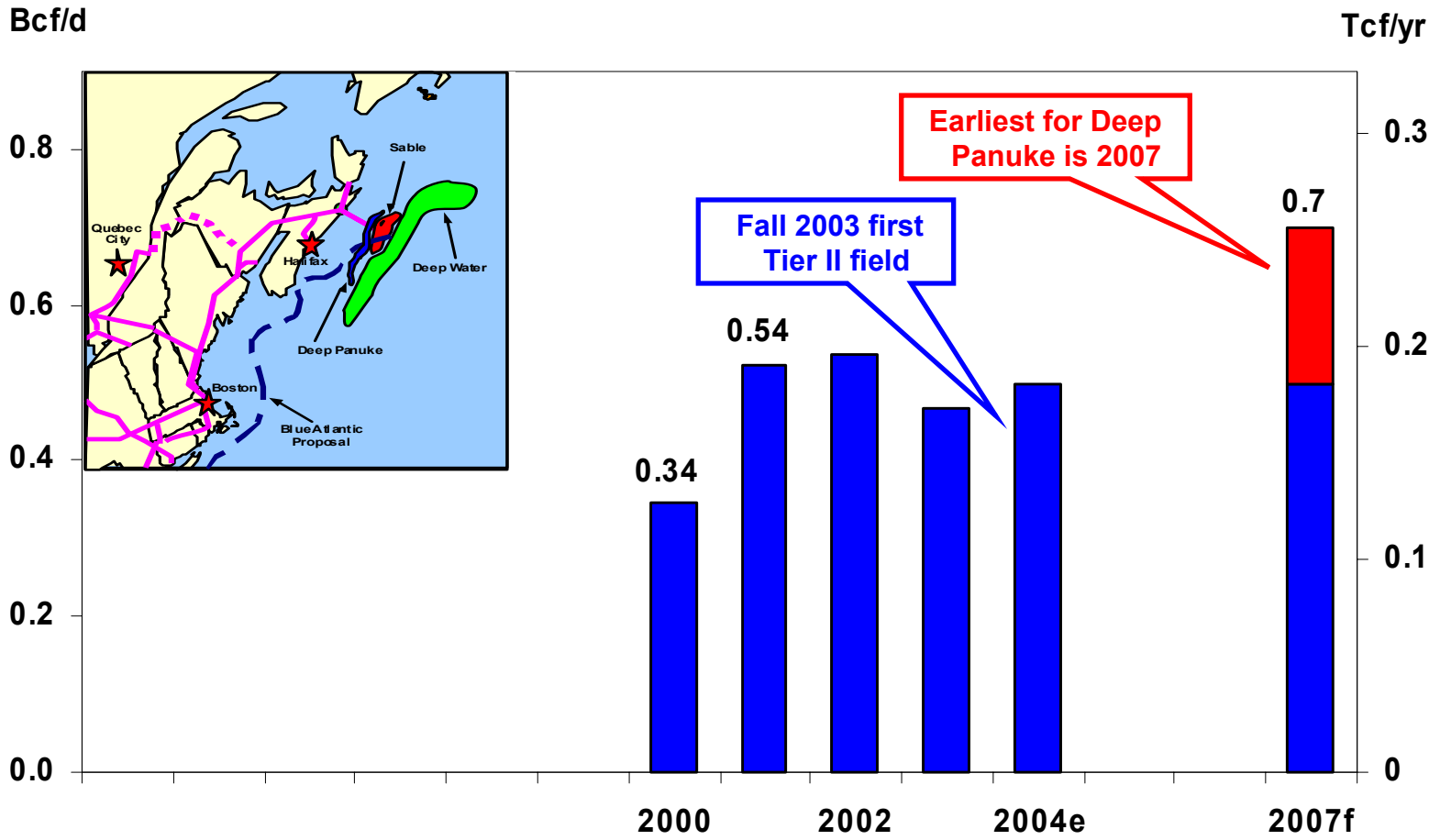
East Coast Development



- **Proven Reserves:**
 - Nova Scotia: 8 Tcf
 - Newfoundland: 10 Tcf
- **Close to Markets**
- **M&NE completed '99**
- **Current Production:**
 - NS: 520 MMcf/d
 - Nfld: 250 MMcf/d (100% re-injected)
- **Deep Panuke (1 Tcf)**
 “Time-out to strengthen economics/reserves”

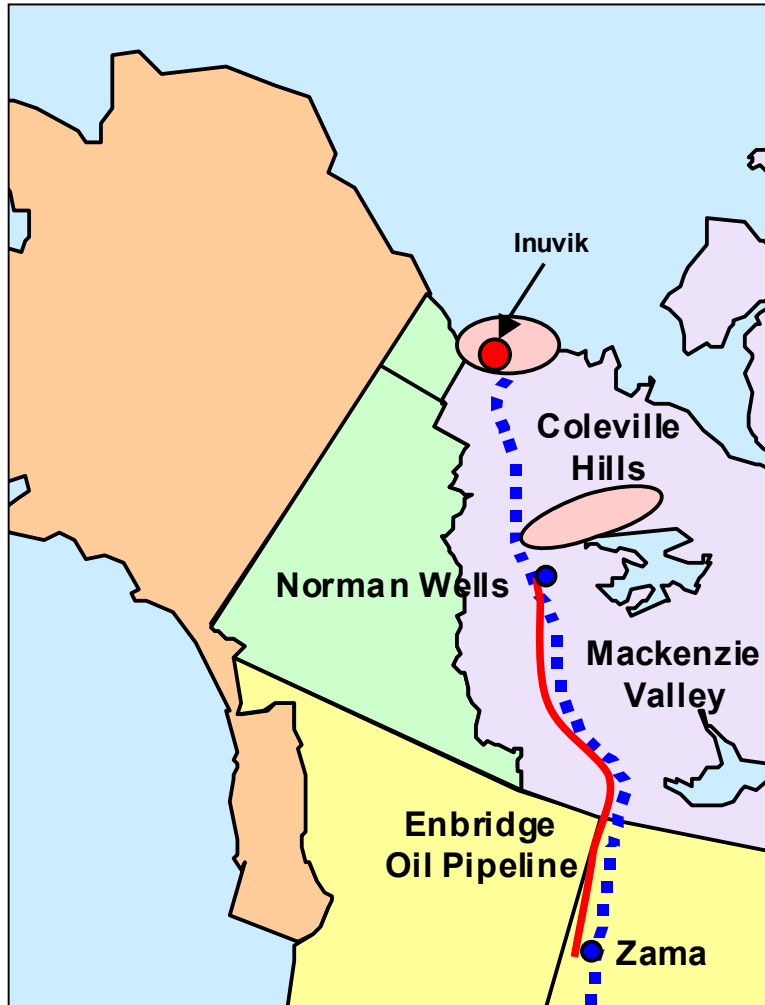


East Coast Development





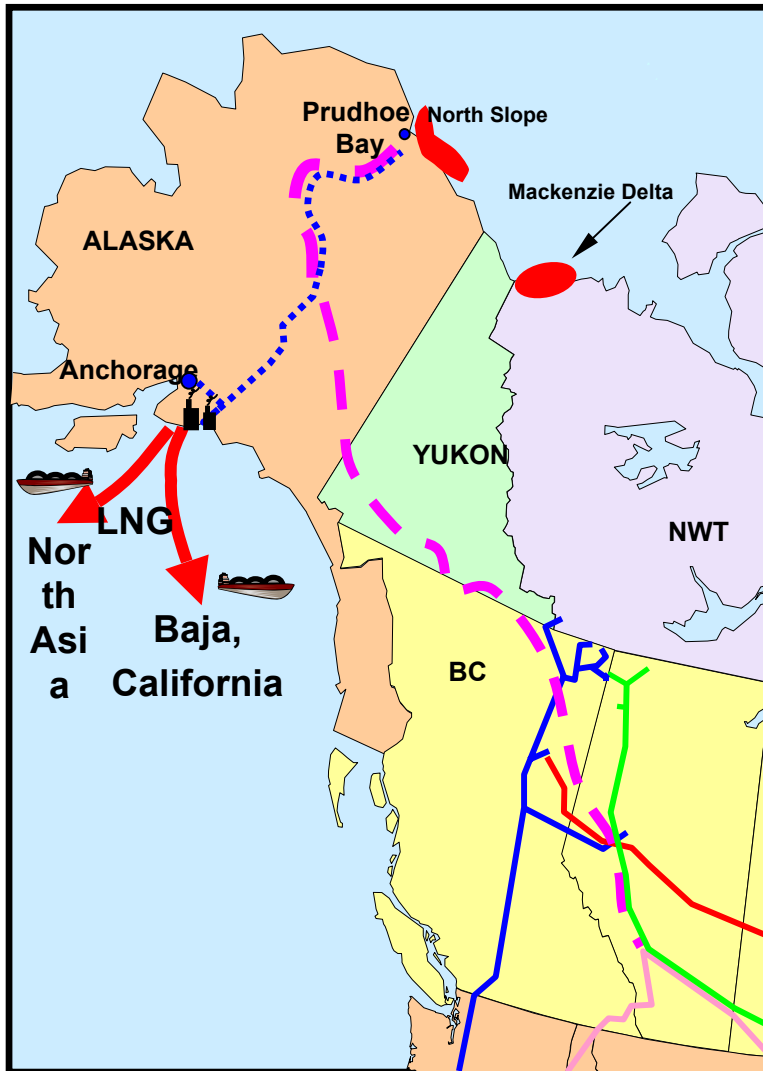
Mackenzie Delta Gas



- Proven Reserves: 9 Tcf
- Potential Reserves: 64 Tcf
- Delta Producers Group & APG proceeding with “project definition” phase
- Issues:
 - APG Financing
 - Accommodation of Explorer volumes
 - Inclusion of pipeline(s)
- Filing of PIP: 2nd Q 2003
- Full NEB Appl'n: Late 2003/04
- In-service: mid-2009



Alaska Gas



- Proven Reserves: 31 Tcf
- Potential Resource: 99 Tcf
- North Alaska currently produces: 8 Bcf/d
- Initial pipeline capacity: 2.5 Bcf/d
- Ultimate capacity: 4.0 - 4.5 Bcf/d
- Earliest in-service date: 2012
- Govt. / fiscal: U.S. + Alaska



Potential Northern Gas Timetable Mackenzie Delta + Alaska

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Technical Studies, prepare application			Facilities Design							Mackenzie Delta			
	Regulatory Review		Order Equip.	Construct Pipeline, Drill Wells			Flowing						
Engineering: Preliminary		Detailed	Regulatory Review		Order Equip.	Construct Alaska Pipeline to Alberta				Alaska			
										Compression	Flowing		



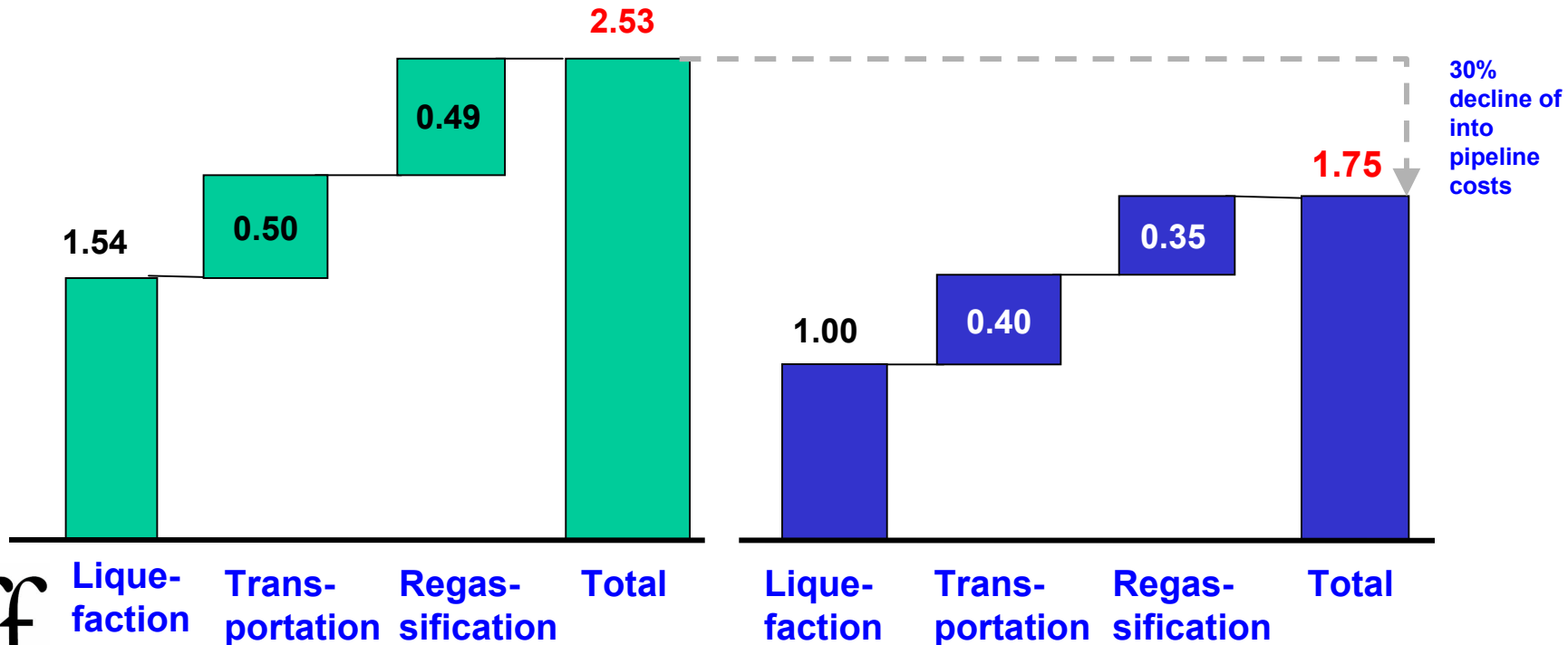
Standard Gas: LNG Costs have Declined Significantly

\$/MMBtu – 2,500 mile voyage
(Before feedstock prices)

Lower costs can improve netbacks or open additional markets, especially with higher U.S. gas prices

1980's LNG costs

Current LNG costs





Conclusion:

- No Quick Solutions
- Prices High & Volatile
- Demand Destruction

L48/Canada

Expand/New LNG Terminals

~~Mexico
Exports?~~

Mack.Delta Gas

**Alaska
Gas**

2003

2005

2007

2009

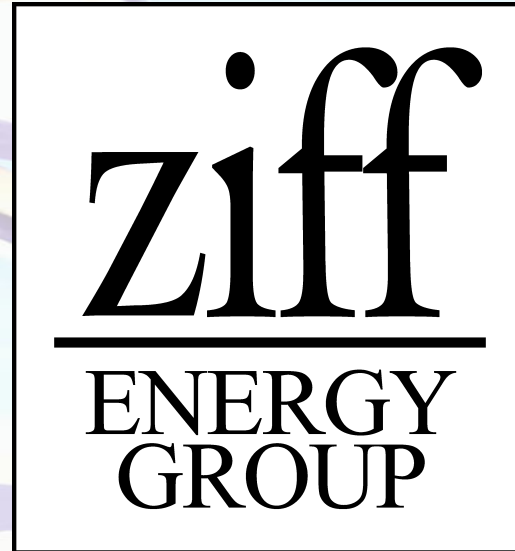
2012+

For more information Visit

North American Natural Gas Strategy Conference

November 3/4, 2003

Calgary, Canada



Global Energy Advisors

www.ziffenergy.com