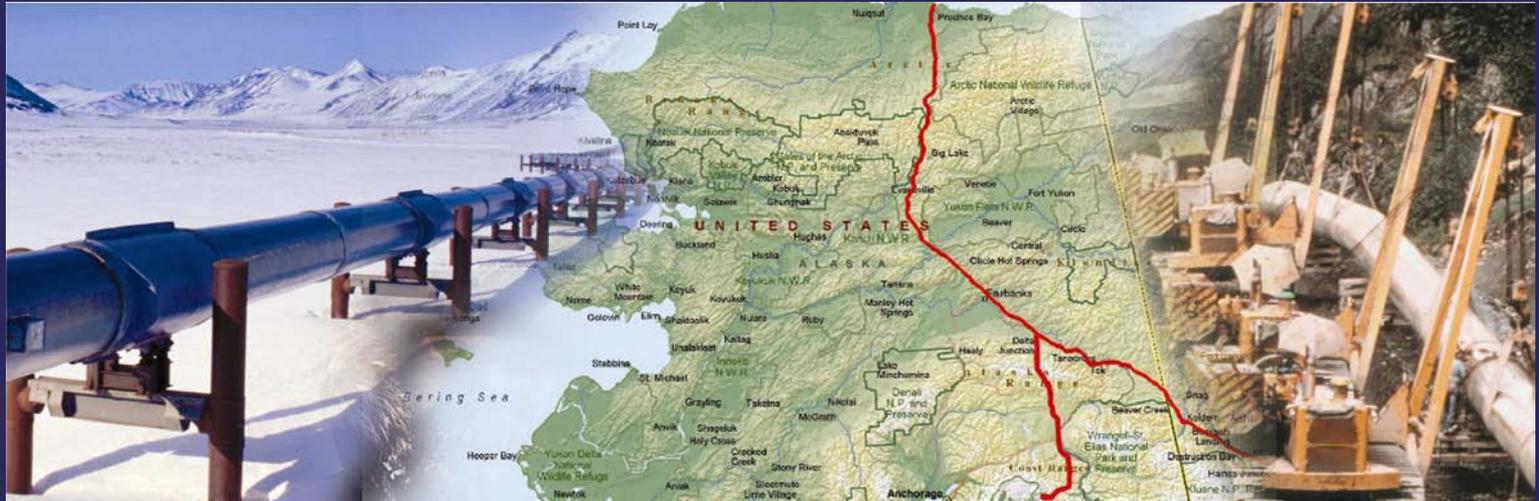


Meeting the Challenges of Getting Alaska's Natural Gas to Market



Frank Richards, P.E.
Deputy Federal Coordinator
Office of the Federal Coordinator for
Alaska Natural Gas Transportation Projects
Northern Transportation Conference
September 19, 2011

ALASKA GAS PIPELINE PROJECT

Total length: 1700 miles

- Pipeline length (Alaska): 734 miles
- Pipeline length (Canada): 966 miles

Pipeline diameter: 48 inches

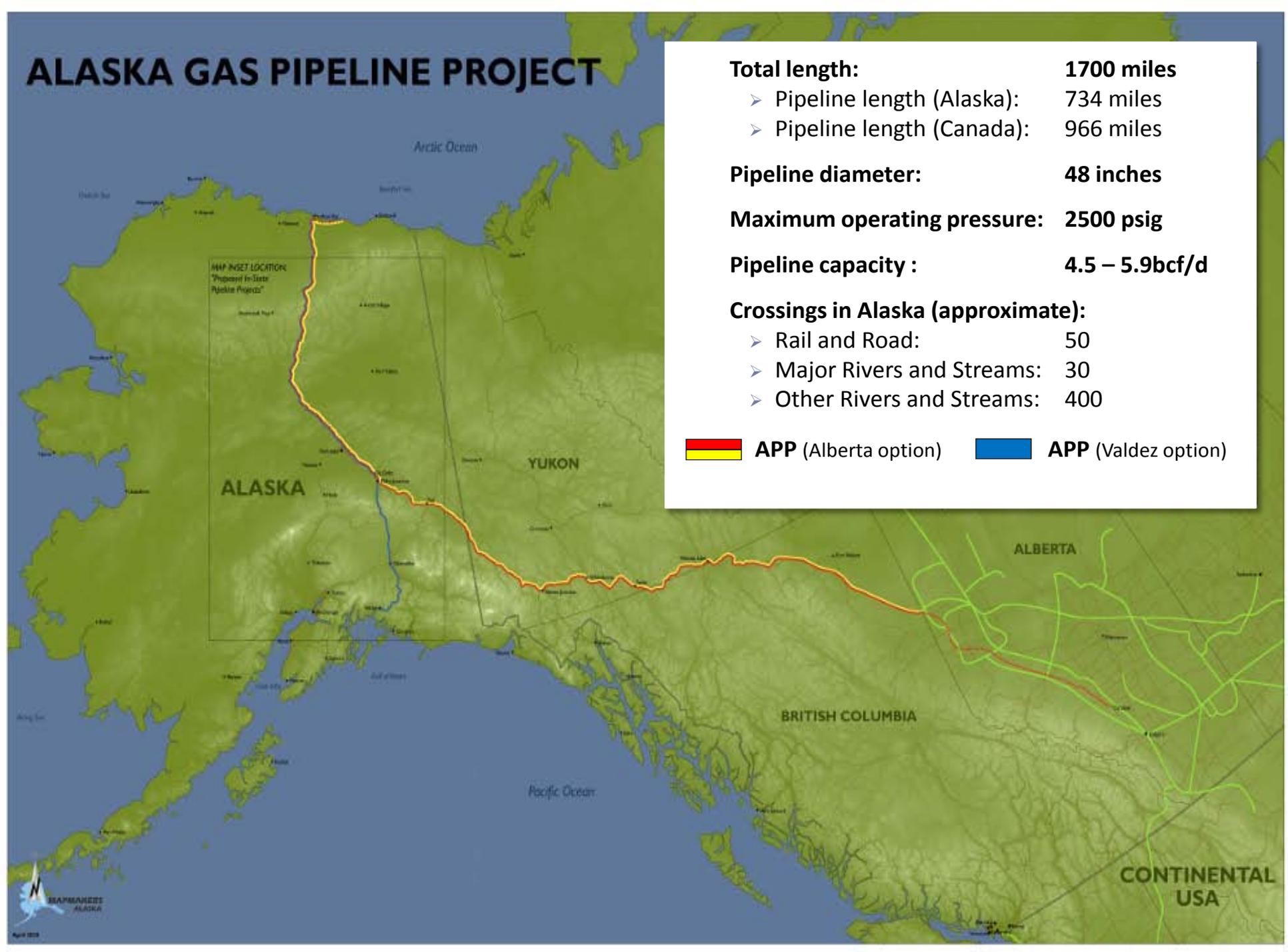
Maximum operating pressure: 2500 psig

Pipeline capacity : 4.5 – 5.9bcf/d

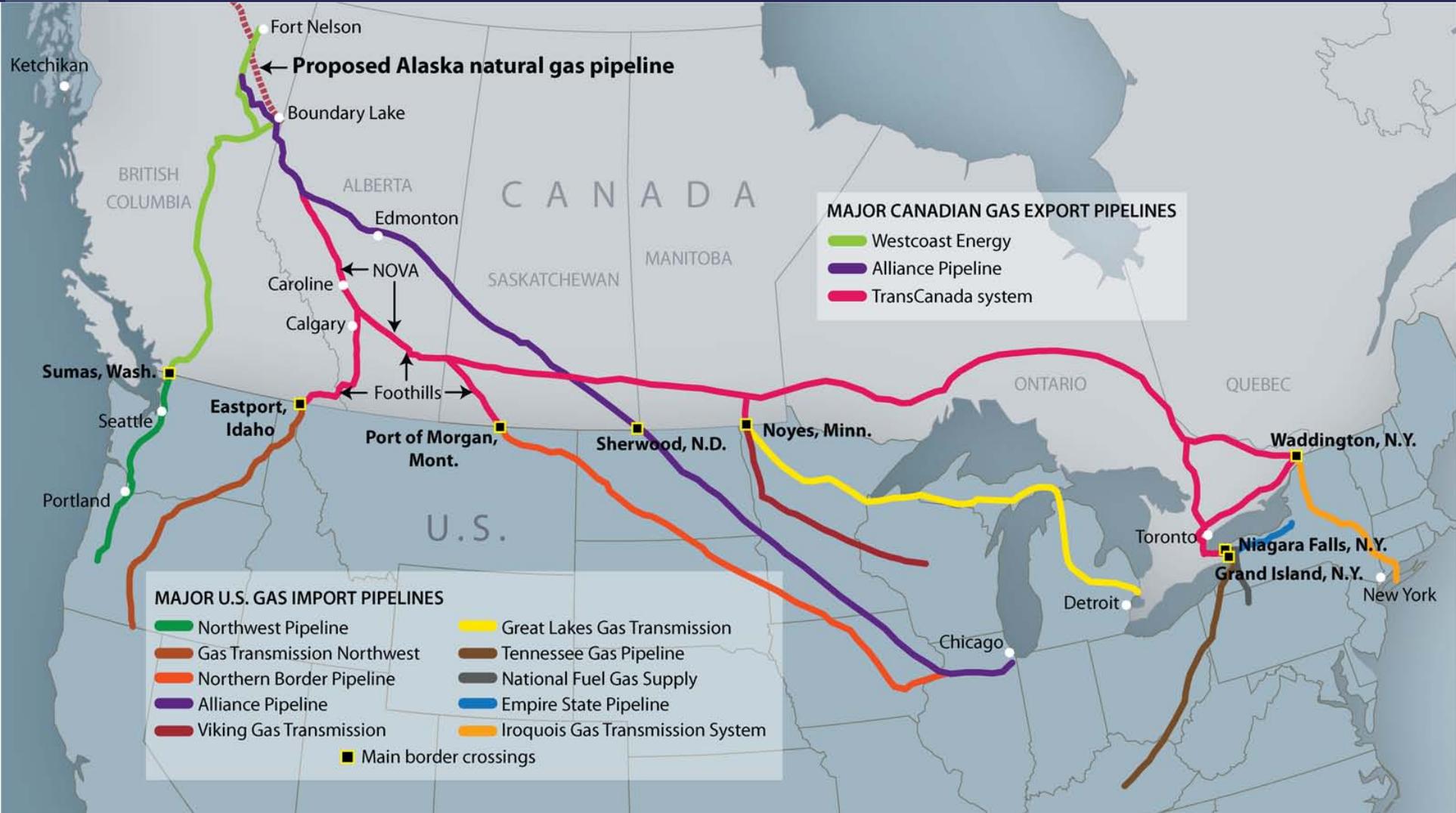
Crossings in Alaska (approximate):

- Rail and Road: 50
- Major Rivers and Streams: 30
- Other Rivers and Streams: 400

 **APP (Alberta option)**  **APP (Valdez option)**



Major Canada-U.S. gas pipelines



Project update

- ❖ Open season closed 14 months ago
- ❖ Bids were conditional (and confidential)
 - ❖ Possible conditions: Construction delays, overruns, service interruptions, Alberta terminus, back-out deadline — it's not only the state
- ❖ Complex commercial negotiations are under way
- ❖ No Federal Energy Regulatory Commission (FERC) deadline to conclude open seasons
 - ❖ Terms become public when 'precedent agreements' ready
- ❖ Shippers generally take on project development financial risk with signed precedent agreements

Actions to date by applicants

❖ Pre-filing

- ❖ FERC granted Alaska Pipeline Project's (APP) request to utilize the pre-file process on May 1, 2009
- ❖ APP completed two field seasons of data collection

❖ Filing of complete application with FERC

- ❖ APP intends to file its complete application with FERC in October 2012
- ❖ This begins the actual National Environmental Policy Act (NEPA) review process

Actions to date by applicants

❖ Scoping

- ❖ FERC held federal agency scoping meetings in 2008 and 2010.
- ❖ Monthly interagency meetings for all federal agencies
- ❖ Scoping period began August 1, 2011

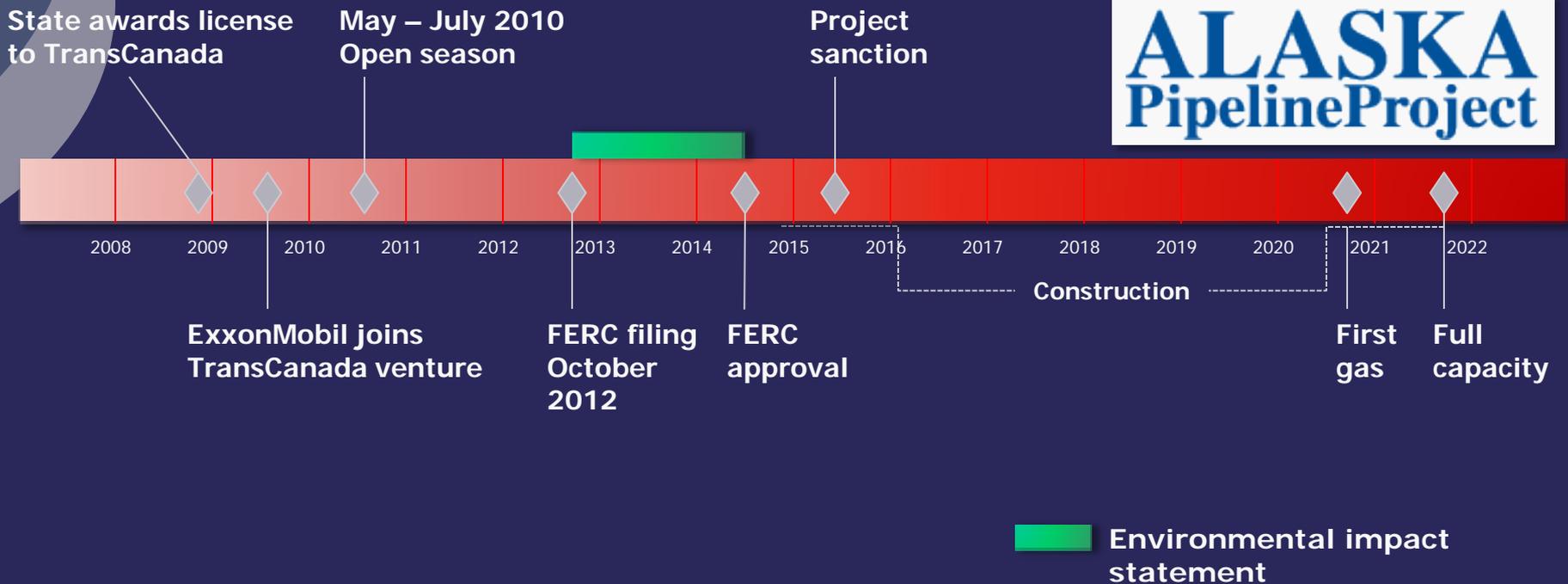
❖ Public Meetings

- ❖ APP hosted meetings along route in March 2011

❖ Technical workshops

- ❖ Applicant-specific workshops and informational meetings are ongoing

Project timeline



What are the Challenges?

Technical
Economic
Process

Technical: Construction in Permafrost



Technical: Arctic Construction



Technical: High Pressure/Large Diameter 48-inch Diameter, 2500 PSIG



Photos provided by North American Pipeline Inc

Technical: Seismic



This rupture of the Tok Cutoff Highway in Alaska resulted from a magnitude 7.9 earthquake along the Denali Fault in 2002.



Peter Haeussler, USGS, prepares to measure the offset of a crevasse on the Canwell Glacier.

Technical: Climate Change



Northern Oil and Gas Research Forum

Economic

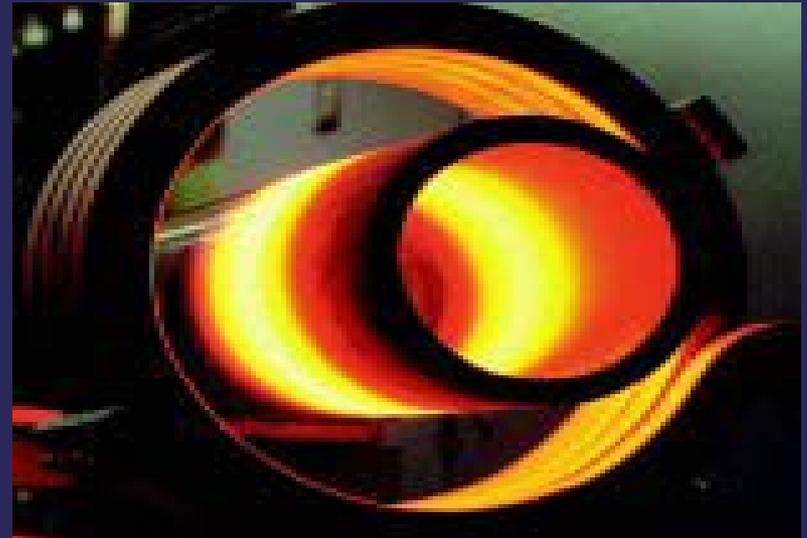
- ❖ Financing a \$32- \$40 Billion Enterprise
- ❖ Steel Manufacturing and Delivery
- ❖ Training/Retaining Qualified Labor
- ❖ Natural Gas Prices

Economic: Financing a \$32 - \$40 Billion Enterprise

- ❖ Federal Loan Guarantees
- ❖ Public Law 108-324, Section 116
- ❖ \$18 Billion in 2004 U.S. dollars

Economic: Steel

- ❖ Estimated 1.1 million tons in Alaska
- ❖ Estimated 1.4 million tons in Canada



Economic: Training/Retaining Qualified Labor



Economic: Natural Gas Prices

**NYMEX Natural Gas Futures
High - Low (Front Month)**



Dec. 3, 2007 - Dec. 3, 2008

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**NYMEX Natural Gas Futures
Close (Front Month)**



Sep 1, 2010 - Sep 15, 2011

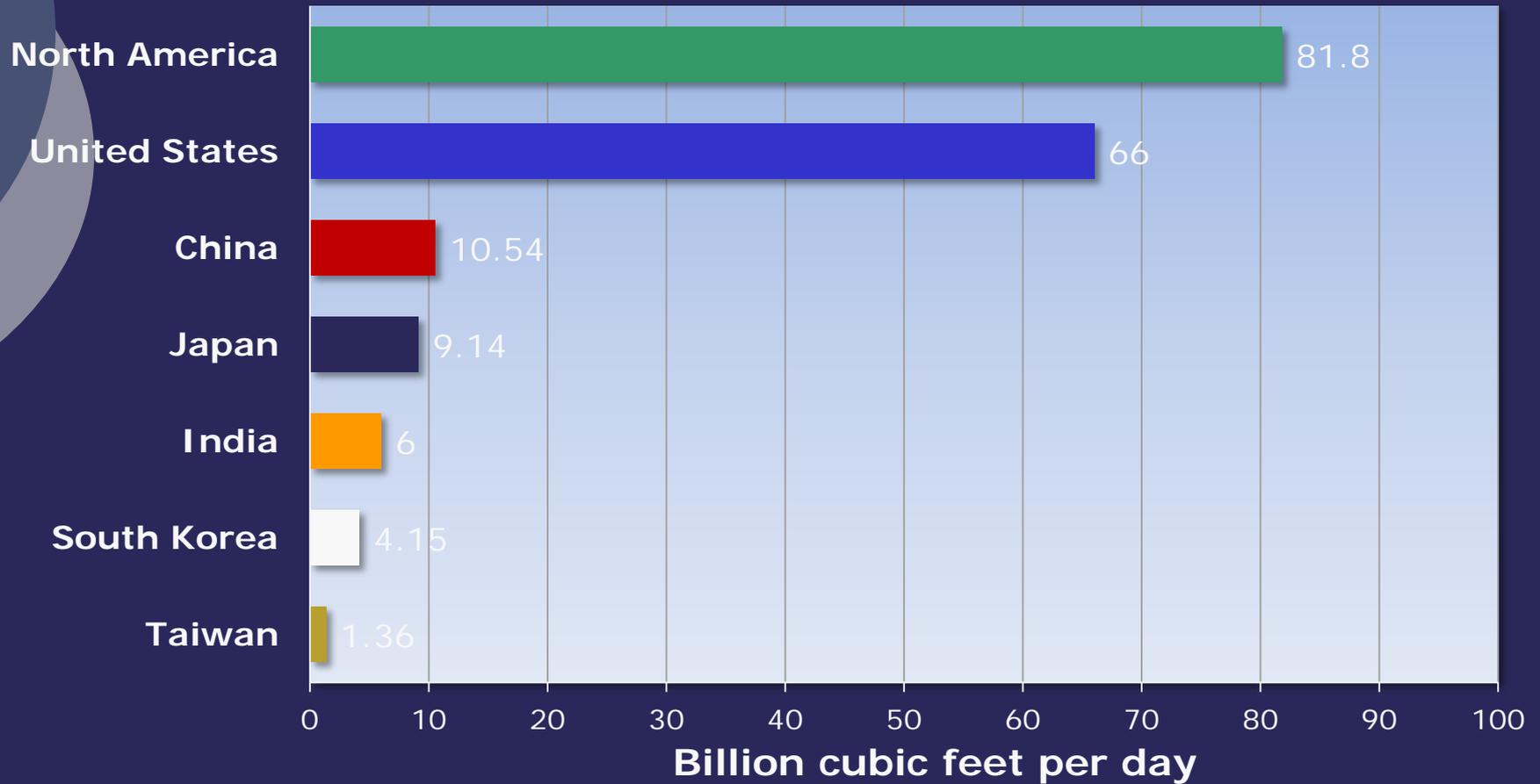
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— Close

Economic: U.S. gas markets

- ❖ Most forecasts see \$6 - \$7 gas, but when?
 - ❖ Credit Suisse forecasts \$6.50 gas in 2015
 - ❖ Deloitte forecasts \$8.00 gas in 2022
- ❖ Higher prices 2005-2008 prompted drilling activity
- ❖ Today's "\$4 gas" pre-sold (hedged) at higher prices
- ❖ Companies (Chesapeake) loaded up on debt
- ❖ Shale boom, recession, reduced demand collided to drive down demand and drive down prices
- ❖ Companies selling gas plays to cut debt, go after oil

2010 natural gas consumption





**Office of the Federal Coordinator
Alaska Natural Gas Transportation Projects**

**Washington, DC Location:
1717 H Street, NW, Suite 801
Washington, D.C. 20006
(202) 478-9750**

**Frank Richards
Deputy Federal Coordinator
Anchorage, AK Location:
188 West Northern Lights Blvd., Suite 600
Anchorage, Alaska 99503
(907) 271-5251**

**<http://www.arcticgas.gov>
info@arcticgas.gov**