No shortage of possibilities or problems for Alaska gas

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Everyone has an opinion

- Former Sen. Ted Stevens
- Former Govs. Frank Murkowski and Bill Sheffield
- Soon-to-be-former University President Mark Hamilton
  - Says gas will never exceed $6/mcf in 2010 dollars in his lifetime
- All of the gubernatorial candidates
- Me too
- The only thing for certain: **<u>We're probably all wrong</u>**

White House opinion

- Interested, engaged, involved
- Elevate focus on the project (but no office move)
- Alaska gas line is part of a national energy plan
- Gas = lower emissions, jobs, domestic energy supply
- White House willing to work with state, project sponsors
- No specific proposals — that's on my work list

Public frustration

- So many expectations since 1968
- So many political promises
- So close — or sort of close — so many times
- Pipe vs. LNG, then pipe, then LNG, then pipe, then LNG, then pipe, now either or, or maybe both
- Meanwhile, Southcentral saw loss of industry and felt the reality of market prices for gas — and they're worried

Don’t give up, not yet

- Pipeline to North America would tap into
  the largest and natural gas market in the world
  - North America = 75 to 80 bcf/d
  - Almost three times China, India, Japan, South Korea, Taiwan
- Billions of dollars in public revenues for the state
- Gas for in-state use; possibly propane too
- Help encourage exploration and extend life of TAPS
- Open seasons (two) will tell us a lot

Problems with Lower 48 pipeline

- Construction risk; high tariff; market risk
- Have to deliver all 4 bcf/d at once; new supply could weaken the market, pulling down prices short term
- No stopping the flow, even in a down market
- Producers need long-term sales but utilities are nervous because public utility commissions second guess them
- There are less risky projects for investors
- It’s all about minimizing, controlling and sharing risk

What would help Lower 48 line

- Economic recovery and demand build
  - U.S. gas consumption fell last year, especially industrial users
- Fuel switching from coal to gas-fired generation
  - Growth in electrical power is the key
  - CERA: Power demand 19 bcf/d 2009 to 35 bcf/d in 2030
  - Little growth expected in industrial, residential demand
- Promoting natural gas as transportation fuel
- Federal restrictions on CO2 emissions

The dreaded shale

- Yes, shale gas production 10% of U.S. supply last year
- Growing across U.S. and Canada, especially Alberta, B.C.
- Close to markets; easy to raise and lower production
- Drilling rig efficiency is up, and up and up
- States are hungry for revenues and jobs
- Shale gas will hold down price spikes; no more $14 gas
- Like Flubber, it's a perfect product — but is it?

The darker shades of shale

- Fracking becoming about as popular as an oil spill
- Water quality concerns
- EPA review; possible federal legislation
- More questions as it grows bigger, closer to urban areas
- One big environmental disaster could change the game
- Shale needs tens of billions of dollars of new pipelines
- Steep production decline curve; deeper wells cost more

LNG is an option

- But we're not alone looking west to East Asia
- Papua New Guinea, Australia (including coal-seam,) Indonesia, Sakhalin, Malaysia and Brunei
- West African nations, Qatar, Oman, Yemen
- All either operating or building LNG plants
- Almost 10% Japan's 2008 spot supply came from Atlantic
- Floating LNG; Shell's multibillion-dollar order with Samsung will access smaller fields in Pacific Basin

LNG competition is strong

- New projects totaling 9 bcf/d online in 2009-2010
- An additional 7 bcf/d scheduled by 2015
- Once online they don't cut back; need to recover costs
- Mitsubishi forecasts potential Asia Pacific LNG supply could exceed demand by almost 20% in 2015
- Uncertain after that, but no shortage of Pacific options at tide water; no need for 800 miles of Arctic pipe

Other supply options for Asia

- We're not the only country with shale gas
- Shell signed a 30-year deal to help China unlock tight gas
- China and India are looking for more domestic gas
- China has pipeline gas options: Russia, Turkmenistan
- India looking for pipeline gas, too
- Tokyo Gas just signed a 20-year deal with BG Group for Australian gas to supply 11% of its needs

LNG pricing in Asia

- The market is shifting away from near 100% reliance on long-term sales contracts tied to oil prices
- Spot market and short-term sales now comprise almost 20% of the volume in the Asia Pacific market
- Buyers like bargain spot prices in a down market: China paid $4.30 for Russian LNG in June 2009 and $3.48 for an Indonesia delivery that same month

Market size is important

- Global gas trade in 2007
- 73% of worldwide gas production was consumed within the producing country
- 19% of gas production was delivered to foreign customers by cross-border pipeline
- 8% of gas was delivered by LNG tanker
- The bigger the market, the more new gas it can absorb

Don’t forget the valuable liquids

- North Slope gas has a high-value liquids stream
- Don’t just think about the methane price
- Liquids can piggyback on methane for transportation
- Example: Qatar can sell methane at low price while banking profit from liquids for its petrochemical industry
- Alberta hungry for liquids to feed existing plants
- Alaska can keep propane for local use

It's not easy, but it's possible

- Open seasons for TransCanada/Exxon and Denali an opportunity to gauge market demand for Alaska gas
- Shippers asked to commit $100 billion in binding, contractual commitments lasting 20 years or more
- At some point state, producers, pipeline owner and even the federal government will need to sit down and talk
- Pipeline to North America is possible if right things happen and if all parties are **willing to contribute**

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