

Overview & Status

October 2001



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Alaska Gas Producers Pipeline Team

Outline of Information

- Primarily Alaska to Alberta Project Overview
- Base Case requires Alberta to Lower 48 segment
- Comparison of route attribute elements
- Summary and Next Steps



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Team Objectives

- Assess the economic viability of a pipeline project
- Focus on key considerations
 - Technical
 - Environmental
 - Commercial
 - Regulatory
 - Political
- Prepare sufficient information to support potential permit applications

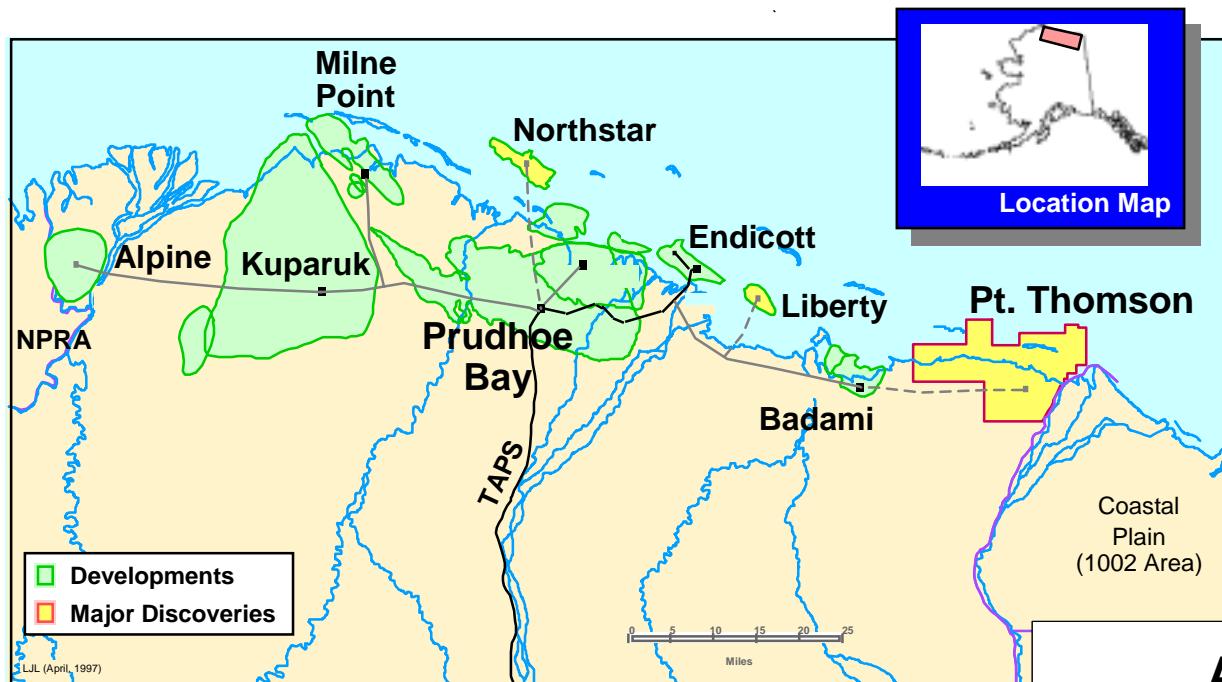
Safe and Environmentally Responsible



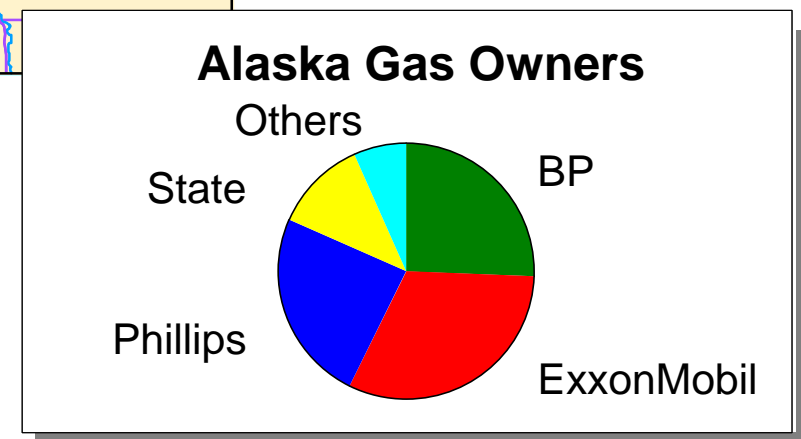
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Alaska Gas Resources & Major Producers



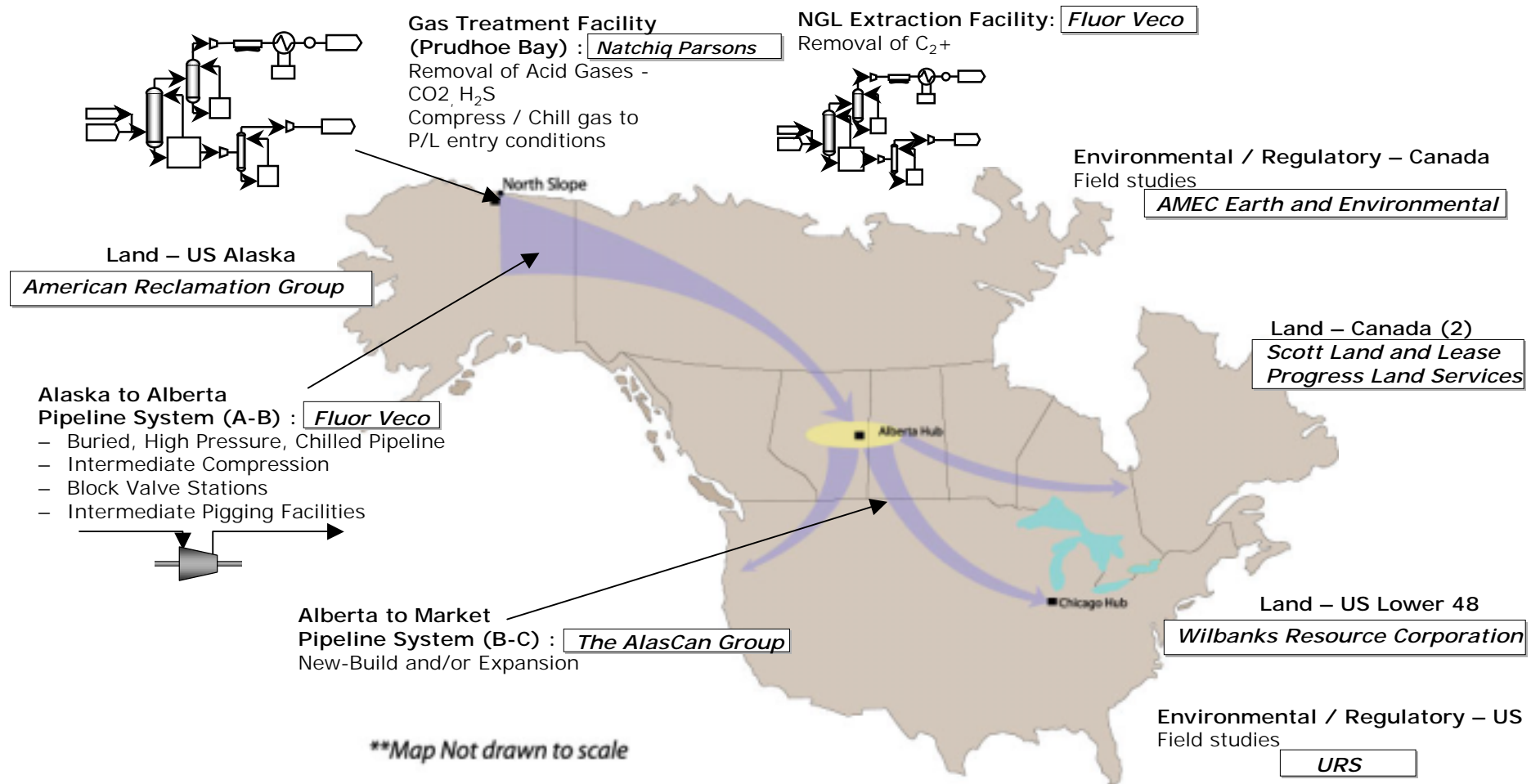
- North Slope known resource ~ 35 Tcf
- Prudhoe Bay – 8 Bcf/d of production currently
- Reinjects into reservoir
- Ultimate resource estimates ~ 100 Tcf



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Overall Project Scope



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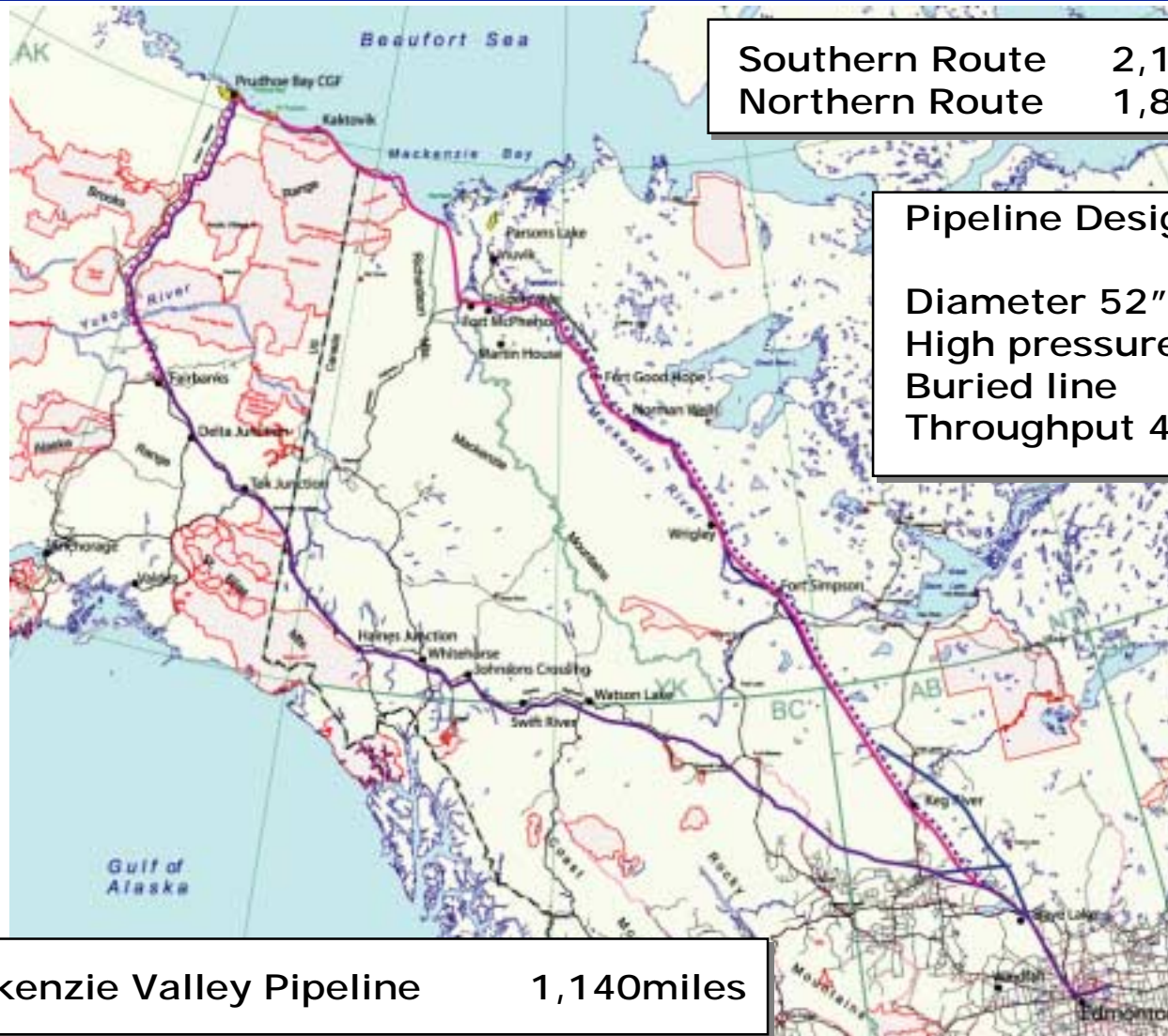
- Feasibility study underway – expect engineering to be completed by year-end.
- Sharing interim/preliminary data.
- Many issues are being evaluated, including:
 - Technology and constructability (costs)
 - Beaufort Sea construction
 - Expandability
- Current analysis indicates project is not presently economic
 - Cost uncertainty
 - Market volatility
 - Regulatory/political risks
 - Fiscal risks



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Preliminary Comparison of Two Pipeline Routes



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Route Attribute Elements

- Economics
- Revenues
- Gas Access
- Jobs
- Environment
- Safety
- Timing



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Element 1: Economics

Neither Route Is Economic

Total Project Cost (\$bn)

(4.0bcf/d from Alaska, 0.8bcf/d from MD)

	South	North
Gas Treatment Plant	2.6	2.7
Alaska to Alberta	9.0	6.8
Alberta to Market	5.3	5.3
NGL Extraction Facilities	0.3	0.3
Alaska Project Total	17.2	15.1

Mackenzie Delta Line	2.3	0.9
Pt. Thomson Development	1.3	1.3

Notional Toll (\$/mcf)

(Alaska North Slope to US L-48 Market)

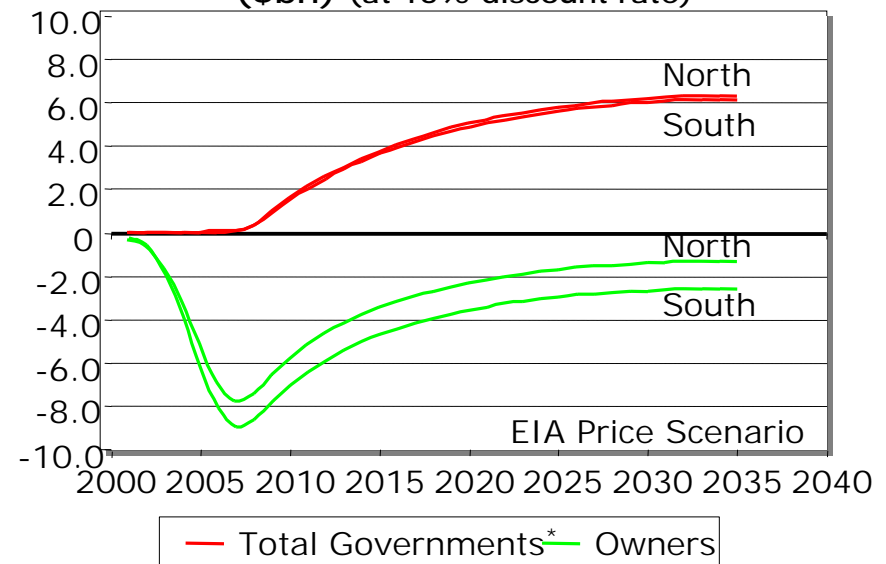
	South	North
Gas Treatment Plant	0.30	0.32
Alaska to Alberta	1.31	0.97
Alberta to Market	0.78	0.78
Total	2.39	2.07

All number in US dollars

Price Assumptions

- Based after EIA, ~\$3.00/mmbtu, escalating with inflation.
- View 2000 price spike as an anomaly.

Project Discounted Cumulative Cash Flows (\$bn) (at 15% discount rate)



* Includes Mackenzie Delta Benefits

- Owner's investment not repaid.
- Additional risk from price and cost uncertainty.
- Team is still working to improve economics by lowering costs.



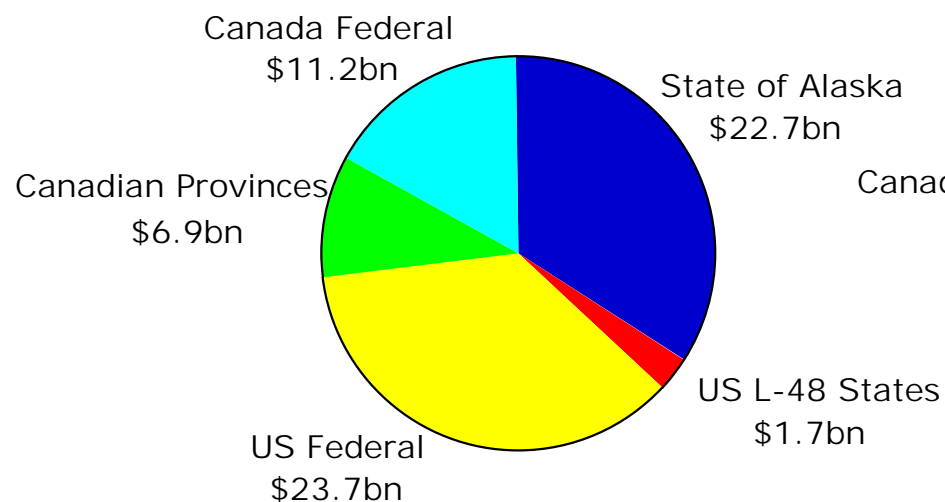
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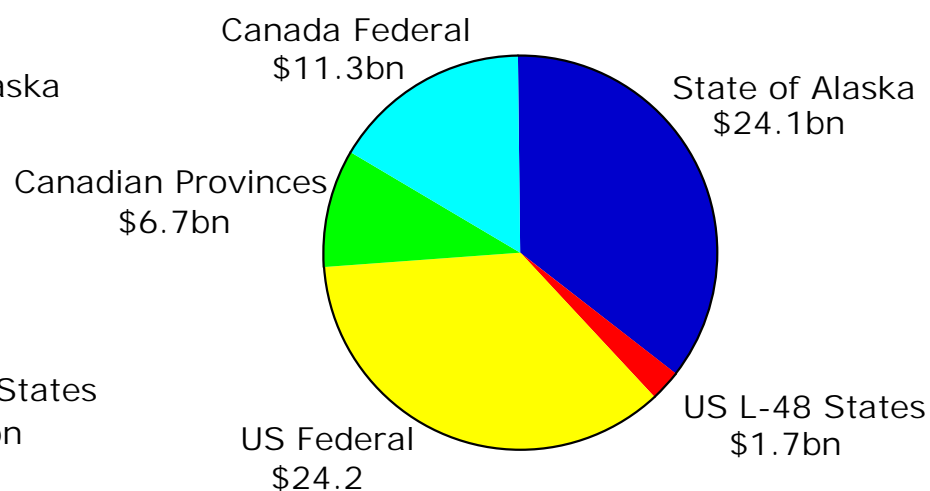
Element 2: Revenues

Substantial Government Revenues Regardless of Route

**Total Undiscounted Revenue
South
\$66.2bn, MoD**



**Total Undiscounted Revenue
North
\$68.0bn, MoD**



Assumptions:

- Both routes include MD upstream and midstream revenues.



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Element 3: Gas Access

Gas to Alaska Is Important to State

- We understand this issue is a priority for the State.
 - Looking for positive solution regardless of route.
- Alaska gas demand is small relative to overall project throughput.
 - Mid-term South Central demand could be met through Cook Inlet.
 - Fairbanks energy demand would require significant investment to convert to gas; initial volumes 10-20mmscf/d.
 - Desire to meet potential future gas demand is understood.
- Alaska demand can be met with either route.
 - Southern route will run through Alaska.
 - A third-party or government funded trunk line to Fairbanks for Northern route could provide similar access to gas in Alaska as a Southern route.
- A lower-cost Northern Route generates sufficient incremental revenue for participating governments to fund building of a trunk line from Pump Station 4 to Fairbanks.



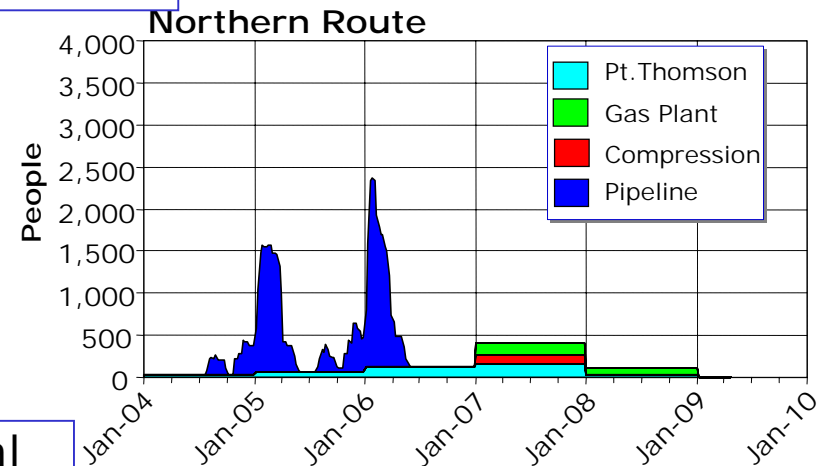
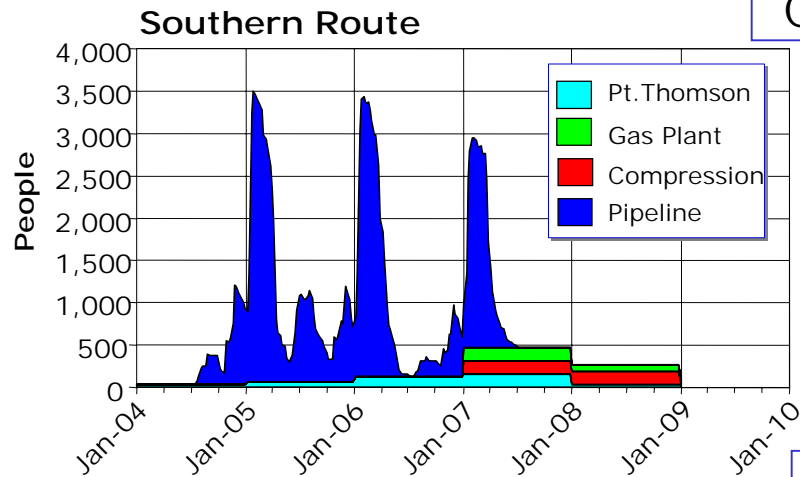
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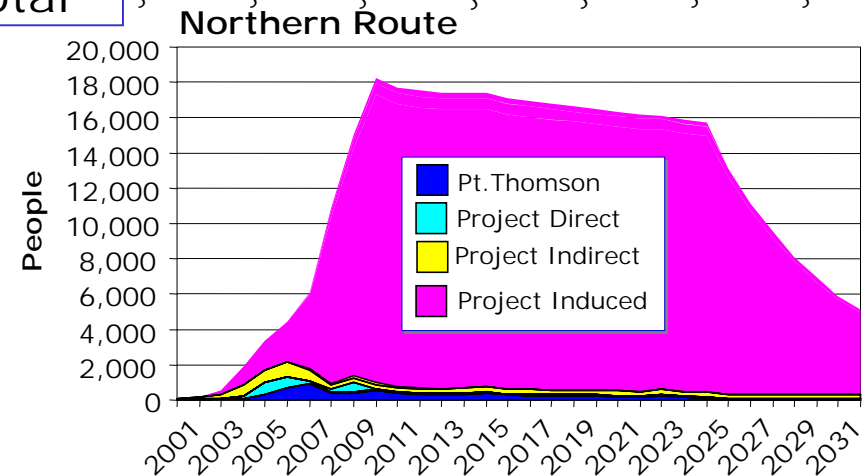
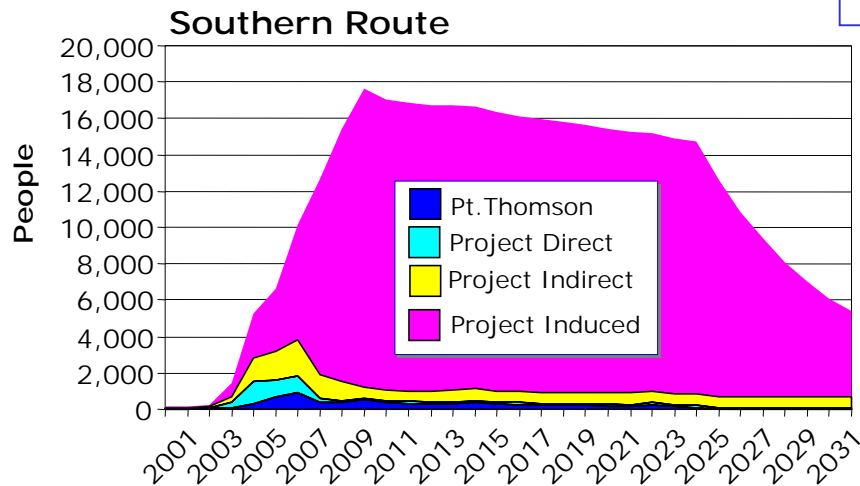
Element 4: Jobs

Massive Number of Alaska Jobs for Either Route

Construction



Total



Direct Jobs - Jobs directly associated with construction, installation, and operation.

Indirect Jobs* - Support industry jobs including activities such as hauling, catering, etc.

Induced Jobs*- Jobs created by increased government and household spend.

* Per Northern Economics, 2001.



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Element 5: Environment

Footprint and Beaufort Sea Considerations

	South	North
New Infrastructure (acres)	19,800	17,200
Threatened or Endangered Species Along Route (#)	4	5
Important Wildlife Habitat (miles)	340	440
Environmentally Managed Areas (miles)	300	0
Previously undisturbed corridor (miles)	200	450 Land, 240 Sub-sea
Total CO ₂ Emissions (million tons/year)	2.5	2.0
Compressor Stations (#), horsepower (thousands)	11/512	12/532
Overall Length (miles)	2,139	1,803

- If they occur, gas “spills” vaporize and have significantly less of an environmental challenge than oil spills
- Operation of Beaufort Sea pipeline does not present a known impact to Bowhead whales
 - Possible impact of noise not yet studied
 - Whale migration could be impacted if maintenance or repairs required
- Construction of Beaufort Sea pipeline presents point-source turbidity and noise issues for whale migration
 - May be mitigated by 80-day annual construction window
 - Construction spreads planned to minimize potential interaction with whales (managed same as historic seismic survey activity).
- Northern Route follows same ROW as proposed Mackenzie Delta pipeline.
 - North impacts less than shown if assume MD pipeline built.



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Element 6: Safety

Both Routes Are Safe

	South	North
Potential Ice Scour	0 miles	240 miles
Steep Slopes	300 miles	-
Seismic Zones	780 miles	-
Water Crossings (#)	950	650
Continuous Permafrost	250 miles	260 miles
Discontinuous Permafrost	1,470 miles	1,140 miles

- No show stoppers at present
 - State-of-the-art technology and design, inherently safe and reliable
 - Extensive pre-installment testing
 - Design for permafrost and discontinuous permafrost
 - Aggressive monitoring (smart pigs, etc)
- Seismic activity
 - Design pipeline to tolerate movement in 3 dimensions (ductile design, expansion joints, etc)
 - Bury in soft “bedding”
- Ice gouging and strudel scour
 - Survey to identify depth of historical scours and subsea geotechnical environment
 - Identify where scour is minimized as much as possible and subsea is suitable for trenching; bury below scour depth

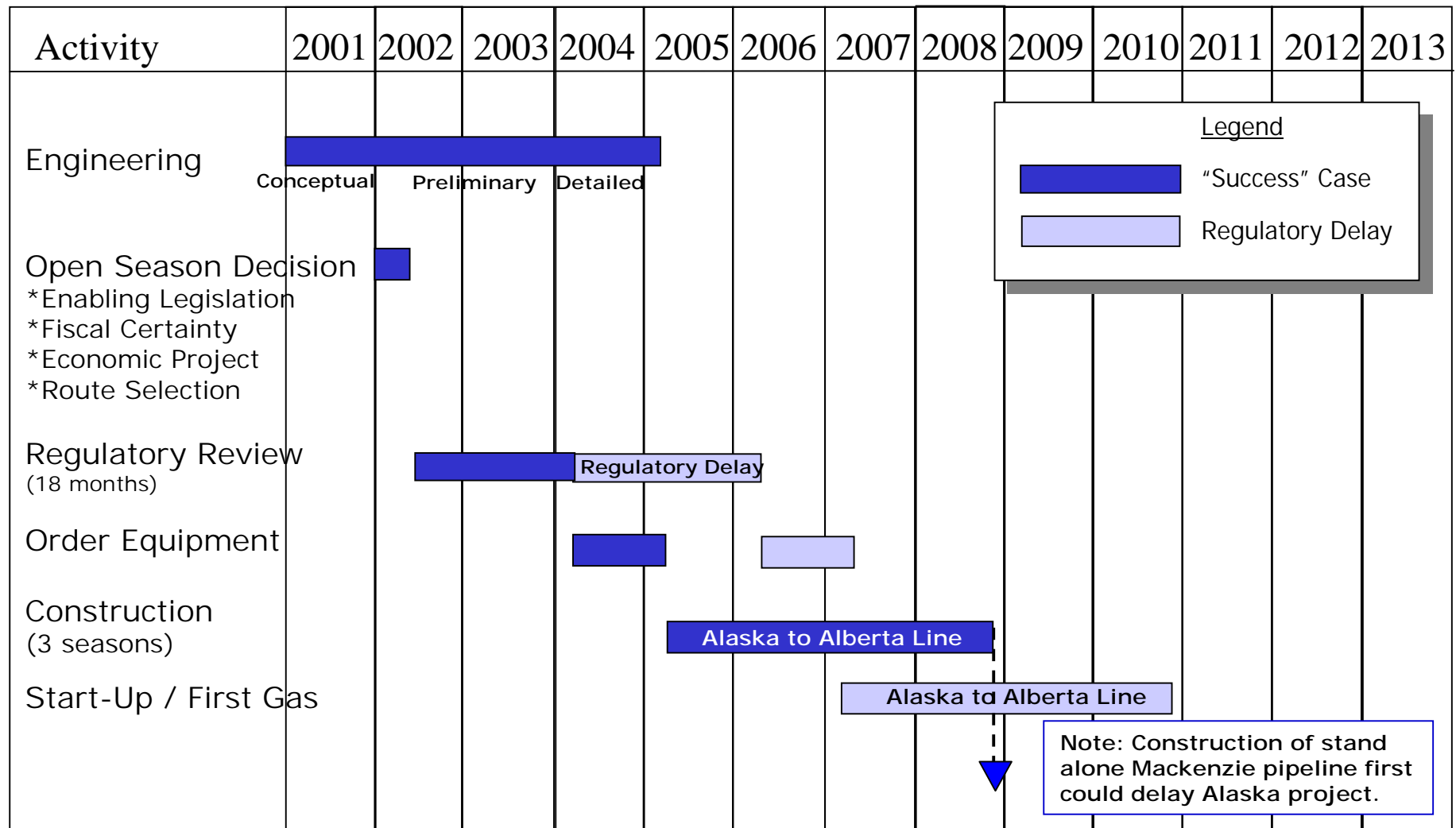


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Element 7: Timing

Challenges for Both Routes, Regulatory Efficiency Key to Success



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U.S. Regulatory Enabling Legislation

- Creates market-driven, expedited regulatory process for any viable project(s)
 - Subject to FERC regulation; fair and reasonable terms and conditions; open access
 - Subject to all environmental laws and regulations; 18 month EIS completion
- Creates Office of Federal Pipeline Director in executive branch to coordinate all related government activity
- Provides timely judicial review
- Mitigates regulatory uncertainty/risk
- Essential for continued joint producer study
- New legislation does not alter ANGTA; ANGTA remains in place
 - Does not preclude Foothills project proceeding under ANGTA
- Creates best possible opportunity for successful Alaska Pipeline Project



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Alaska State Fiscal Certainty

- Predictability / certainty are vital. Not possible to commit to project if State can later revise project economics
 - Simplification of Royalty / Severance tax valuation
 - Ad valorem tax
 - Royalty-in-value vs Royalty-in-kind
- Potential vehicle:
 - Fiscal contract endorsed by legislature
 - 3rd Party dispute resolution.



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Next Steps

Joint Producer Study

- Complete technical study/route comparison by year-end
 - Develop economic project through cost reduction, risk mitigation, leading-edge technology application
- Pursue U.S. Federal enabling legislation (expedited regulatory process)
- Continue positive interaction with State of Alaska on fiscal certainty
- Continue communication with potential shippers as information is available

Governments

- Pass market-based enabling legislation in U.S.
- Progress fiscal certainty with State of Alaska
- Support intergovernmental cooperation
- Avoid non-competitive mandates

Potential Shippers

- Support market-based enabling legislation in U.S.
- Support Alaska fiscal certainty
- Advocate selection of cost-competitive, efficient pipeline system



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