

AK LEGISLATURE SPECIAL COMMITTEE FILES SCOMM 155 3295₁₆₉

ISSUE OF FINANCIAL RESPONSIBILITY

► Who pays?

- + Some road work needed regardless
- + FERC ruled in 1980's pipeline traffic part of ordinary highway use (cannot penalize or treat pipeline differently)
- + Yet, the past tells us pavements will be obliterated!
- + Will FERC see it differently this time?

FINANCIAL RESPONSIBILITY (2)

► STIP funds 'tapped' out

- + Funding levels decline in 2009
- + New earmarks less likely
- + Urban and other needs are great
- + STIP \$\$ cannot be diverted to gas pipeline on wholesale basis

× Status of Shakwak Funds

- + Will Yukon Roads/Bridges be able to handle construction loads and traffic

FINANCIAL RESPONSIBILITY (3)

- ▶ Financial responsibility issues to be discussed:
 - + Major activity site access such as turn lanes (camps, pipe staging yards)
- ▶ Weigh station bypass technology
 - + May improve state and carriers efficiencies
- ▶ Safety features needed
 - + Truck pull outs to allow passing
 - + Module movements safety pull out areas at bridges
 - + More passing lanes

DOT&PF PROGRESS TO DATE

- × Full time coordinator in place
- × Key work identified (bridges, passing lanes, highway reconstruction)
- × Federal funded projects underway
- × GO bond projects – November election
- × Started Conversations with Prospective Builders

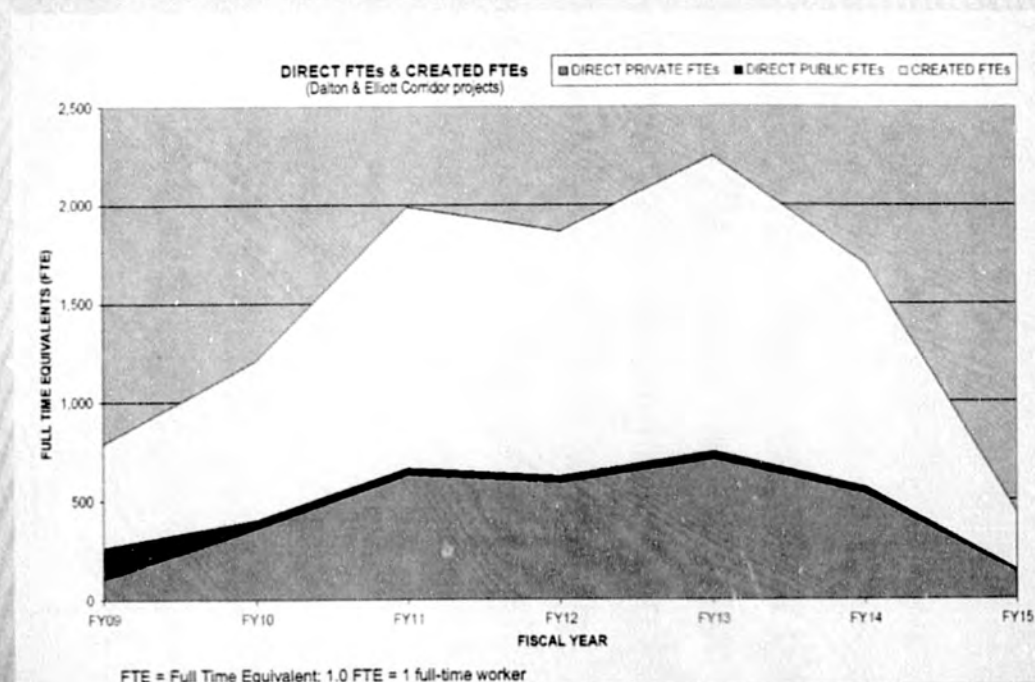
VISIBLE PROGRESS

2007 Elliott Highway: New Washington Creek Bridge and realignment



2007 Dalton Highway: Grade heightening at MP 241 to 242 to alleviate snow drifting, and aufeis.

NEW JOBS CREATED



NEXT STEPS

- × Begin work on Dalton Highway - \$100M
- × Evaluate Needs for FY10 Budget
- × Create State Gasline Permit Office
 - Streamline State Permit Process
 - Increase Federal Permitting Efficiencies
- × Establish Apprenticeship Programs
- × Establish MOU w/ Canadian Counterparts

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OTHER ISSUES

- ▶ Size and weight issues
- ▶ Extra maintenance and operations support during construction
- ▶ Safety and law enforcement
- ▶ Aviation needs
- ▶ ROW for TC Alaska
- ▶ ROW for Bullet Line
 - ▶ Denali Park and ANILCA
- ▶ Construction Impact on Tourism

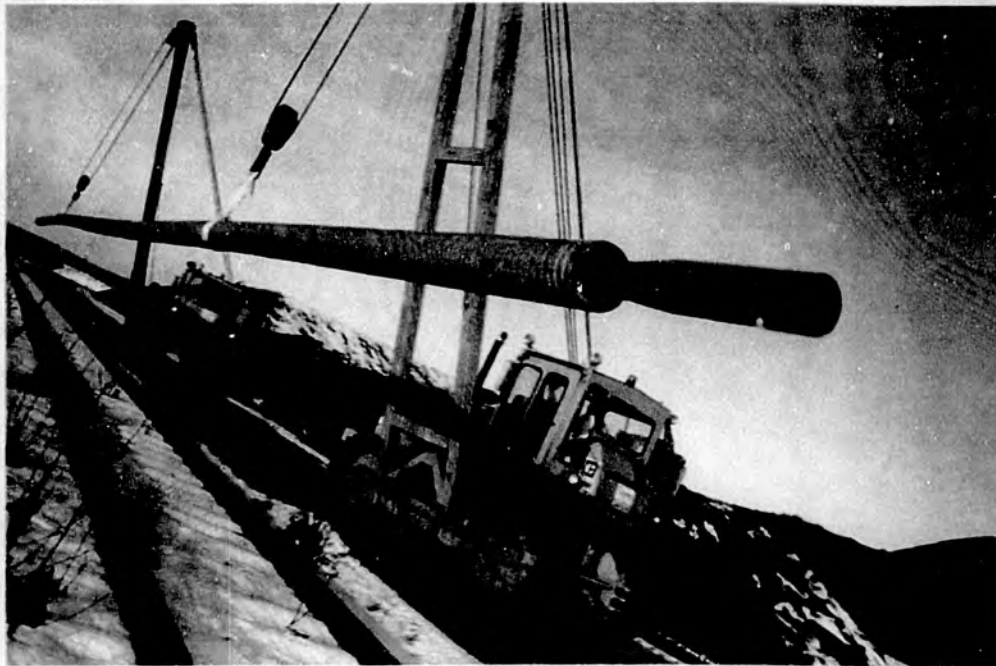


QUESTIONS

Contact:

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Modeling of Short- and Long-Term Employment Generated by Construction and Operation of an Alaska Natural Gas Pipeline Project



ARCADIS

Employment projections generated for ...

- **Construction Phase** of the pipeline and installation of compressor stations, Gas Treatment Plant and LNG facility
- **Operation Phase** of the pipeline and related facilities (compressor stations, GTP and LNG plants)
- **Exploration and Development** work on the North Slope spurred by operation of natural gas pipeline



ARCADIS

Sources of Data/Model Used

- **Sources of Data**
 - Cost data from TC Alaska AGIA Application and other information provided to the State
 - Data generated by State's consultants
 - Information from Division of Oil and Gas
- **Model Used**
 - IMPLAN
 - Cost-driven
 - Uses Alaska-specific labor factors



ARCADIS

Construction Phase Assumptions

- Gas Treatment Plant and LNG facility will be built Outside
- Major equipment and materials purchased Outside
- Labor force in Valdez constrained by size of camp



ARCADIS

Construction Phase Employment Results

- Any natural gas pipeline project will create thousands of short-term construction jobs
- Largest number of construction jobs will be available during a brief peak period
- LNG option
 - 16,000 jobs in peak year
 - Longer 'peak' period due to LNG installation
- TC Alaska/Producer Pipeline
 - 15,000 jobs in peak year



ARCADIS

Operations Phase Employment Results

- TC Alaska or Producer Pipeline: ~200 operations jobs in Alaska
- LNG option: ~600 operations jobs in Alaska
 - ~200 jobs on the pipeline and at GTP
 - ~400 jobs at LNG plant in Prince William Sound



ARCADIS

E&D Employment: Scenario Development

- FERC regulations mandate an open access pipeline
- 'Effective Open Access' is different from FERC-mandated open access



ARCADIS

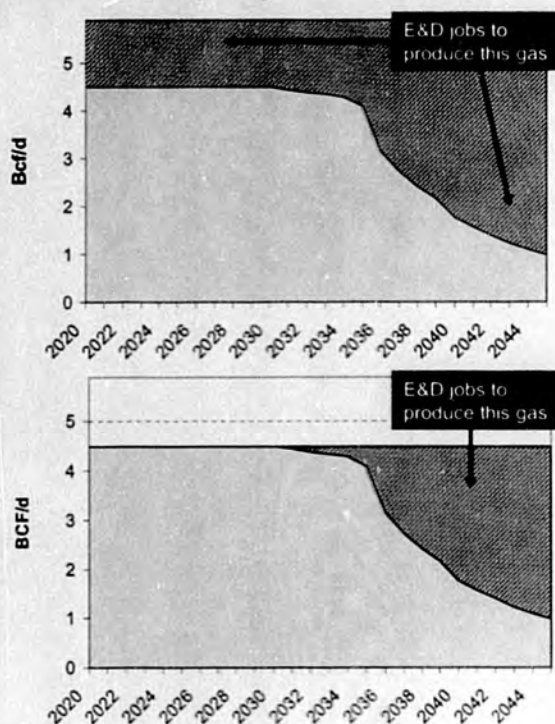
E&D Employment: Scenario Development

- 'Effective Open Access' pipeline system
 - Reasonable transportation rates
 - Timely voluntary expansions
- 'Non-Effective Open Access' pipeline system
 - Higher transportation rates
 - Does not offer voluntary expansion
 - May contain components (e.g., an LNG facility) that is not required to operate on an open access basis



ARCADIS

E&D Employment: Scenarios



ARCADIS

- **TC Alaska Scenario**
 - Offers 'Effective Open Access'
 - Capacity expansions as demanded + Reasonable tariffs = Favorable explorer economics = Aggressive E&D activity
- **'Non-Effective Open Access' Scenario**
 - No capacity expansion
 - No new natural gas production (or E&D work) until current fields fall off plateau

E&D Employment: Assumptions

- New production facilities will be constructed in Alaska
- New natural gas fields will be brought on-line to keep the pipeline full at a given assumed capacity
 - 5.9 bcf/d for TC Alaska Scenario
 - 4.5 bcf/d for Non-Open Access Pipeline Scenario



ARCADIS

Results: E&D Employment

- TC Alaska

- Approximately 72,000 E&D jobs in the 2015 to 2045 timeframe

- Jobs may be created as early as 2015

- Non-Effective Open Access Project

- Approximately 47,000 E&D jobs in the 2015 to 2045 timeframe

- Job creation may be delayed as late as 2026



Results: E&D Employment

- Timing of E&D job creation is a function of a pipeline's characteristics

- Effective Open Access = Jobs Sooner
- Non-Effective Open Access = Job Creation Delay

- Creating new natural gas basin-related jobs sooner is important ...

- Offset job losses likely to occur as existing oil fields decline
- Maintain existing skill sets and talent pool in Alaska



Key Lessons From the Model

- Exploration is risky: big chance of big spend but no payoff
- Need big payoff from the success leg to pay for the large probability of failure
- If payoff from the success leg isn't sufficiently large, initial exploration never occurs

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How AGIA Boosts the Success Leg Payoff

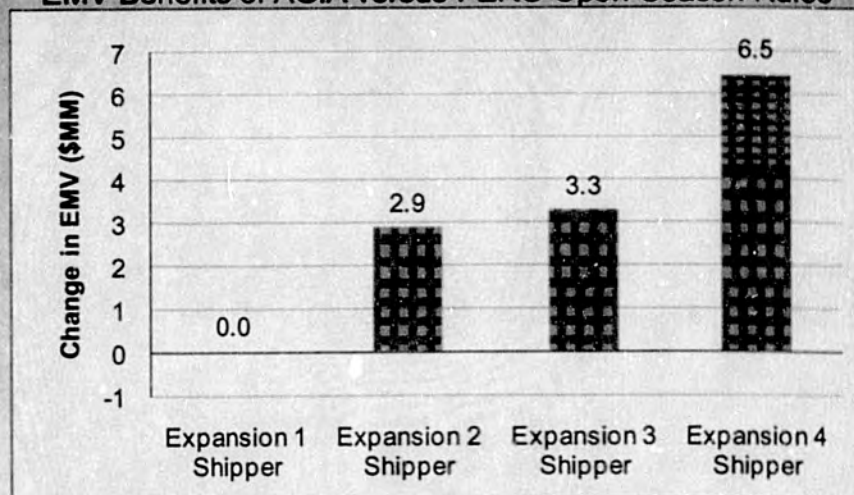
- Lower base tariffs (75/25 debt/equity ratio) increase netbacks
- Lower tariffs through Rolled-in rates also increase netbacks
- Expeditious and predictable timeline, from first spend to first gas, raises *discounted* value of eventual gas sales

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Tariff Provisions

Effect of Rolled-in vs. Incremental
EMV Benefits of AGIA versus FERC Open-Season Rules*



*Expected monetary value (EMV) of a generic North Slope stand-alone gas prospect; 75/25 D/E capital structure for base tariffs, 60/40 for expansions; \$8.00 AECO gas price, flat, real

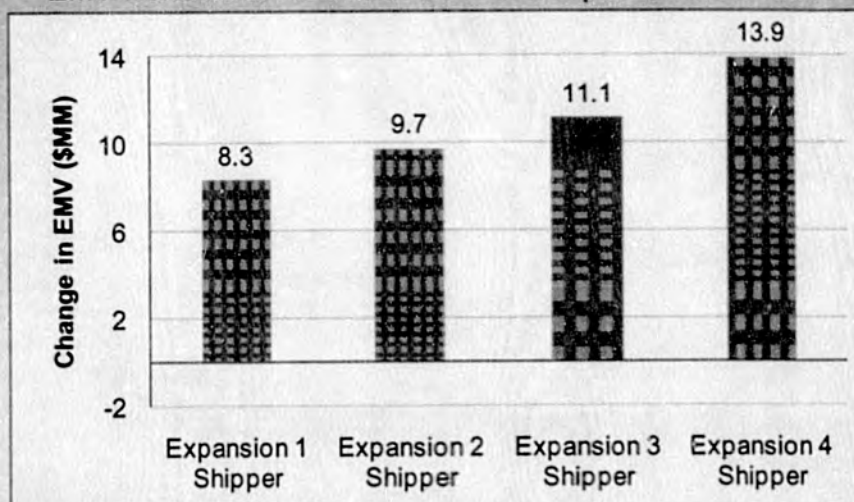
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Tariff Provisions

Effect of Rolled-in, 75/25 D/E vs. Incremental, 50/50 D/E
EMV Benefits of AGIA versus FERC Open-Season Rules*



*Expected monetary value (EMV) of a generic North Slope stand-alone gas prospect; \$8.00 AECO gas price, flat, real

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Critical Results on Access Delays

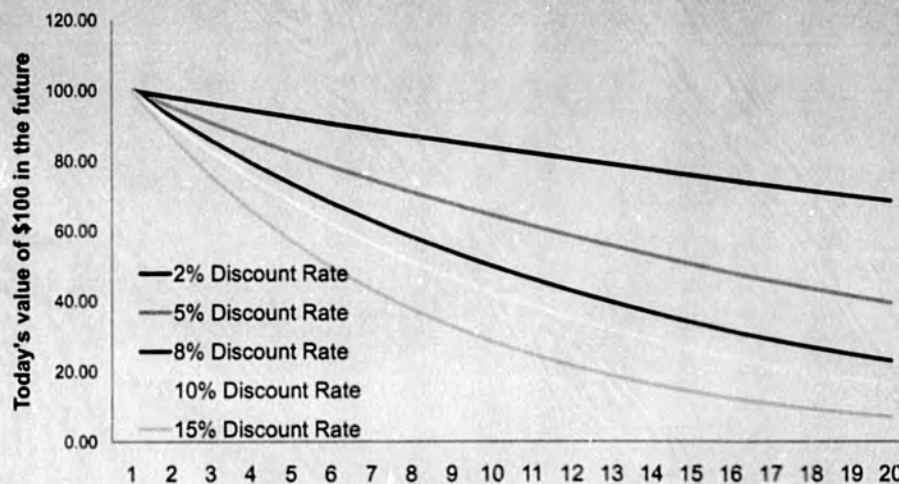
1. Up-front investment for seismic acquisition, exploration drilling, and delineation drilling really hurts the economics of oil and gas projects that risk being delayed for many years
2. Every year of delay in access to a gas pipeline after money has already been invested materially reduces the expected monetary value (EMV) of projects

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How Discounting Works

Present Value of \$100 Cash Flow in Future Years
Sensitivity to Discount Rate

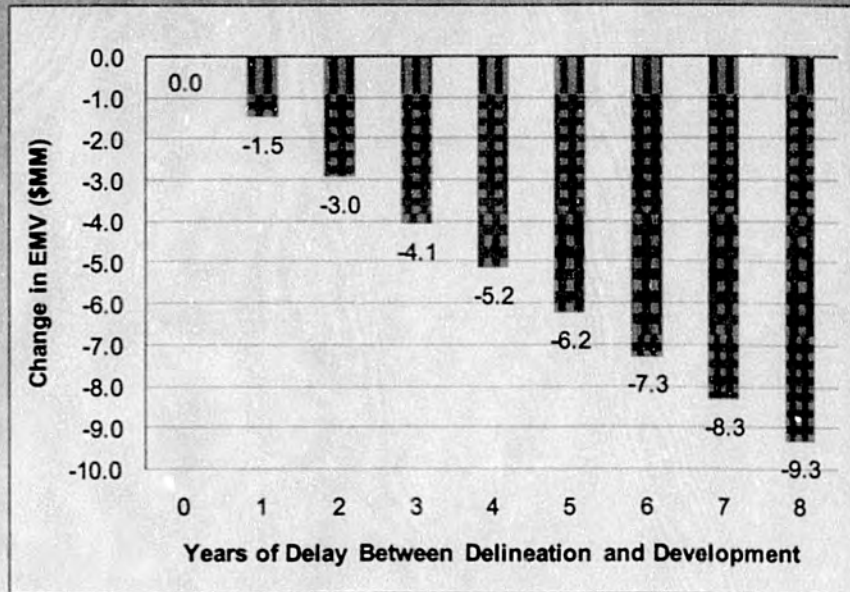


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Prospect Economics*

Effect of Delay: AGIA vs. FERC Open-Season Rules



*Expected monetary value (EMV) of a generic North Slope stand-alone gas prospect

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End

(Appendix Follows. For full model details
see AGIA Finding, Appendix L)

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The Exploration Model

Base Case Assumptions

1. 10% discount rate for operator (5% for SOA)
2. Land is already leased over attractive prospect
3. Seismic data is already owned over prospect
4. Prospect is sanctioned for exploration drilling
5. 1st exploration well cost = \$38 MM* in Year 1 of the project
6. 2 well delineation program cost = \$25 MM* each in Year 2 and Year 3 of the project
7. Pad and facilities construction begins in Year 4, cost is scaled to production
8. Pipeline construction begins in Year 5, cost is scaled to production
9. Base Case (no delay) = 1st gas sale in Year 8, 6 years after delineation drilling

*Undiscounted expense in today's dollars, before any tax credits or incentives

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Defined Variables

1. Gas price = \$8.00/Mcf*
2. OpEx = scaled based on annual production rate

*Fixed value or rate for every year of the model

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Drilling Success Probabilities

1. 40% = Probability 1st exploration well finds gas (geologic success)
2. 60% = Probability delineation drilling program is success

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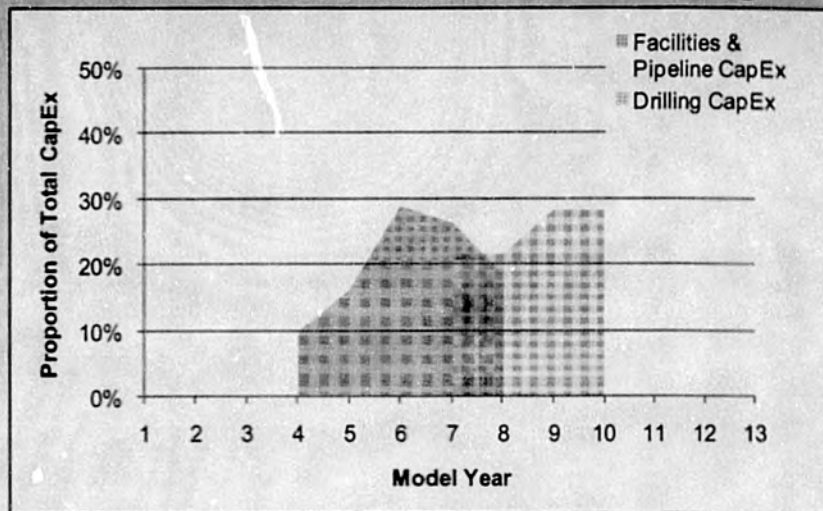
Development Scenario Probabilities

1. High reserves case = 1,800 BCF (5% probability after delineation)
2. Medium reserves case = 800 BCF (15% probability after delineation)
3. Low reserves case = 400 BCF (75% probability after delineation)
4. Uneconomic reserves case = 80 BCF (5% probability after delineation)

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Base Case Expenditure Profiles for Facilities and Drilling



Note: Baseline production is assumed to begin in Year 8 after one year of development drilling.

SCOMM

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ALASKA STATE LEGISLATURE

Senator Charlie Huggins, Chair
Senate Special Committee on Energy
State Capitol, Room 119
Juneau, AK 99801
Phone: 465-3878
Fax: 465-3265



Representative John Harris, Chair
House Rules Subcommittee on AGIA
State Capitol, Room 208
Juneau, AK 99801
Phone: 465-4859
Fax: 465-3799

Third Special Session
Twenty-Fifth Legislature

Carlson Center, Fairbanks Alaska
Saturday June 14 2008
10:00-5:00 p.m.

Joint Meeting AGENDA

Presentations: Review of AGIA Findings and Determination; Natural Gas Pipeline Project as proposed by TransCanada Alaska Company, LLC and Foothills Pipelines Ltd. (TC Alaska) to the State of Alaska.

➤ **TransCanada's AGIA Application**

Tony Palmer, Vice President, Alaska Gas Development

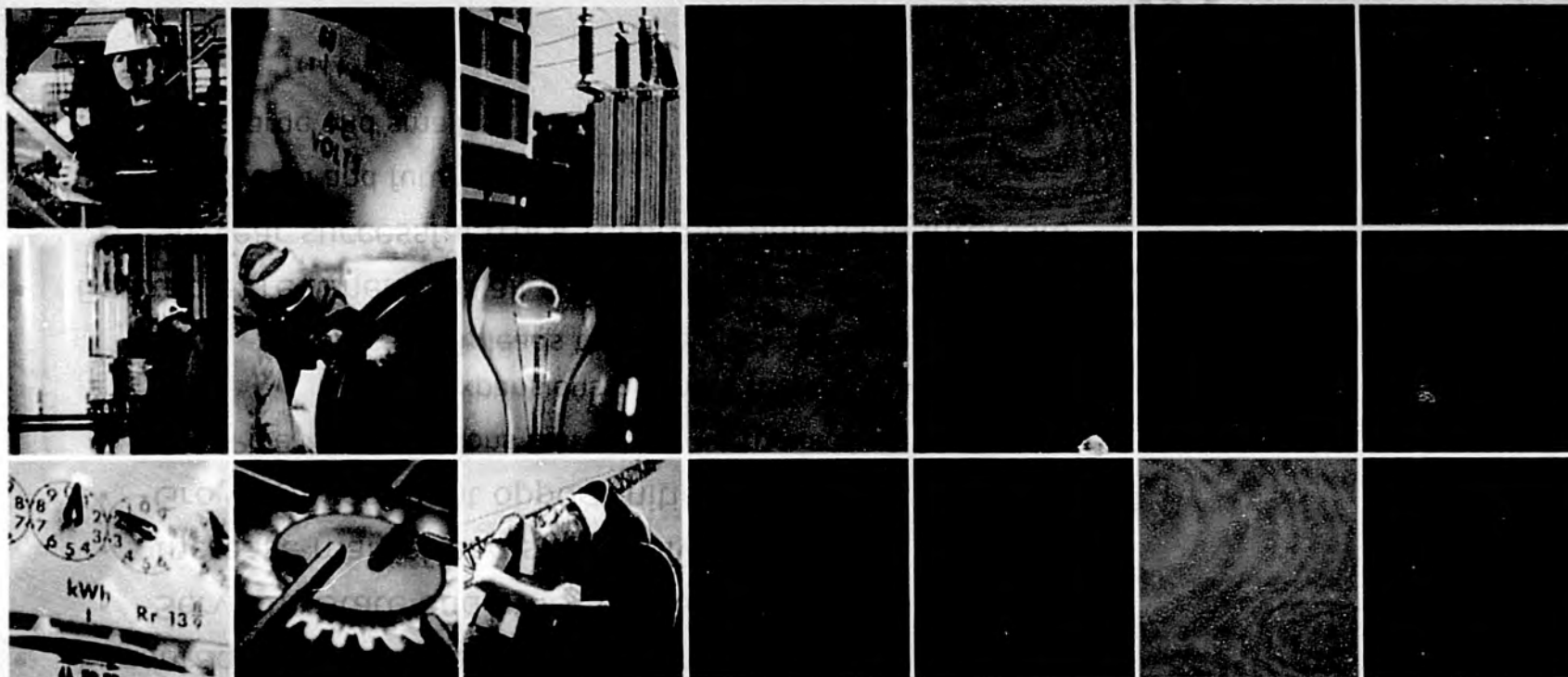
➤ **Public Testimony**

Testimony – Time Limit May Be Set

Teleconference

Saturday 6-14-2008
Fairbanks
Carlson Center

presented by T. Palmer
10 AM - 12



TransCanada's AGIA Application Statewide Legislative Hearings

June / July 2008



TransCanada

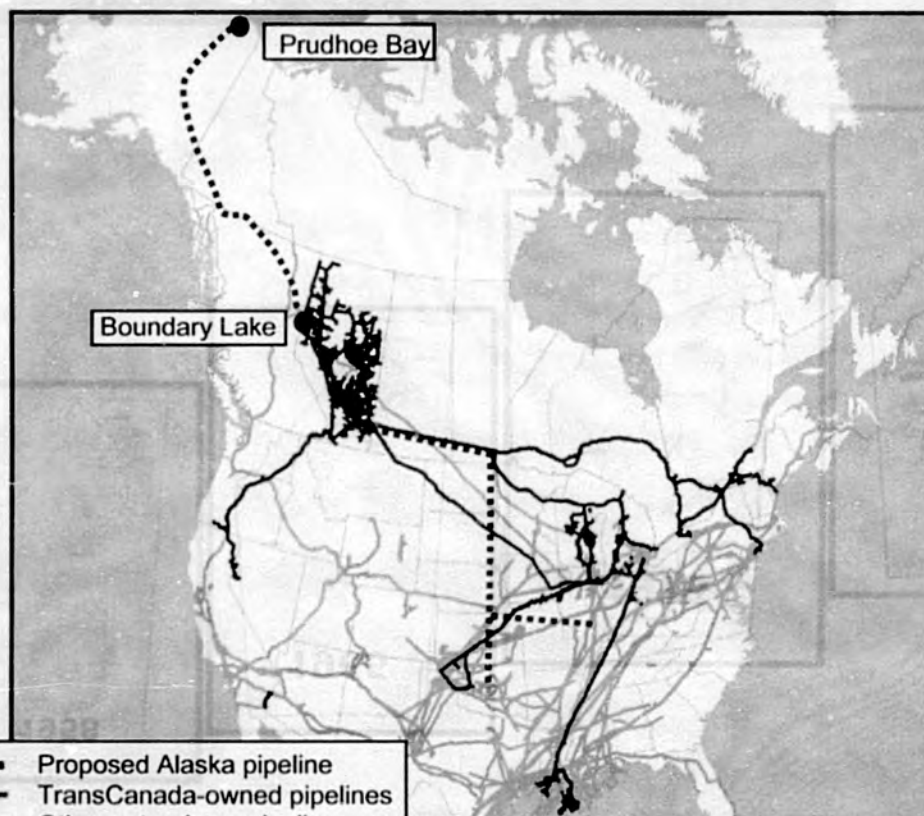
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TransCanada's Objectives – Alaska Project



- Early in-service
 - Largest investment opportunity in core business line and geographic footprint
 - Utilize spare capacity on existing North American pipelines
 - LNG market as alternative investment opportunity
- Encourage long-run basin development
 - Serve In-State and other markets
 - Increase market and supply diversity
 - Growth investment opportunities
 - Pipeline expansions can create "virtuous circle"
 - Pipeline expansions promote more exploration and drilling which, if successful, leads to more pipeline expansions
- Equitable treatment for all customers
 - 50-year successful track record of balancing interests
 - Initial and future
 - Large and small

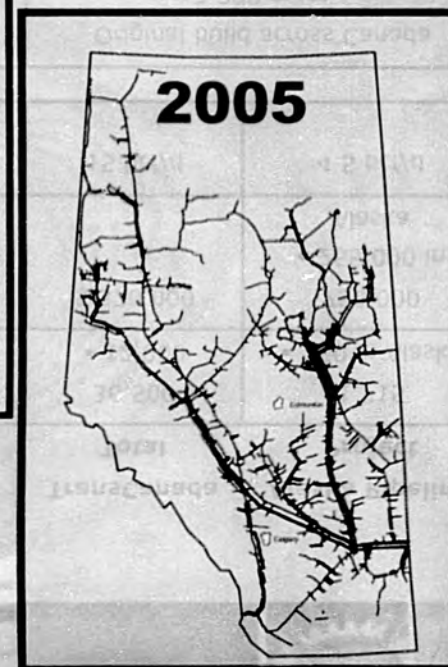
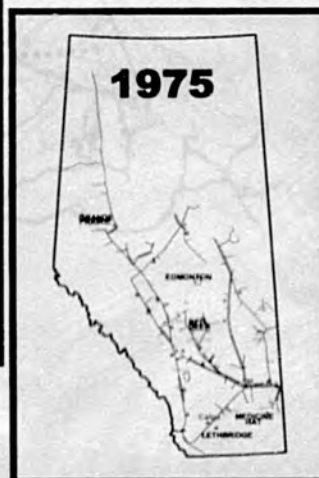
TransCanada's Credentials



	TransCanada Total	Alaska Pipeline Project
Miles of Pipe • in U.S.	36,500 • 12,000	1,715 • 750 in Alaska
Compression Horsepower	5,370,000	750,000 • 265,000 in Alaska
Throughput Volumes	15 bcf/d	4.5 bcf/d

<u>1957/58</u> TransCanada's Mainline	Original build across Canada 2,300 miles
<u>1990s</u> Expansion	7,000 miles Completed within 0.6% of budget and on schedule
<u>2008 - 2009</u> Keystone Pipe	2,150 miles New build in U.S. - 1,380 miles

Proven Basin Developer – Alberta Example



Regulatory Structure

- Independent pipeline model
- Rolled-in tolls
- 3 customers in 1958, 300+ today

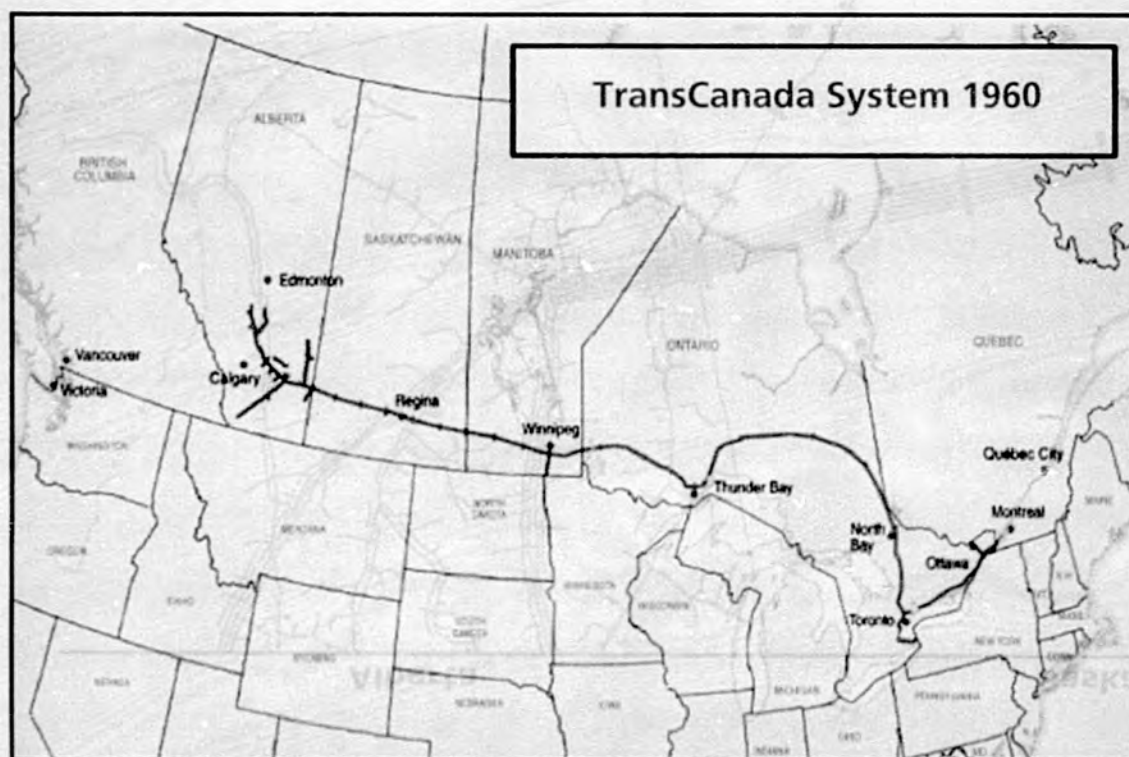
• 3 customers in 1928, 300+ today

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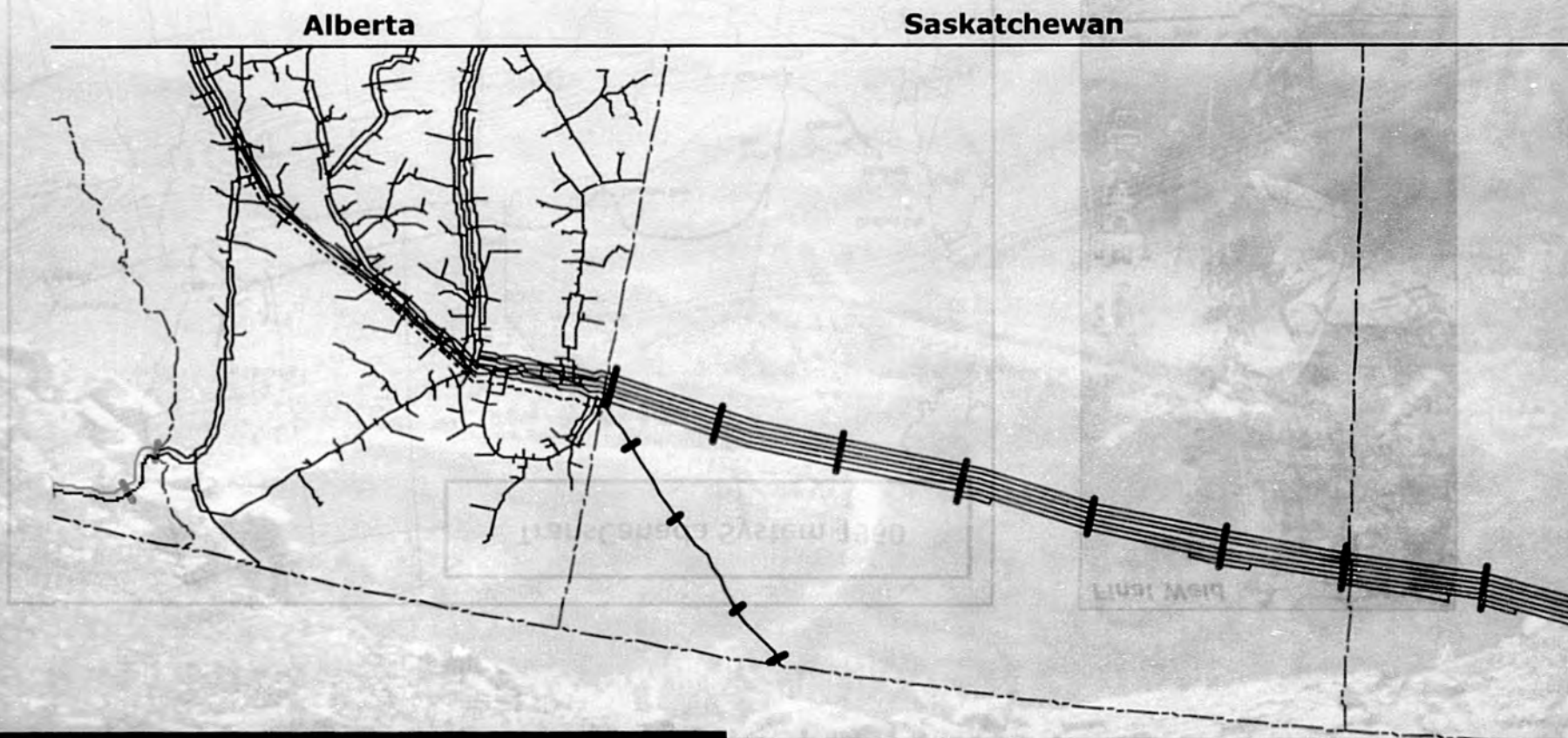
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Proven Basin Developer – Mainline Example 1960



Final Weld

Proven Basin Developer – Mainline Example 2008



Regulatory Structure

- Independent pipeline model
- Rolled-in tolls
- 3 customers in 1958, 300+ today

AGIA "Must Haves"



AGIA "Must Haves"	TransCanada's Application	Completeness
1. Filed by deadline	Filed on November 30, 2007	✓
2. Project details & schedule	Alaska Highway route 5 bcf/d GTP and 48" 2500/2600 psi pipe 2017 November in-service*	✓
3. Open season date certain Apply for FERC pre-filing Apply for FERC CPCN	Completed by Sept. 2009* June 2010* - not contingent on Open Season December 2011* - as above	✓
4. RCA filing	N/A	N/A
5. Open season frequency	Once every 2 years	✓
6. Expansions - Commitment to expand in engineering increments	Yes, 4.5 bcf/d initial design capacity Expandable to 5.9 bcf/d with compression only	✓
7. Rolled-in tolls	Up to 115% of initial rates in Alaska Full rolled-in rates in Canada	✓
8. Gas treatment plant	TransCanada will build if 3 rd parties do not	✓
9. State reimbursement	Up to \$500 million	✓

* Subject to AGIA license by April 2008

AGIA "Must Haves"



AGIA "Must Haves"	TransCanada's Application	Completeness
10. Project debt ratio minimum	Construction - 70% Operation - 75% (to reduce tolls)	✓
11. Capital cost overrun measures	TransCanada's return reduction (penalty) Potential \$18 B loan guarantee (stable tolls)	✓
12. In-state deliveries	Min. 5 delivery points	✓
13. In-state delivery rates	Distance sensitive rates	✓
14. Local headquarters in Alaska	Yes	✓
15. Local hire, local businesses, etc.	Opportunities for local hire and businesses	✓
16. Waive right to appeal	Waived	✓
17. Project labor agreement	Commit to negotiate PLA	✓
18. Treatment of State reimbursement	Excluded from rate base	✓
19. Details of Applicant	Provided	✓
20. Readiness, financial resources and technical ability of Applicant	Proven record and demonstrated capability	✓

TransCanada's Competitive Response to AGIA



- TransCanada bid to win – competitive enhancements
 - Initial system design with inexpensive expandability
 - Gas treatment plant ownership, if no 3rd party willing to build
 - Equity opportunity for shippers committing gas in initial open season
 - 75% debt vs. 70% minimum limit in AGIA
 - Toll reduction of \$0.09/mmbtu
 - TransCanada's return reduction in event of capital cost overruns
 - Fort Nelson Option upside
 - Toll reduction of \$0.13 -\$0.18/mmbtu
 - LNG alternative if insufficient gas commitments through Canada , or via Y-line

Alaska Pipeline Project



- **Alberta Hub is the most liquid market in North America**
- **TransCanada's Alberta System is the Alberta Hub**
- **Access to all North American markets coast-to-coast on TransCanada's existing pipelines**
 - **By 2018, spare takeaway capacity sufficient for full Alaska volumes**
- **One-third of Alaska pipeline in-service as Prebuild moving 3 BCFD**
- **LNG alternative if insufficient gas commitments through Canada or via Y-line**

Project Description



- Gas treatment plant at Prudhoe Bay
 - 5 Bcf/d initial capacity
 - TransCanada will develop/own only if necessary
- Natural gas pipeline from Prudhoe Bay to Alberta Hub
 - 4.5 Bcf/d initial capacity
 - Expansion to 5.9 Bcf/d with compression only
 - More than 1700 miles
 - 48-inch diameter; 2500/2600 psig
- Alberta Hub to Lower 48
 - TransCanada's existing pipeline system in Alberta is the "Alberta Hub"
 - TransCanada's Alberta pipeline is both a physical and commercial system
 - Largest natural gas trading hub in North America
 - By 2018, downstream pipelines projected to have spare capacity for full Alaska volumes

Project Economics ¹



- Capital costs
 - \$26 billion (2007 \$US excluding AFUDC)
 - Approximately \$0.6 billion for Open Season and regulatory certification
- Tolls
 - \$US 2.76/MMbtu in 2018 to the Alberta Hub
 - Levelized negotiated toll for 4.5 Bcf/d in nominal dollars, including fuel
 - Expansion Tolls
 - Rolled-in tolls in Canada
 - Rolled-in tolls in Alaska up to 115% of initial tolls, including fuel

¹ Based on information provided by the State and current TransCanada estimates

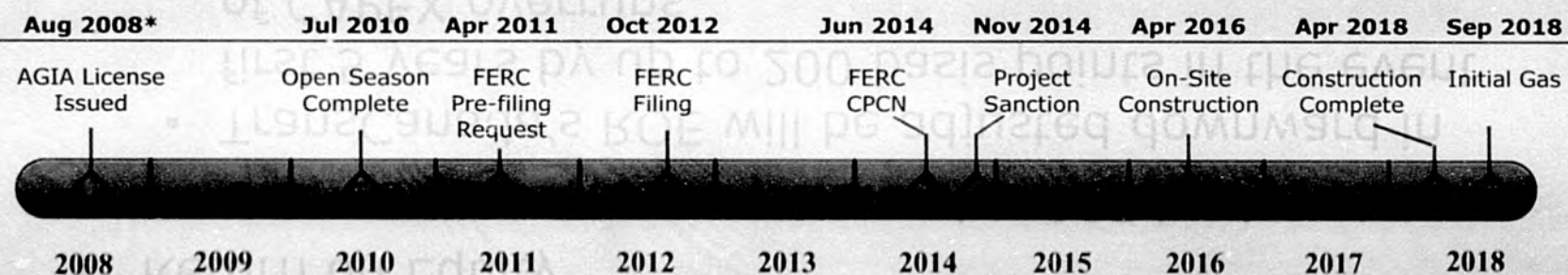
Financial Parameters



- Debt/Equity Ratio
 - 70/30 during construction
 - 75/25 upon completion of initial project
 - 60/40 for all expansions
- Return on Equity
 - U.S. 10-year Treasury Note plus 965 basis points
 - TransCanada's ROE will be adjusted downward in first 5 years by up to 200 basis points in the event of CAPEX overruns
- Fuel
 - 7.9% including GTP from Prudhoe Bay to Alberta Hub
 - \$US 0.35/MMbtu in 2018 @ 4.5 Bcf/d



Project Schedule



* AGIA license assumed to be issued in August 2008

Partnership Opportunity

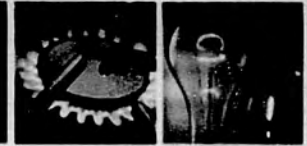
- TransCanada will offer equity opportunity to Shippers in the initial Open Season that subscribe for a threshold volume
 - Should improve likelihood of success and alignment of interests between project sponsors and Shippers

Upstream Fiscal Terms



- TransCanada's AGIA obligations are not conditional on a review of Alaska's upstream fiscal terms.
- TransCanada acknowledges that this issue is between the State and natural gas producers.
 - TransCanada requests that the State review upstream fiscal terms for natural gas prior to the initial open season.

Other Project Components



- Natural Gas Liquids (NGLs) Extraction
 - TransCanada can accommodate NGL extraction in Alaska or downstream
 - TransCanada's Alberta system is straddled by three NGL complexes owned by third parties
 - Excess capacity expected at those plants sufficient to process Alaskan gas if Shippers so choose
- LNG Alternative
 - TransCanada is willing to offer gas treatment and transportation services from Prudhoe Bay to an LNG terminal should insufficient gas be committed through Canada or via a Y-line

Regulatory Structure



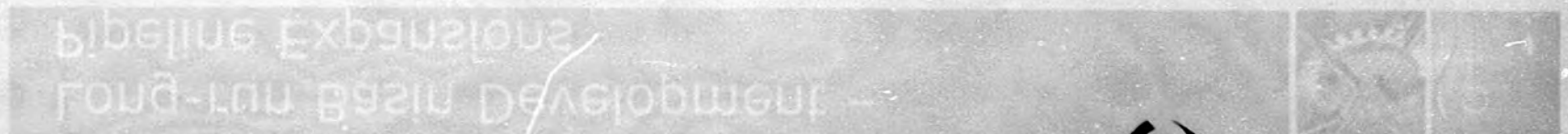
- Alaska
 - TransCanada Alaska Company, LLC will proceed under Alaska Natural Gas Pipeline Act of 2004
- Canada
 - Foothills Pipe Lines Ltd. will proceed under the Northern Pipeline Act (NPA)
- Canada/U.S. Treaty
 - The pipeline will follow the route set out in the Treaty and the NPA

Other Project Components

AGIA "Must-haves" Promote Basin Development



- Rolled-in tolls up to 115% of initial rates in Alaska
- Open Season every 2 years
- In-State deliveries
 - Distance-sensitive tolls
 - Minimum 5 delivery points
- Low equity ratio requirement for pipeline sponsors
- State fiscal incentives (if any) targeted to AGIA pipeline shippers



Long-run Basin Development – Pipeline Expansions



- Value to Producers / Governments?
- Does Alaska have enough gas?
- Drilling impacts?
- Impact of rolled-in tolls?
 - Minimum 2 delivery points
 - Distance-sensitive tolls
 - In-state deliveries
 - Open season every 5 years
 - Rolled-in tolls up to 112% of initial rates in Alaska

Development

ACIA "Must-haves" Promote Basin



Value of Potential Expansions (\$Billions)¹

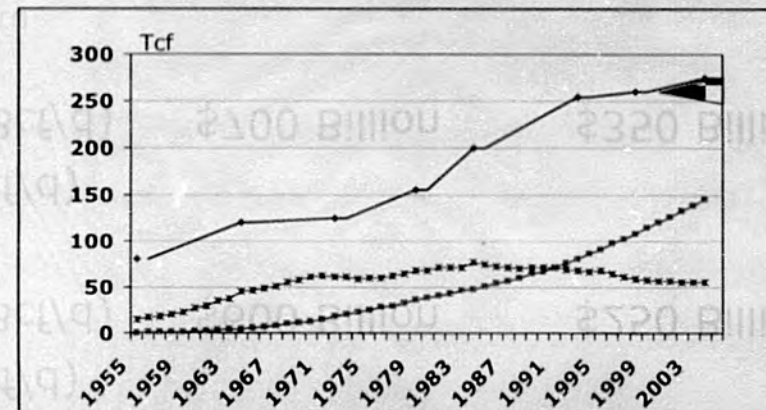
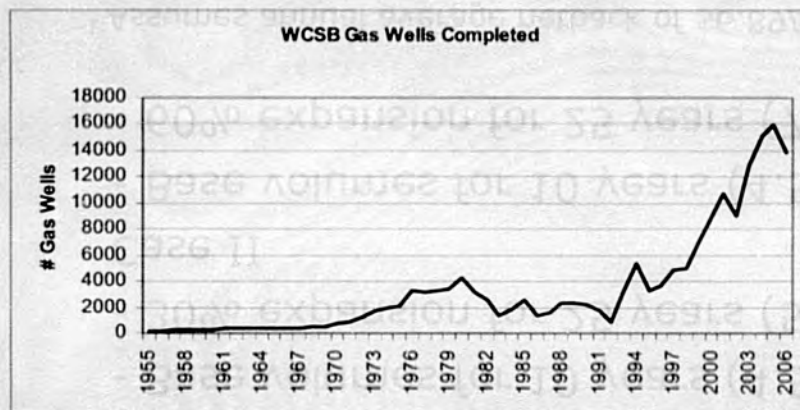


	Producer/Govts. Total Revenue *	Expansion Value
Base Project		
- 25 years @ 4.5 Bcf/d	\$350 Billion	
Expansions		
Case I		
- Base volumes for 10 years (4.5 Bcf/d)		
- 30% expansion for 25 years (5.9 Bcf/d)	\$600 Billion	\$250 Billion
Case II		
- Base volumes for 10 years (4.5 Bcf/d)		
- 60% expansion for 25 years (7.2 Bcf/d)	\$700 Billion	\$350 Billion

¹ Assumes annual average netback of \$6.89/MMbtu

* Direct revenue only
- no indirect impacts from additional E&P activity and spin-offs

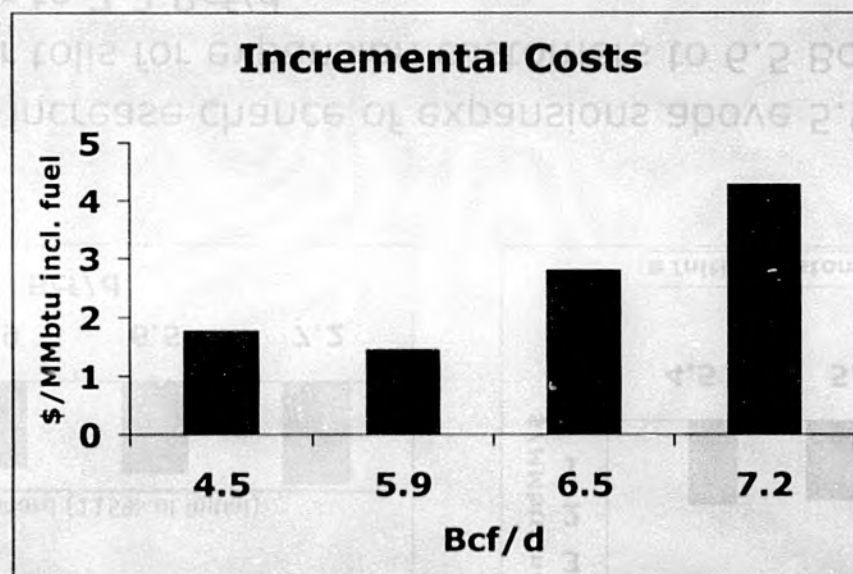
Basin Development – Western Canada Example



Ultimate Resource Potential Estimate
 Proven Reserves
 Cumulative Production

- Pipeline expansion can create "virtuous circle"
 - More exploration and drilling
 - If successful, leads to more pipeline expansion
- Exploration and drilling drives service industry and employment over long term

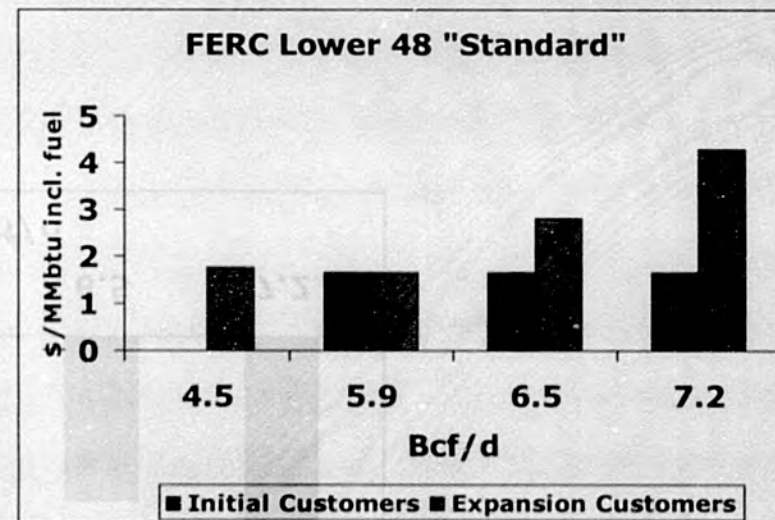
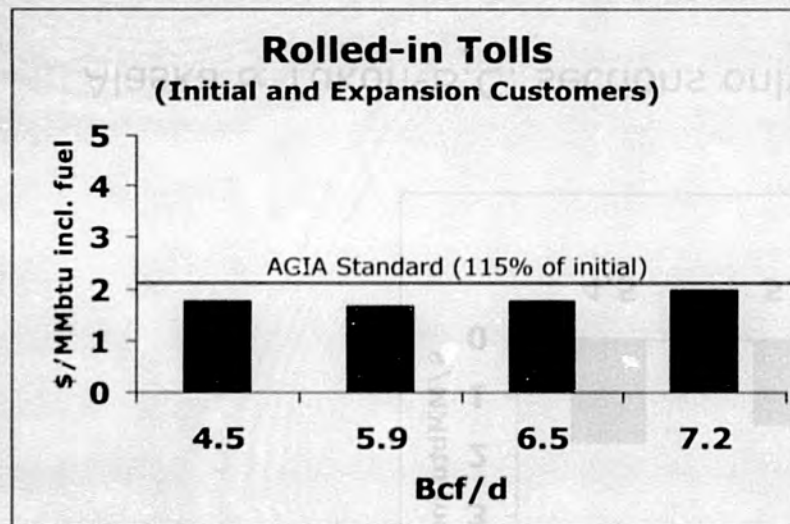
Impact of Rolled-in Tolls?



Alaska & Yukon-B.C. sections only

Assumed Volumes: 4.5 Bcf/d years 1 & 2
5.9 Bcf/d years 3 & 4,
6.5 Bcf/d years 5 & 6,
7.2 Bcf/d years 7 & beyond

Impact of Rolled-in Tolls?

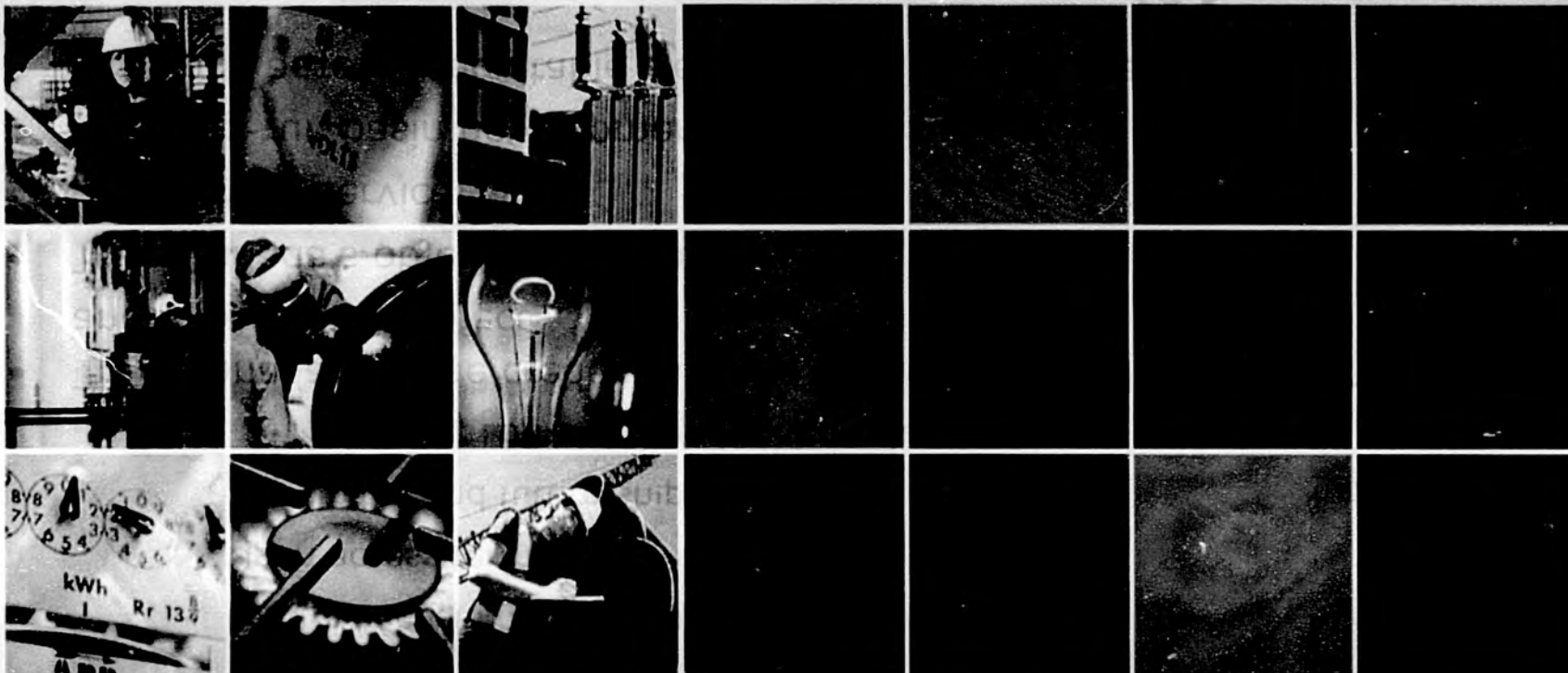


- Rolled-in tolls increase chance of expansions above 5.9 Bcf/d
 - 35% lower tolls for expansion customers to 6.5 Bcf/d
 - 50% lower to 7.2 Bcf/d

Summary



- Last year, the Administration and Legislature established AGIA as Alaska's transparent and competitive process to advance a gas pipeline project
 - AGIA was structured to encourage:
 - Construction of base project
 - Long-run basin development
 - Open access terms for:
 - Initial and future shippers
 - In-State, Lower 48, and LNG markets
- TransCanada has the credentials and capacity to build, own, operate and expand the project
- TransCanada's objectives are aligned with AGIA
 - Early in-service
 - Long-run basin development
 - Open access – equitable treatment for all customers



Thank You

- Alaska's transparent and competitive process to advance a gas pipeline project
- Last year, the Administration and Legislature established AIA as

Summary



TransCanada

In business to deliver

AGIA

Summary of the Commissioners' Findings and Determination

Special Session
June 2008

1

Commissioners' AGIA Findings and Determination



- The pipeline project proposed by TC Alaska's application
 - will sufficiently maximize the benefits to the people of Alaska, and
 - merits issuance of an AGIA license.
- Issuing an AGIA License to TC Alaska maximizes benefits to Alaskans more than pursuing an LNG project or the Producers Project.

2

Maximizing Benefits to Alaskans



- Get a Pipeline
- Jobs and long-term careers
- Opportunity of affordable energy for Alaskans
- Maximize state revenue and create opportunity for future growth of state economy

3

Maximizing Benefits to Alaskans



- Get a Pipeline
 - A feasible project plan, sponsored by a capable pipeline company
 - An economic project likely to attract firm transportation commitments and secure financing
- Jobs and long-term careers
- Opportunity of affordable energy for Alaskans
- Maximize state revenue and create opportunity for future growth of state economy

4

Maximizing Benefits to Alaskans



- Get a Pipeline
- Jobs and long-term careers
 - True "open access" for explorers
- Opportunity for affordable energy for Alaskans
- Maximize state revenue and create opportunity for future growth of state economy

5

Maximizing Benefits to Alaskans



- Get a Pipeline
- Jobs and long-term careers
- Opportunity of affordable energy for Alaskans
 - Off-Take Points, and Distance-Sensitive Rates
 - Expansion Provisions
 - Does not interfere with "Bullet Line" project
- Maximize state revenue and create opportunity for future growth of state economy

6

Maximizing Benefits to Alaskans



- Get a Pipeline
- Jobs and long-term careers
- Opportunity of affordable energy for Alaskans
- Maximize state revenue and create opportunity for future growth of state economy
 - Lowest Reasonable Transportation Rates (tariff)
 - Expansion Provisions

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TC Alaska Project Evaluation



- Economic Evaluation
 - Net Present Value (NPV) to the State
 - NPV to the Producers
- Likelihood of Success

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TC Alaska Project Evaluation



- As allowed in AGIA, TC Alaska's application had alternative project designs based on how much gas was committed at the initial open season
- Analysis considered many different possible designs

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NPV Analysis



- Two "Base Cases" Reported for TC Alaska's Project
 - "Proposal Base Case"
 - 4.5 Bcf/d (including 0.9 Bcf/d from Pt. Thomson)
 - 75/25 debt to equity
 - 14% return on equity
 - 25 year shipping contracts
 - "Conservative Base Case"
 - 4.0 Bcf/d (No gas from Pt. Thomson)
 - 75/25 debt to equity
 - 14% return on equity
 - 20 year shipping contracts

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NPV Analysis



- Factors in NPV Analysis
 - Gas Prices
 - Transportation Costs
 - Pipeline Project Capital Costs
 - Cost Escalation Rates
 - Initial Pipeline Throughput
 - Tariff Terms (e.g. debt to equity ratio)
 - Pipeline Construction Schedule
 - Gas Production Costs

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Project Economic Analysis



- Gas Price Models
 - Separate price forecasts were obtained from
 - US DOE's Energy Information Administration (EIA)
 - Wood Mackenzie
 - Gas Strategies Consulting
 - Black and Veatch

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Project Economic Analysis



- Project Cost and Schedule
 - “Technical Team”, included
 - Westney Consulting
 - Energy Project Consultants
 - Pingo International
 - AMEC Paragon
 - Colt Engineering
 - Mustang Management
 - Energy Operations Consulting
 - Black and Veatch
 - Merlin Associates

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Project Economic Analysis



- Project Cost Estimates – Mid-Range
 - Proposal Base Case
 - \$31 Billion in today's dollars
 - \$3.19 tariff
 - \$45 Billion in dollars spent
 - \$4.73 tariff
 - Conservative Base Case
 - \$29 Billion in today's dollars
 - \$3.59 tariff
 - \$42 Billion in dollars spent
 - \$5.33 tariff

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Project Economic Analysis



Project Cost Estimates – Why Higher than TC Alaska's?

- Different Purposes – Project Planning vs. Risk Assessment
- TC Alaska's Cost Estimates are "realistically aggressive" and appropriate for project planning
 - Analytical team tested sensitivity of estimates to changed circumstances
- Difference Between Assumptions Mandated in the RFA and the final analysis assumptions
 - Exchange rate, cost escalation rate
- Assumed "Neutral Competence" of Operator
- Cost of the GTP
 - One vs. Two seasons of sea-lift

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Project Economic Analysis



- Project Schedule
 - Mid-range probability put first gas in 2020
 - State's Canadian Counsel advised on expected regulatory timeline in Canada, including First Nation issues

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Project Economic Analysis



Reporting NPV Results – Proposal Base Case

- Gas Prices (WoodMac)
- Transportation Costs
 - Pipeline Project Capital Costs (\$31.5 billion)
 - Cost Escalation Rates (4%)
 - Initial Pipeline Throughput (4.5 Bcf/d)
 - Tariff Terms (e.g. debt to equity ratio[75/25])
- Pipeline Construction Schedule (2020)
- Gas Production Costs

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Project Economic Analysis



Proposal Base Case Results

- The State of Alaska would realize an estimated cash flow of \$261.5 billion, and an estimated NPV of approximately \$66.1 billion at a discount rate of 5%.
- The Major North Slope Producers would realize an estimated cash flow of \$147.4 billion, and an estimated NPV of approximately \$13.5 billion at a discount rate of 10%.

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Project Economic Analysis

AGIA
The Alaska Gasline Inducement Act

Conservative Base Case Results

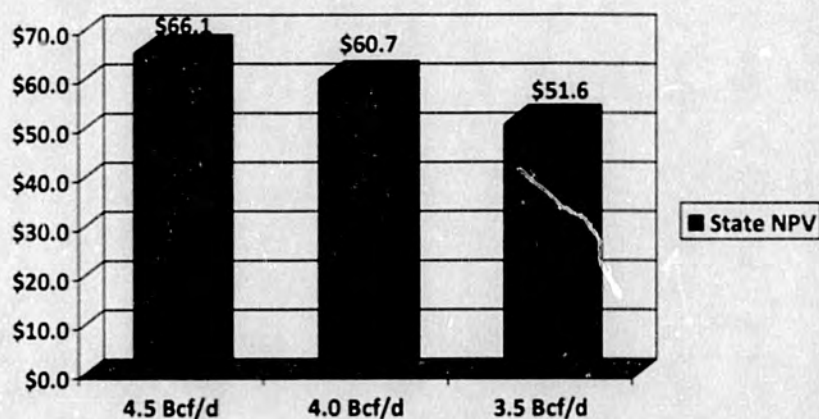
- The State's NPV decreases by 8% from the Proposal Base Case to \$60.7 billion.
- The Major North Slope Producers NPV decreases by 9% to \$12.3 billion.

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Project Economic Analysis

AGIA
The Alaska Gasline Inducement Act

State NPV at Various Initial Throughput



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Project Economic Analysis



- The Project Economics are Extremely Robust
 - It would take a “perfect storm” of worst case scenarios of multiple factors for the Project to be uneconomic to the Producers.
 - Indeed, a “perfect storm” of low gas prices and high construction costs, together, are not enough to generate a negative NPV for the State.

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\$500 Million Matching Contribution



Effect of State's \$500 Million Matching Contribution to TC Alaska's Project

- Tariff is reduced by 6 cents
- State's NPV increases by \$200 Million

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TC Alaska Project Is Likely to Succeed



- TC Alaska has submitted a plan for its project that is technically feasible, reasonable, and specific.
- TC Alaska has demonstrated the technical and financial ability to construct the project.
- TC Alaska has submitted a reasonable commercial plan which, coupled with economic and political factors, should help to encourage firm shipping commitments

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Attracting Gas Commitments to TC Alaska's Project



- Robust economics and reasonable commercial terms.
- Extremely capable pipeline company.
- State's Upstream Inducements
 - 10-year tax certainty
 - Royalty valuation certainty
- Avoid Problems of Not Committing Gas
 - Duty to develop
 - Anti-trust
 - Congressional Attention
 - Shareholder Questions

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