

PRESENTATION ON ALASKA GAS PIPELINE PROJECT

to Alaska State Legislative Budget & Audit Committee
August 31, 2005

Net Present Value, Rate of Return, and Profitability Index on
Producer Investment

Barry Pulliam
Senior Economist
Econ One Research, Inc.

*5th Floor
601 W 5th Street
Los Angeles, California 90071
213 624 9600*

*Suite 1170
1215 K Street
Sacramento, California 95814
916 449 2860*

*Suite 200
1004 Prairie
Houston, Texas 77002
713 228 2700*

*Suite 230
106 E 6th Street
Austin, Texas 78701
512 476 3711*

Estimated Project Returns to Producers

- **Development of Model**
- **Major Assumptions**
- **Scenarios**
- **Sensitivities**
- **Results**

Estimated Project Returns to Producers

Development of Model

- **The Administration has developed models of the Gas Pipeline project using a combination of publicly available and confidential data**
- **Models analyze the economics of the pipeline project from the standpoint of the producers and the State**
- **At this point, we are not able to discuss the results of those models, their assumptions, or the confidential data they contain**

Estimated Project Returns to Producers

Development of Model (cont'd)

- **The model reflects:**
 - **Gas pipeline running from the North Slope, along the Alaska Highway route, with delivery to Alberta**
 - **Existing fiscal terms (i.e., existing royalty and tax rates)**
 - **The State and SGDA Applicants have discussed and made proposals that would reflect different terms; we are not able to discuss those at this time**
- **We examine alternative gas price, cost, and pipeline ownership scenarios**

Estimated Project Returns to Producers

Major Assumptions

- **Gas pipeline developed and gas sold under current fiscal terms**
- **30-year project, with sale beginning by year-end 2012**
- **Gas production of 4.5 BCF per day; approximately 50% from Prudhoe Bay, 16% from Point Thomson, and the balance from other fields**
- **Gas sales of 4.2 BCF per day in Alberta (AECO Hub)**
- **Gas prices in Alberta average \$0.90/MMBtu below Henry Hub/Chicago levels**
- **Average heat content of 1.1 MMBtu per MCF**
- **Gas treatment plant, pipeline, and Point Thomson facilities financed with a combination of 80% debt (with federal guarantees) and 20% equity**
- **Borrowing costs on federally guaranteed debt of 5% per year**
- **FERC allows a 14% rate of return on equity for U.S. portion of pipeline; NEB allows a 12% return for Canadian portion**

Estimated Project Returns to Producers

Major Assumptions (cont'd)

- **Costs and prices inflated by 2.5% per year from 2004**
- **Capital costs consistent with producer presentation to legislature in August 2001 and June 2004**
 - **Capital cost include gas treatment plant, pipeline, and Point Thomson field development costs**
 - **We have added additional capital for construction of a “feeder” pipeline from Point Thomson to the gas treatment plant and for development of gas reserves outside of Prudhoe Bay and Point Thomson**
- **We assume gas sold on a “BTU” basis (i.e., no uplift for potential NGL extraction) -- likely a conservative assumption**
- **Consistent with this assumption, we have not included capital for a NGL extraction facility**
- **We have not attempted to model any related impact on liquids production at this time**

Estimated Project Returns to Producers Scenarios

- **Pipeline Ownership**

- 1. Baseline: Producers build and own 100% of pipeline**
- 2. Producers own 50% of pipeline with another party**
- 3. Third-party (such as TransCanada) builds and owns 100% of pipeline**

Estimated Project Returns to Producers

Sensitivities

- **Gas prices**
- **Costs**

Estimated Project Returns to Producers

Sensitivities (cont'd)

- **Gas Prices**
 - **EIA Annual Energy Outlook (AEO) 2005 (\$4.90)***
 - **Prices (in 2004 dollars) range from \$4.05 to \$5.10 over time**
 - **Futures Market Implied (\$5.00)***
 - **Low Price Scenario (\$4.00)***
 - **High Price Scenario (\$6.00)***

* Constant 2004 dollars.

Estimated Project Returns to Producers

Sensitivities (cont'd)

- **Costs**
 - **Baseline Capital and Operating Costs**
 - **20 Percent Increase Relative to Baseline in Capital and Operating Costs**
 - **20 Percent Decrease Relative to Baseline in Capital and Operating Costs**

Estimated Project Returns to Producers Results

**Scenario 1:
Producers Own 100% of Pipeline**

Estimated Project Returns to Producers

(Producers Own 100% of Pipeline)

- **Producers' capital outlays include cost of all facilities, including gas treatment plant, pipelines, and field development**
- **Producers ship all gas on pipeline constructed, financed, and regulated as described earlier in "Assumptions" section**

Estimated Project Returns to Producers

(Producers Own 100% of Pipeline)

<u>Price Assumption</u>	<u>NPV¹⁰</u> <u>(\$ Billion)</u> (1)	<u>NPV¹⁰</u> <u>/BOE</u> <u>(\$/Bbl.)</u> (2)	<u>Profitability</u> <u>Index¹⁰</u> (3)	<u>IRR</u> <u>(Percent)</u> (4)
<i>EIA AEO 2005 (\$4.90)*</i>	14.1	1.85	2.36	19.2%
Futures Market Implied (\$5.00)*	15.5	2.03	2.49	20.4%
Low Price Scenario (\$4.00)*	9.8	1.28	1.94	17.2%
High Price Scenario (\$6.00)*	21.2	2.77	3.04	23.1%

* Constant 2004 dollars.

Estimated Project Returns to Producers

(Producers Own 100% of Pipeline -- Costs Increased by 20%)

Base Case	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$14.1	\$1.85	2.36	19.2%
	Futures Market Implied (\$5.00)*	15.5	2.03	2.49	20.4%
	Low Price Scenario (\$4.00)*	9.8	1.28	1.94	17.2%
	High Price Scenario (\$6.00)*	21.2	2.77	3.04	23.1%

Costs Increased by 20%	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$12.6	\$1.65	2.05	17.4%
	Futures Market Implied (\$5.00)*	14.0	1.83	2.16	18.4%
	Low Price Scenario (\$4.00)*	8.3	1.09	1.69	15.5%
	High Price Scenario (\$6.00)*	19.7	2.57	2.63	21.0%

* Constant 2004 dollars.

Estimated Project Returns to Producers

(Producers Own 100% of Pipeline -- Costs Decreased by 20%)

Base Case	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$14.1	\$1.85	2.36	19.2%
	Futures Market Implied (\$5.00)*	15.5	2.03	2.49	20.4%
	Low Price Scenario (\$4.00)*	9.8	1.28	1.94	17.2%
	High Price Scenario (\$6.00)*	21.2	2.77	3.04	23.1%

Costs Decreased by 20%	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$15.6	\$2.05	2.80	21.5%
	Futures Market Implied (\$5.00)*	17.0	2.22	2.95	22.9%
	Low Price Scenario (\$4.00)*	11.3	1.48	2.30	19.4%
	High Price Scenario (\$6.00)*	22.6	2.96	3.61	25.8%

* Constant 2004 dollars.

Estimated Project Returns to Producers Results

Scenario 2: Producers Own 50% of Pipeline

Estimated Project Returns to Producers

(Producers Own 50% of Pipeline)

- **Producers' capital outlays includes cost of gas treatment plant, Point Thomson field development, and additional capital for future gas development, plus 50% of pipeline costs**
- **Producers ship all gas on 50% owned pipeline constructed, financed, and regulated as described earlier in assumptions section**

Estimated Project Returns to Producers

(Producers Own 50% of Pipeline)

<u>Price Assumption</u>	<u>NPV¹⁰</u> <u>(\$ Billion)</u> (1)	<u>NPV¹⁰</u> <u>/BOE</u> <u>(\$/Bbl.)</u> (2)	<u>Profitability</u> <u>Index¹⁰</u> (3)	<u>IRR</u> <u>(Percent)</u> (4)
<i>EIA AEO 2005 (\$4.90)*</i>	15.3	2.01	3.21	23.4%
Futures Market Implied (\$5.00)*	16.7	2.18	3.40	25.1%
Low Price Scenario (\$4.00)*	11.0	1.44	2.58	21.1%
High Price Scenario (\$6.00)*	22.4	2.93	4.22	28.5%

* Constant 2004 dollars.

Estimated Project Returns to Producers

(Producers Own 50% of Pipeline -- Costs Increased by 20%)

Base Case	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$15.3	\$2.01	3.21	23.4%
	Futures Market Implied (\$5.00)*	16.7	2.18	3.40	25.1%
	Low Price Scenario (\$4.00)*	11.0	1.44	2.58	21.1%
	High Price Scenario (\$6.00)*	22.4	2.93	4.22	28.5%

Costs Increased by 20%	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$14.1	\$1.84	2.76	21.2%
	Futures Market Implied (\$5.00)*	15.4	2.02	2.93	22.7%
	Low Price Scenario (\$4.00)*	9.7	1.28	2.22	18.9%
	High Price Scenario (\$6.00)*	21.1	2.76	3.64	26.0%

* Constant 2004 dollars.

Estimated Project Returns to Producers

(Producers Own 50% of Pipeline -- Costs Decreased by 20%)

Base Case	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$15.3	\$2.01	3.21	23.4%
	Futures Market Implied (\$5.00)*	16.7	2.18	3.40	25.1%
	Low Price Scenario (\$4.00)*	11.0	1.44	2.58	21.1%
	High Price Scenario (\$6.00)*	22.4	2.93	4.22	28.5%

Costs Decreased by 20%	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$16.6	\$2.17	3.81	26.1%
	Futures Market Implied (\$5.00)*	17.9	2.35	4.03	28.1%
	Low Price Scenario (\$4.00)*	12.3	1.60	3.07	23.8%
	High Price Scenario (\$6.00)*	23.6	3.09	4.99	31.7%

* Constant 2004 dollars.

Estimated Project Returns to Producers Results

Scenario 3: Producers Ship Over Third-Party Owned Pipeline

Estimated Project Returns to Producers

(Producers Own 0% of Pipeline)

- **Producers' capital outlays includes cost of gas treatment plant, Point Thomson field development, and additional capital for future gas development**
- **Third-party constructs pipeline facilities, including Point Thomson "feeder" line**
- **Producers ship all gas on Third-Party owned pipeline constructed, financed, and regulated as described earlier in assumptions section**

Estimated Project Returns to Producers

(Producers Own 0% of Pipeline)

<u>Price Assumption</u>	<u>NPV¹⁰</u> <u>(\$ Billion)</u> (1)	<u>NPV¹⁰</u> <u>/BOE</u> <u>(\$/Bbl.)</u> (2)	<u>Profitability</u> <u>Index¹⁰</u> (3)	<u>IRR</u> <u>(Percent)</u> (4)
<i>EIA AEO 2005 (\$4.90)*</i>	16.5	2.17	5.70	33.8%
Futures Market Implied (\$5.00)*	17.9	2.34	6.08	36.8%
Low Price Scenario (\$4.00)*	12.2	1.60	4.47	31.0%
High Price Scenario (\$6.00)*	23.6	3.08	7.70	41.6%

* Constant 2004 dollars.

Estimated Project Returns to Producers

(Producers Own 0% of Pipeline -- Costs Increased by 20%)

Base Case	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$16.5	\$2.17	5.70	33.8%
	Futures Market Implied (\$5.00)*	17.9	2.34	6.08	36.8%
	Low Price Scenario (\$4.00)*	12.2	1.60	4.47	31.0%
	High Price Scenario (\$6.00)*	23.6	3.08	7.70	41.6%

Costs Increased by 20%	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	EIA AEO 2005 (\$4.90)*	\$15.5	\$2.03	4.99	31.0%
	Futures Market Implied (\$5.00)*	16.9	2.21	5.33	33.9%
	Low Price Scenario (\$4.00)*	11.2	1.46	3.87	28.1%
	High Price Scenario (\$6.00)*	22.5	2.95	6.79	38.6%

* Constant 2004 dollars.

Estimated Project Returns to Producers

(Producers Own 0% of Pipeline -- Costs Decreased by 20%)

Base Case	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	<i>EIA AEO 2005 (\$4.90)*</i>	\$16.5	\$2.17	5.70	33.8%
	Futures Market Implied (\$5.00)*	17.9	2.34	6.08	36.8%
	Low Price Scenario (\$4.00)*	12.2	1.60	4.47	31.0%
	High Price Scenario (\$6.00)*	23.6	3.08	7.70	41.6%

Costs Decreased by 20%	Price Assumption	NPV ¹⁰	NPV ¹⁰	Profitability	IRR
		(\$ Billion)	/BOE	Index ¹⁰	(Percent)
		(1)	(\$/Bbl.)	(3)	(4)
	<i>EIA AEO 2005 (\$4.90)*</i>	\$17.6	\$2.30	6.59	37.0%
	Futures Market Implied (\$5.00)*	18.9	2.48	7.01	40.2%
	Low Price Scenario (\$4.00)*	13.2	1.73	5.21	34.3%
	High Price Scenario (\$6.00)*	24.6	3.22	8.82	45.1%

* Constant 2004 dollars.

The Impact of Leverage on Project Economics

- Returns shown in prior sections do not account for beneficial effect of “leverage” on producer equity investments -- they reflect average return over entire capital base, both debt and equity
- This project, consistent with pipeline projects generally, will be heavily leveraged
- Leverage under this project is likely to be even greater and more beneficial due to federal loan guarantees of up to 80% of project costs

The Impact of Leverage on Project Economics (Producers Own 100% of Pipeline)

Base Case (Debt + Equity)	Price Assumption	NPV ¹⁰	IRR	Base Case (Debt + Equity)
		(\$ Billion)	(Percent)	
		(1)	(2)	
	EIA AEO 2005 (\$4.90)*	\$14.1	19.2%	
	Futures Market Implied (\$5.00)*	15.5	20.4%	
	Low Price Scenario (\$4.00)*	9.8	17.2%	
	High Price Scenario (\$6.00)*	21.2	23.1%	

Leveraged (Equity Capital Only)	Price Assumption	NPV ¹⁰	IRR	Leveraged (Equity Capital Only)
		(\$ Billion)	(Percent)	
		(1)	(2)	
	EIA AEO 2005 (\$4.90)*	\$18.5	42.9%	
	Futures Market Implied (\$5.00)*	19.8	46.4%	
	Low Price Scenario (\$4.00)*	14.1	40.3%	
	High Price Scenario (\$6.00)*	25.5	51.5%	

* Constant 2004 dollars.

The Impact of Leverage on Project Economics (Producers Own 50% of Pipeline)

Base Case (Debt + Equity)	Price Assumption	NPV ¹⁰	IRR	Base Case (Debt + Equity)
		(\$ Billion)	(Percent)	
		(1)	(2)	
	EIA AEO 2005 (\$4.90)*	\$15.3	23.4%	
	Futures Market Implied (\$5.00)*	16.7	25.1%	
	Low Price Scenario (\$4.00)*	11.0	21.1%	
	High Price Scenario (\$6.00)*	22.4	28.5%	
Leveraged (Equity Capital Only)	Price Assumption	NPV ¹⁰	IRR	Leveraged (Equity Capital Only)
		(\$ Billion)	(Percent)	
		(1)	(2)	
	EIA AEO 2005 (\$4.90)*	\$18.1	50.9%	
	Futures Market Implied (\$5.00)*	19.5	55.3%	
	Low Price Scenario (\$4.00)*	13.8	48.0%	
	High Price Scenario (\$6.00)*	25.2	61.2%	

* Constant 2004 dollars.

The Impact of Leverage on Project Economics (Producers Own 0% of Pipeline)

Base Case (Debt + Equity)	Price Assumption	NPV ¹⁰	IRR	Base Case (Debt + Equity)
		(\$ Billion)	(Percent)	
		(1)	(2)	
	EIA AEO 2005 (\$4.90)*	\$16.5	33.8%	
	Futures Market Implied (\$5.00)*	17.9	36.8%	
	Low Price Scenario (\$4.00)*	12.2	31.0%	
	High Price Scenario (\$6.00)*	23.6	41.6%	
Leveraged (Equity Capital Only)	Price Assumption	NPV ¹⁰	IRR	Leveraged (Equity Capital Only)
		(\$ Billion)	(Percent)	
		(1)	(2)	
	EIA AEO 2005 (\$4.90)*	\$17.8	70.0%	
	Futures Market Implied (\$5.00)*	19.1	76.1%	
	Low Price Scenario (\$4.00)*	13.5	66.7%	
	High Price Scenario (\$6.00)*	24.8	83.5%	

* Constant 2004 dollars.