

ENERGIA CURA

(Volume Sensitivity Analysis)

Best Value of ANS Gas To Alaska - The Argument for Using ANS Gas in Alaska Through a Pipeline Owned by Alaskans

First, let's look at the difference in the depletion rate between exporting our gas through a big pipe vs. using it for our own use.
Proven ANS Gas Reserves are 37 Tcf:

Gas Exportations Bcf/day	Gas Exportations Tcf/year	Gas Exportations Tcf/22.5 years	Gas Left in the Ground After 13.5 years of operation (Tcf)	Gas Left in the Ground After 22.5 years of operation (Tcf)
4.5	1.6425	37	14.78	0
In State Use Bcf/day	In State Use Tcf/year	In State Use Tcf/22.5 years	Gas Left in the Ground After 13.5 years of operation (Tcf)	Gas Left in the Ground After 22.5 years of operation (Tcf)
0.0822	0.0300	0.6750	36.55	36.28
0.2795	0.1020	2.2950	35.58	34.66

From FPC using 30 Bcf/yr
From FPC using 102 Bcf/yr

Now let's look at the value the State will derive from ANS Gas by exporting it through a big pipe at 4.5 Bcf/day.

If global gas values triple to permit exportations in order to collect \$0.12/mcf royalties (at 12% levies), the wellhead value of ANS gas would need to be at least \$1.00/mcf.

We all know that TAPS was paid back in about three years.

Gas, however, is not as lucrative a business as crude, so the Majors will need to lower their expectations when exporting ANS gas.

Adding LNG facilities or additional pipelines required to move ANS gas from our border to markets, their final Capex will be about \$50 billion.

Under a 6-year payback on the Alaska, Canada and US gas pipelines required to move ANS gas to real markets, the gas price/mcf needs to be:

Under a 20-year payback on the Alaska, Canada and US pipelines required to move ANS gas to real markets, the gas price/mcf needs to be:

(On full Capex basis of \$50 billion)

\$15.82
\$11.26

If 20 years is acceptable, then
(The December, 2010 average Henry Hub price was \$4.26/mcf - we have a long way to go)

(Big Pipe Start-Up) 12% Royalties \$/day	12% Royalties \$/year 1 through 22.5	12% Royalties To Total Depletion \$Billion
\$540,000 \$3,095,890	\$197,100,000 \$1,130,000,000	\$18.8068

Gas values ramped up 2% per year, so royalty collections start at \$0.12/mcf and ramp to \$1.32/mcf in 22.5 years
A lot of money, but there is no gas left in the ground unless more reserves are found and proven
(last year of operations)

Value derived by Alaskans if ANS Gas is used in-State through the FPC's smaller pipeline/s (12" or 18")

(30 Bcf) Avoided Costs to the Interior \$Billion in 22.5 years	(72 Bcf) Avoided Costs to the Cook Inlet \$Billion in 22.5 years	30 Bcf/yr (12" stand alone) to the Interior FPC Dividends Paid to Alaskan Investors \$Billion in 22.5 years	102 Bcf/yr (18" & 12") To CI and Interior FPC Dividends Paid to Alaskan Investors \$Billion in 22.5 years	102 Bcf/yr Gas Left in the Ground After 22.5 years (Tcf)
\$8.4375	Unknown, so \$0.00	\$2.1568	\$6.7052	34.71

Below find the comparison of total monies derived from ANS Gas and left to circulate in Alaska's communities over a span of 22.5 years of operation (same years)
(Based on \$0.12/mcf royalty collections, escalating 2% per year)

Exportations	Royalties \$Billion in 22.5 years	Avoided Costs to Alaskans From Using the Big Exportation Pipe \$Billion in 22.5 years (Discounted by lost savings in lag to start up)	FPC's Cash in Bank (belongs to Alaskan Investors) \$Billion in 22.5 years	Total Value or Monies Left in Alaska After 22.5 Years \$Billion	In-State vs. Exportation Difference in ANS Value to Alaskans After 22.5 Years \$Billion
Exportations (If Henry Hub gas prices triple to permit big pipe)	\$18.8068	\$0.1215	\$0.00	\$18.9283	
FPC - 30 Bcf/yr to Interior	\$0.3435	\$10.5943	\$0.0157	\$10.9535	-\$7.9747
FPC - 102 Bcf/yr to CI and Interior	\$1.1679	\$15.1427	\$0.5554	\$16.0415	-\$2.8867

In State gas utilization cuts our costs by half because energy costs in the Interior are primarily based on crude
(So we do not have to wait for Henry Hub prices to increase)
Looks bad for In-State prioritization, doesn't it?

Let's now look at the flip side, what if construction on the Big Pipe could start in 2014 and be completed 13.5 years later in 2027?
(Remember that FPC Pipeline goes into operation in 2014)

Exportations	Royalties \$Billion first 13.5 years	Avoided Costs to Alaskans From Using the Big Exportation Pipe \$Billion first 13.5 years	FPC's Cash in Bank (belongs to Alaskan Investors) \$Billion first 13.5 years	Total Value or Monies Left in Alaska After First 13.5 Years \$Billion	In-State vs. Exportation Difference in ANS Value to Alaskans After 13.5 Years \$Billion
Exportations (If Henry Hub gas prices triple to permit big pipe)	\$0.00 (no pipeline yet)	\$0.00 (no pipeline yet)	\$0.00 (no pipeline yet)	\$0.00	
FPC - 30 Bcf/yr to Interior	\$0.1012	\$6.3566	\$0.0094	\$6.47	\$6.4672
FPC - 102 Bcf/yr to CI and Interior	\$0.3440	\$9.0856	\$0.3332	\$9.76	\$9.7629

If the big line starts operation in 2027, our 37Tcf of today's proven gas reserves will be depleted by 2049.
By 2049, FPC's pipeline will have run for about 35 Years and the big line will have run its course.
So, let's now look at the value from ANS gas left in Alaska by 2049:

Exportations	Royalties \$Billion in 35 years	Avoided Costs to Alaskans From Using the Big Exportation Pipe \$Billion in 35 years	FPC's Cash in Bank (belongs to Alaskan Investors) \$Billion in 35 years	Total Value or Monies Left in Alaska After 35 Years \$Billion	In-State vs. Exportation Difference in ANS Value to Alaskans After 35 Years \$Billion
Exportations (If Henry Hub gas prices triple to permit big pipe)	\$18.8068	\$0.1215	\$0.0000	\$18.9283	
FPC - 30 Bcf/yr to Interior	\$0.4447	\$16.9509	\$0.0252	\$17.4207	-\$1.5075
FPC - 102 Bcf/yr to CI and Interior	\$1.4759	\$24.2283	\$0.8886	\$26.5928	\$7.6645

Remember that there is distinction to made on Alaskan value; monies to the State's fat checkbook (royalties) and monies from your own thin checkbook (avoided costs)
Pretty close for Interior volumes, but not bad for Interior plus Cook Inlet volumes

Thank you for enduring this long economical evaluation. With one more analysis, we can finish. Remember what's left in the ground?
GUESS WHAT! It's called residual or future inventory value to Alaskans. Let's look at this residual value on the right of this spreadsheet to complete our evaluation

Let's make this last evaluation simple by eliminating FPC's 30 Bcf/yr case and use its higher depletion rate of 102 Bcf/yr
(Because it helps the contrarian view and because as you will soon see, it really makes no difference)

Gas Left in the Ground Through 2049 Through Big Pipe Exports Tcf	Gas Left in the Ground Through 2049 After 35 Years of In-State Use Tcf
0	33.43

What will the value of ANS gas be in 2049? It's hard to say, but lets assume for the sake of argument that:

Gas values will rise by 2% per year from 2014 through 2049, assuming a feasibility threshold of a twenty-year payback for the big pipe as shown on left side of this spreadsheet:

Year	Future Value of Gas Rising 2% per Year \$/mcf	Gas Left by FPC At 102 Bcf/year Tcf	Gas Left by Exports At 1.4 Tcf/year Tcf	Gas Market Value Left in the Ground For Alaskan Posterity By FPC's In-State Distribution \$Billion	Gas Market Value Left in the Ground For Alaskan Posterity After Exports \$Billion	12% Royalty Value Total left to be earned Discounted 5% per year for Escalating Production Costs \$Billion After In-State Use	12% Royalty Value Total left to be earned Discounted 5% per year for Escalating Production Costs \$Billion After Exportations
2015	\$11.49	36.8980	37	\$424	\$425	\$4.43	\$4.43
2016	\$11.72	36.7960	37	\$431	\$434	\$5.16	\$5.16
2017	\$11.95	36.6940	37	\$439	\$442	\$5.87	\$5.87
2018	\$12.19	36.5920	37	\$446	\$451	\$6.56	\$6.56
2019	\$12.44	36.4900	37	\$454	\$460	\$7.23	\$7.23
2020	\$12.69	36.3880	37	\$462	\$469	\$7.88	\$7.88
2021	\$12.94	36.2860	37	\$470	\$479	\$8.51	\$8.51
2022	\$13.20	36.1840	37	\$478	\$488	\$9.13	\$9.13
2023	\$13.46	36.0820	37	\$486	\$498	\$9.74	\$9.74
2024	\$13.73	35.9800	37	\$494	\$508	\$10.33	\$10.33
2025	\$14.01	35.8780	37	\$503	\$518	\$10.91	\$10.91
2026	\$14.29	35.7760	37	\$511	\$529	\$11.47	\$11.47
2027	\$14.57	35.6740	68.79	\$520	\$1,002	\$12.03	\$12.03
2028	\$14.86	35.5720	67.15	\$529	\$998	\$12.58	\$23.74
2029	\$15.16	35.4700	65.51	\$538	\$993	\$13.12	\$24.22
2030	\$15.46	35.3680	63.86	\$547	\$988	\$13.65	\$24.64
2031	\$15.77	35.2660	62.22	\$556	\$981	\$14.17	\$25.00
2032	\$16.09	35.1640	60.58	\$566	\$975	\$14.69	\$25.30
2033	\$16.41	35.0620	58.94	\$575	\$967	\$15.20	\$25.55
2034	\$16.74	34.9600	57.29	\$585	\$959	\$15.71	\$25.74
2035	\$17.07	34.8580	55.65	\$595	\$950	\$16.21	\$25.87
2036	\$17.41	34.7560	54.01	\$605	\$941	\$16.70	\$25.96
2037	\$17.76	34.6540	52.37	\$616	\$930	\$17.20	\$25.99
2038	\$18.12	34.5520	50.72	\$626	\$919	\$17.69	\$25.97
2039	\$18.48	34.4500	49.08	\$637	\$907	\$18.18	\$25.90
2040	\$18.85	34.3480	47.44	\$647	\$894	\$18.67	\$25.78
2041	\$19.23	34.2460	45.80	\$658	\$881	\$19.15	\$25.61
2042	\$19.61	34.1440	44.15	\$670	\$866	\$19.64	\$25.39
2043	\$20.00	34.0420	42.51	\$681	\$850	\$20.12	\$25.13
2044	\$20.40	33.9400	40.87	\$693	\$834	\$20.61	\$24.81
2045	\$20.81	33.8380	39.23	\$704	\$816	\$21.09	\$24.45
2046	\$21.23	33.7360	37.58	\$716	\$798	\$21.58	\$24.04
2047	\$21.65	33.6340	35.94	\$728	\$778	\$22.06	\$23.58
2048	\$22.09	33.5320	34.30	\$741	\$757	\$22.55	\$23.07
2049	\$22.53	33.4300	32.66				

Year 1, FPC Operation
(No need to wait because it saves Alaskans money today)
Year 1, Big Pipe Operation
(3 yrs for markets to adjust plus ten years to build)

\$753 Market Value of Gas Left By In-State Use	\$736 Market Value of Gas Left By Exportation	\$23.04 Royalty Value of Gas Left By In-State Use	\$22.51 Royalty Value of Gas Left By Exportation
\$754.57	\$754.44	\$1.48	\$18.81
		Market Value Adjusted for Royalty Collections	

Royalties collected are value left behind, so lets add them
(Royalty collections calculated offsheet)

In the final Analysis, what have we determined?

The detailed evaluation on the left side of this sheet is moot because:

Under any current or future gas price scenario, the utilization of ANS gas in Alaska provides the BEST VALUE for us and for our children.

So what will our children call the legacy of our quick ANS exportations?



Will it be called an empty promise of short term gains ?

Let's build it now in Alaska, by Alaskans, for Alaskans