Alaskan tax reform: Gas raises questions

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The question whether success of Alaskan tax reform with oil foretells comparable success with natural gas hinges on a side effect of high progressivity: a very high marginal rate. As noted in the first part of this series, as the progressivity charge rises it affects the tax rate applied to all the taxed hydrocarbons (OGJ, May 25, 2009, p. 20).

This effect is most pronounced, for example, when the production tax value (PTV) is around $92.50/bbl, when about 93¢ of an extra $1/bbl of revenue goes to the state. Why? Before adding the extra dollar, the base production tax (BPT) was 25%, and the combined progressivity tax (CPT) was 24.6% for a total of 49.6%. Adding 0.4% times $92.5 is only 37¢/bbl more in tax—but that is 37% of the additional dollar that triggered the higher tax. Add the 49.6% to that 37% and, on different bases, 12.5% royalty, 9.4% income tax, and 2% property tax, and you have reached 93% (Table 1).

Maximal Marginal Impact of Incremental of $1/ barrel of WC ANS Oil Price Increase in Alaska's Upstream Fiscal System

Formulas	Simplified ($/barrel) Analysis	Base Case	+$1 Price	Difference
A	Destination Price West Coast ANS	$120.36	$121.36	$1.000
B	Less Transportation Costs (TT&T)	6	6	
A - B = C	Gross value at Point of Production (PPV)	$114.36	$115.36	$1.000
D	Royalty (12.5% of Gross Value)	$14.30	$14.42	
E	Less Upstream Costs	20.00	20.00	$0.000
C- D - E = F	PTV or Net Value	$80.07	$80.94	$0.875
G	Taxable Barrels (exclude 12.5% royalty)	87.5%	87.5%	
F / G = H	PTV / Taxable Barrel	$91.50	$92.50	
(H-30)*.004 = I	Production Tax Progressivity (CPT %) (see note)	24.60%	25.00%	
J	Base Production Tax (25%)	25.00%	25.00%	
I + J = K	Total Production Tax Rate (%)	49.60%	50.00%	0.399%
F * K = L	Pre-credits Production Tax (Rate*PTV)	$39.71	$40.47	$0.757
M	Production Tax Credits (assumed)	-10.00	-10.00	0.000
N	Property Tax (assumed)	0.50	0.50	0.000
F- (L + M + N) = O	Simplified income tax base ignoring worldwide income (CIT) and different depreciation mechanisms for CIT & FIT			
O * 9.4% = P	State Income Tax (9.4% * net less taxes)	4.69	4.70	0.011
(O - P) * 35% = Q	Federal Income Tax (35% * net less taxes)	15.81	15.85	0.037
D+L+M+N+P+Q = R	Government Take Including CIT & FIT	$65.00	$65.93	$0.931
D+L+M+N = S	Government Take Excluding CIT & FIT	$44.51	$45.39	$0.882

Note: a different progressivity formula applies when H is below $30 or above $92.5

Table 1

The table shows the maximal marginal impact on the government's take of a $1 increase in oil price on a high production tax value field. The government takes most of the financial gains from an incremental price increase at high oil prices. Below $92.5/bbl the marginal effect will be smaller.

Such circumstances could encourage producers to gold-plate field costs in order to lower PTV. Incremental costs are met mainly by the state with every additional dollar per barrel of spending potentially offsetting the increased state take from an extra dollar per barrel of revenue (Table 2). The government revenue share absorbs most of the incremental investment at high oil prices. Actually, once investment credits are factored in and even with no boost from royalty, the marginal rate (or state underwriting of the investment) can reach the vicinity of 100%.

These prices have been chosen to illustrate an extreme point; in general for energy scenarios with both higher and lower values the marginal tax rate falls. The rest of this article focuses on one scenario likely to lead to a much lower marginal tax rate: A producer of oil adds a significant gas stream to its portfolio.

Taxes and gas sales

How will this tax work in conjunction with a major gas sale? The progressivity mechanism has been through one test (high oil prices), and from the state's point of view it worked. Prices went to levels in 2008 only previously dreamed of, and the progressivity mechanism worked to produce the intended result of a significantly higher state take.

However, modeling suggests there may be other tests ahead with less felicitous outcomes. The

Maximal Marginal Impact of Incremental Investment of $1/ barrel of Capital in Alaska's Upstream Fiscal System

Formulas	Simplified ($/barrel) Analysis	Base Case	+$1 Capex	Difference
A	Destination Price West Coast ANS	$121.36	$121.36	$0.000
B	Less Transportation Costs (TT&T)	6	6	
A - B = C	Gross value at Point of Production (PPV)	$115.36	$115.36	$0.000
D	Royalty (12.5% of Gross Value)	$14.42	$14.42	
E	Less Upstream Costs	20.00	21.00	$1.000
C- D - E = F	PTV or Net Value	$80.94	$79.94	-$1.000
G	Taxable Barrels (exclude 12.5% royalty)	87.5%	87.5%	
F / G = H	PTV / Taxable Barrel	$92.50	$91.36	
(H-30)*.004 = I	Production Tax Progressivity (CPT %) (see note)	25.00%	24.54%	
J	Base Production Tax (25%)	25.00%	25.00%	
I + J = K	Total Production Tax Rate (%)	50.00%	49.54%	-0.456%
F * K = L	Pre-credits Production Tax (Rate*PTV)	$40.47	$39.61	-$0.865
M	Production Tax Credits (assumed)	-10.00	-10.10	-0.100
N	Property Tax (assumed)	0.50	0.50	0.000
F- (L + M + N) = O	Simplified income tax base ignoring worldwide income (CIT) and different depreciation mechanisms for CIT & FIT			
O * 9.4% = P	State Income Tax (9.4% * net less taxes)	4.70	4.69	-0.003
(O - P) * 35% = Q	Federal Income Tax (35% * net less taxes)	15.85	15.83	-0.011
D+L+M+N+P+Q = R	Government Take Including CIT & FIT	$65.93	$64.95	-$0.979
D+L+M+N = S	Government Take Excluding CIT & FIT	$45.39	$44.43	-$0.965

Note: a different progressivity formula applies when H is below $30 or above $92.5

Table 2

state hopes that more than 35 tcf of proved gas on the North Slope, plus more yet-to-find gas, can be monetized, and continues to explore ways to bring about its commercialization. If a gas line (or other gas revenue-generating project) were in place, how would the prevailing CPT mechanism operate? The gas sold would be converted to oil on a barrel-of-oil-equivalent basis and taxed using the progressivity mechanism. What are some of the consequences of that?

The general effect for any taxpayer with gas and oil production might be that adding gas production actually lowers production tax liability. Why? Consultants for the current administration have suggested that the gas-line tariff is likely to be about $5/MMbtu, which translates into a tariff of $30/boe of gas. Even if oil and gas were sold and taxed at a btu parity in the market, a $30/boe transportation deduction for gas would compare to an average cost to market of about $6/bbl for oil. PTVs will be much lower for combined oil and gas streams than they are for oil-alone streams.

This point is illustrated in Fig. 1, which shows that a lack of oil and gas price parity and quite different downstream and upstream cost structures mean that using energy prices found in, say, June 2008, under current CPT mechanisms Alaska gas would pay little or no CPT, whereas Alaska oil would pay substantial CPT. Blending the two streams together results in gas diluting the CPT computation and cross-subsidizing oil.

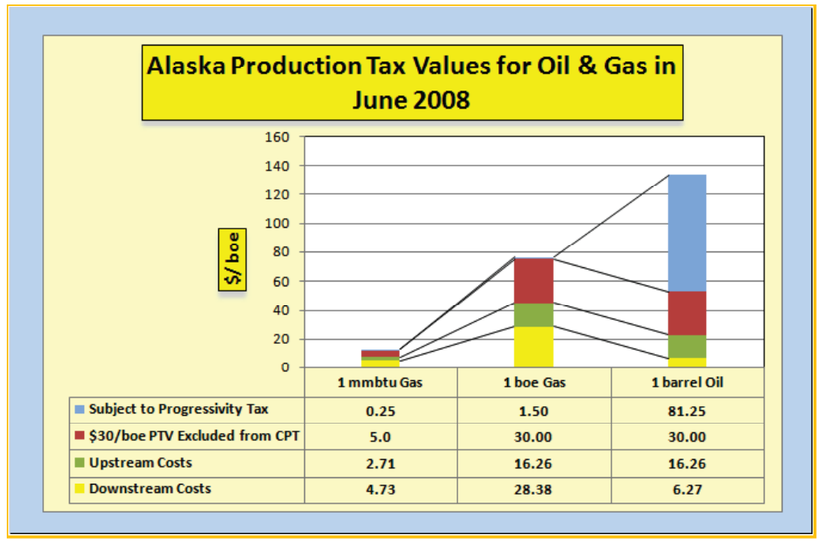

Figure 1

However, as the figure also illustrates, the notion of oil and gas selling at a btu parity is elusive. As the world has found, oil and gas prices do not always move in tandem. Ignoring location differentials, for more than a year from the summer of 2007 through the summer of 2008, the ANS monthly price was more than 12 times the Henry Hub benchmark price for natural gas and double the btu-parity relationship.

At those parities it is possible to construct scenarios where Alaska could achieve its long-held dream of a gas pipeline but generate less production tax revenue with a gas pipeline than without it. How? Because of the fall in progressivity that comes about when oil and gas are combined in the CPT calculation.

Gas with oil

Fig. 2 illustrates the production tax consequences of a wide range of oil and gas PTV dollar-per-barrel-of-oil-equivalent combinations but focuses on the impact of adding a single low-PTV $/boe gas barrel to an oil barrel varying in PTV from $0/boe to $400/boe. Gas revenue streams from PTVs below $20 a boe reduce the overall production tax paid by an oil revenue stream by the CPT mechanism over most of the oil PTV $/boe range above the CPT threshold of $30/boe. Negative values in the figure illustrate where the combined oil and gas revenue stream pays less production tax (BPT + CPT) than an oil-only revenue stream.

Of course, the whole idea behind a net tax is that investment gets a boost from its favored tax status. Investment in producing more oil and gas should lower taxes. However, the upstream infrastructure to produce most of the gas that would feed a gas line has already been developed. State policymakers might think about oil and gas as a combined stream and be perfectly sanguine that adding the

lower-value gas to Alaska's production portfolio may enhance development by increased tax incentives.

On the other hand, if state policy-makers continue to think about distinct oil and gas streams, then as a consequence of these high oil-only marginal rates there are some potential outcomes waiting in the way the CPT works that they may be less comfortable with.

More important, though much less open to illustrative modeling, is the effect the tax, including some of the outcomes illustrated above, will have on reinvestment. For example, looking at Fig. 2 and assuming a constant gas PTV, consider a producer evaluating an investment that will also lower the oil PTV in the year of that investment. Sometimes that increased oil investment will lead to a higher relative tax (i.e., moving from right to left on a portion of the illustrated curve that has a positive slope), and sometimes it will lead to a lower relative tax (i.e., moving from right to left on a negatively sloped portion of the curve).

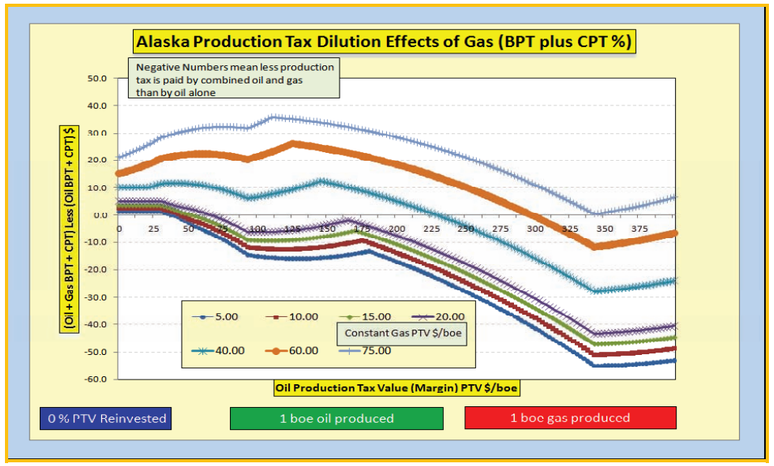

Figure 2

How companies make long-term investment decisions, and how those decisions fit in with taxes and tax stability remain huge unknowns to state policy-makers. Figs. 3 and 4 illustrate how reinvestment leads to complex variations in production tax liabilities under the prevailing production tax methodology.

Fig. 3 shows that the nonlinearity of the CPT mechanism results in different impacts of capital reinvestment on a producer's CPT liability depending on the prevailing PTV dollar per barrel. Production tax rates for producers can be substantially reduced over a wide range of PTV $/boe (above the $30/boe CPT threshold) by reinvestment of post-tax dollars.

Fig. 4 shows the percentage tax reduction associated with the incremental reinvestment (or the marginal tax rate offset by the producer by its reinvestment). Note the peak around PTV $90/boe and values above 100% at PTV $350/boe. These

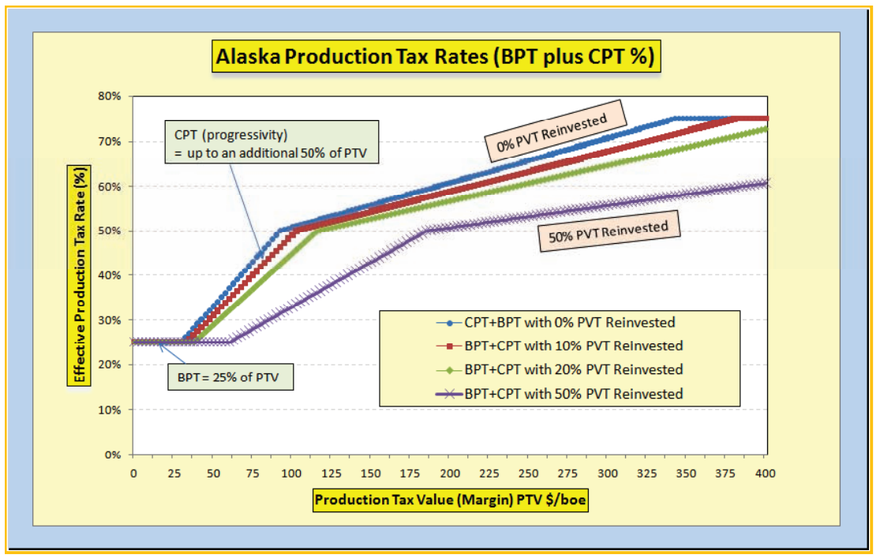

Figure 3

high marginal tax rates should act as significant incentives for reinvestment. However, the nonlinearity of the benefits and steep gradients complicate prediction and tax planning for investors. Generally, incentives for reinvestment are higher when PTV is higher.

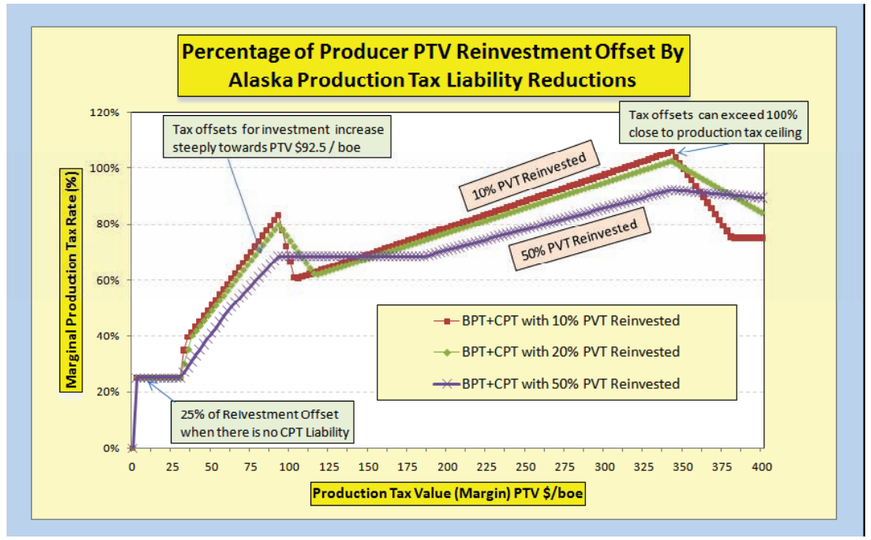

Figure 4

Future response

How might Alaska respond to these production tax issues? History sheds light on how Alaska's fiscal design could evolve in the future. The period 1973-81 was a time of huge turmoil in Alaska's fiscal system for royalties and all three oil and gas taxes.

The driving event was the opening of the trans-Alaska pipeline in June 1977. The period started with a special legislative session in which the state added the statewide oil and gas property tax to its fiscal take. It also created a special oil and gas corporate income tax based on separate accounting (taxing only profits earned in Alaska), and then 4 years later switched back to apportionment of worldwide earnings—with special rules for oil and gas companies.

In 1977 the state filed a lawsuit against royalty payers that was not resolved for 18 years but the settlement of which finally set out the rules for calculation of royalties. In this period the state changed the production tax several times, going from stair-step production rates driven by well size to various versions of the economic limit factor (ELF). Outside of oil and gas law, but driven by the receipts from those royalties and taxes, the state also repealed its personal income tax and gross receipts business tax and began distributing some of the state's oil wealth directly to its citizens in annual checks that have ranged from $331.29 in 1984 to $3,269 in 2008. Will the period of transition from North Slope oil to North Slope gas be as tumultuous?

Stability concerns

This prospect of fiscal instability may appear daunting to potential investors in a North Slope gas line and future exploration and production activities. Many public statements can be heard these days that the state is staking its fiscal future on a gas line.

In 2007 there was a great fuss when the extra oil taxes paid for 2006 as a consequence of the first round of reforms were about 14% below anticipation. What would happen if the long-awaited gas line were built and instead of proving to be the financial future of the state it actually lowered production tax revenues?

The history of the past 3 decades leads these authors to conclude that such an outcome would more than likely lead to revisions in the tax code; fear of such changes has often been cited by lease holders. As an alternative, if Alaska were to establish a stable fiscal design for natural gas in advance of contractual commitments associated with a gas line being made, it might make those commitments more likely.

Fiscal stability issues that have arisen around the world in the past 5 years have highlighted that fiscal stability clauses in contracts and licenses do not guarantee long-term fiscal stability and are easily circumvented by those prepared to exert political pressure on producers. An alternative approach to attempting to lock in fiscal stability via legislation or contract is

to establish a rational tax system tied to a long-term, widely agreed upon state fiscal strategy and associated policies and targeted incentives.

With all stakeholders recognizing the objectives of the stated strategy, it should be possible to secure investments in the relative security from an investor's perspective that short-term changes to fiscal terms are not going to be made as short-term reactions to changing market conditions. A rational tax system appropriate to such a strategy would need to be flexible and predictable and contain the following elements:

• Some regressive elements targeted specifically at high-volume production that provide the state with a baseline revenue stream regardless of prevailing prices.

• Some progressive elements that only impact the producers when prices are such that substantial net revenues can be secured by producers while also providing the state with higher net takes from high-margin production.

• Targeted allowances to the regressive elements that stimulate capital investment in higher-cost, difficult fields.

Importance of balance

Systems with a balance of all three components are more likely to be efficient in raising taxes and promoting investment in a wide range of market and reservoir conditions without prompting frequent fiscal restructuring by a government. If the state's long-held and widely articulated belief is that taxes from oil and gas should provide the baseline revenues needed to run the state, then in a low-price environment a fiscal mechanism driven solely by progressive elements cannot be considered a very stable approach.

Conversely, a fiscal mechanism dominated by regressive elements such as royalties and property taxes (without any allowances or investment incentives) will be ineffective at promoting investment in high-cost developments because of its negative consequences for producers in low-price environments and may even cause temporary shut-in or premature abandonment of marginal fields. The challenge for Alaska is to find the right fiscal balance soon for future gas revenues and to promote upstream investment to achieve long-term sustainable gas production a decade or more from now.

One of the alternatives to a CPT combined progressivity tax mechanism is a distinct oil progressivity tax (OPT) and gas progressivity tax (GPT). Typically, with no allowances, such an approach would have the effect of increasing the total progressivity taxes paid compared to the CPT approach.

However, incentives and allowances could be targeted and tailored specifically at more-marginal gas (or oil) streams to avoid inhibiting development capital investment. The point is that if the state is unlikely to be willing to live with a pipeline causing a significant drop in its fiscal revenues, due to a substantial drop in production tax revenue caused by a CPT mechanism conceived with oil in mind but diluted by gas is likely to lead the state to change the law.

The industry's perception of the possibility or likelihood of such a tax change to fix the issues posed by gas for a CPT mechanism is likely to provide its own inhibition to further development and capital investment in a gasline.