
Petroleum Fiscal Design CSHB 111

CASTLE**GAP**



Castle Gap Advisors, LLC.
April 27, 2017

Senate Finance Committee

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RECOVERY OF COSTS

How Are Explorer/Producer Costs Recovered?

- Net Operating Losses (NOLs) are created in any year where the sum of the costs exceed the amount of revenue available for recovery of those costs
- For gross based fiscal systems (like most of the lower 48), there is generally no allowance for costs recovery, as the tax is based on the gross revenue back to the well, lease or unit boundary
 - There are some allowable deductible costs between the sale point in the market and the well, lease or unit boundary
 - LNG shipping and long distance pipeline transportation are examples
- Net based systems in use around the globe have many different mechanisms for cost recovery
 - “Cost Oil” in Production Sharing Agreements (PSAs)
 - Cost deductions, ranging from a limited percentage up to 100% of available revenue
 - Recovered as per a schedule, much like the depreciation of capital
 - And others

What is the Value of 'Recovery'?

- Looking at the same project, but run against the fiscal systems in several different regimes, the internal rate of return (IRR) and net present value (NPV) to the producer (and thus the net present cost to the government) varies greatly
 - Project IRR and NPV are key aspects of investment decision making
- These variations are the result of several different methods of accounting for the costs or NOLs
 - Which costs incurred are eligible for recovery?
 - How much time does it take to recover them?
 - Is there any interest or uplift provided?
 - Is there one or multiple tax rates (i.e. can the effective tax rate differ from when the NOL is created to when the NOL is recovered)?
 - Is the recovery of costs against the petroleum tax ultimately deductible against corporate income tax?
- The combination of all of the above will inform the producers as to the attractiveness of the fiscal regime

Retaining Value for NOLs i.e. Cost Recovery

- Current Alaska structure provides for 100% of cost recovery “value” through the concept of the cashable credit
- Removal of the cashable credit option then creates a challenge as to how to preserve the full “value” of cost recovery
 - Switch to carry forward of net operating losses (CF NOLs)
- Applying CF NOLs to possible future North Slope projects surfaced issues related to the interaction with per barrel credits and gross minimum taxes resulting in producers possibly not getting full value for their costs and NOLs
 - Defined this inefficiency as “Wasted NOLs”

Basic Alaska Structure

- Start with the GVPP or Gross Value at the Point of Production
 - Subtract Current Costs
 - Subtract CF NOLs
 - Subtract appropriate GVR if eligible
- This results in the PTV or Production Tax Value
 - Can not be less than \$0
 - Calculate preliminary petroleum tax at 35% of PTV
 - Subtract eligible per barrel credits
- This results in the “net” petroleum tax due
 - Can not be less than \$0
- Calculate the “gross” minimum tax
 - 4% of the GVPP at prices above \$25
- Tax due is the greater of the “net” or “gross” amount

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NOLs are subtracted before any application of credits

Use of NOLs can result in a \$0 PTV and \$0 net tax

But a minimum tax is still due resulting in “wasted” NOLs

Simple Single Barrel Example

- First, lets look at the calculations before the introduction of CF NOLs
- For NON-GVR
 - Net tax is 4.25
 - Gross minimum tax is 2.60
 - Tax Paid is the greater of so 4.25
- For GVR
 - Net tax 2.70
 - Gross tax 2.08
 - Tax Paid 2.70

	Non-GVR	GVR
Taxable Barrels	1	1
Market	75	75
T&S	10	10
GVPP	65	65
GVR	0	13
Adj GVPP	65	52
Costs	30	30
CF NOLs	0	
PTV	35	22
Ptax	12.25	7.7
Sliding	8	0
GVR bbl credit		5
net Ptax	4.25	2.7
Unused GVR Credits	0	0
Gross Min Tax	2.6	2.08
Tax Paid	4.25	2.7
Eff Net Tax	12.1%	7.7%

Simple Single Barrel Example – Add in CF NOLS

- Assume 50 in available CF NOLs
- For NON-GVR
 - Use 35 CF NOL to take the PTV to 0
 - Net tax is 0
 - Gross minimum tax is 2.60
 - Tax Paid is the greater of so 2.60
- FOR GVR
 - Use 22 CF NOL to take the PTV to 0
 - Net 0
 - Gross – N/A as per barrel credits pierce the floor

	Non-GVR	GVR
Taxable Barrels	1	1
Market	75	75
T&S	10	10
GVPP	65	65
GVR	0	13
Adj GVPP	65	52
Costs	30	30
CF NOLs	35	22
PTV	0	0
Ptax	0	0
Sliding	8	0
GVR bbl credit		5
net Ptax	0	0
Unused GVR Credits	0	5
Gross Min Tax	2.6	2.08
Tax Paid	2.6	0

Simple Single Barrel Example – Optimize CF NOLS

- Assume 50 in CF NOLs
- Use only the amount of CF NOL to optimize use of per barrel credits and min floor
- For NON-GVR
 - Only need to use 4.7 and not 35
 - 30.3 NOL wasted, or 86% wasted
- FOR GVR
 - Only need to use 1.77 versus 22
 - 20.2 NOL wasted or 92% wasted

	Non-GVR	GVR
Taxable Barrels	1	1
Market	75	75
T&S	10	10
GVPP	65	65
GVR	0	13
Adj GVPP	65	52
Costs	30	30
CF NOLs	4.72	1.77
PTV	30.28	20.23
Ptax	10.60	7.08
Sliding	8.00	0.00
GVR bbl credit		5.00
net Ptax	2.60	2.08
Unused GVR Credits	0	0.00
Gross Min Tax	2.6	2.08
Tax Paid	2.6	2.08
Eff Net Tax	8.6%	6.3%

What is the Takeaway?

- Because of the interaction of the various mechanisms within the fiscal structure, no one item should be viewed stand alone and care should be taken to make sure the level and degree of inter-dependency is understood.
- So long as Alaska keeps some form of GVR, per barrel credits and hard floors related to gross minimum taxes, the impact of CF NOLs will range from slightly less to much less than what one would expect.
- Changing other mechanisms, such as increasing the minimum tax or reducing per barrel credits, will alter the value to the producer and the impact to the state for CF NOLs.
- For 100% used and useful NOLs the proffered language in the SRES CS will allow producers to only use NOLs when useful to reduce taxes.

UPLIFT

Time Can Have More Impact than Tax Rate

- Modeled a hypothetical field for purposes of only showing the effect of timing on producer economics
- All model runs are based on the same data
 - Producer investment of 100
 - Total revenue of 400
 - 100 cost recovery
 - 300 of profit split between producer and government
- In each of case 1 to 3 the total cash to the producer and to the government is identical, only the timing changes
- Depending on how cost recovery is handled, the results range from a very doable and profitable project to a project that would not get developed

4 Timing Scenarios of Same Total Dollars

- **Immediate Recovery 100% Useful** – i.e. money back right after investing
IRR = 27%, NPV = 46, CF=120
- **Accelerated Recovery 100% Useful** – i.e. all available revenue for cost recovery before profit splits
IRR = 20%, NPV = 27, CF=120
- **Delayed Recovery 100% Useful** – e.g. cost recovery through depreciation of an asset
IRR = 14%, NPV = 14, CF=120
- **Only 50% Useful Recovery** – i.e. As suggested by the other body
IRR = 6%, NPV = **-12**, CF=100

*CF = undiscounted cash flow

Uplift Compensates for Timing Differences

- Many regimes offer some form of “uplift” or interest on carry forward losses to allow the producer to recover some of the time value loss as well
- We could fill several days of testimony on what is the right or fair rate of uplift
 - Companies, depending on size, will argue long run returns in the 12% to 20+% and would need an equivalent uplift to be kept whole
 - Governments tend to view the world as long run 4% to 6% return and view anything higher as a “giveaway”
 - Settling somewhere in the ‘middle’ means both sides give a bit
- 10% annual uplift falls nicely in between expected return rates

Impact of Interest Rate on Time Value of Money

- The yellow highlighted cells basically show, at the interest rates listed across the top, how long it takes to double your money

Interest	4%	6%	8%	10%	12%	14%	16%	18%	20%
1	1.04	1.06	1.08	1.1	1.12	1.14	1.16	1.18	1.20
2	1.08	1.12	1.17	1.21	1.25	1.30	1.35	1.39	1.44
3	1.12	1.19	1.26	1.33	1.40	1.48	1.56	1.64	1.73
4	1.17	1.26	1.36	1.46	1.57	1.69	1.81	1.94	2.07
5	1.22	1.34	1.47	1.61	1.76	1.93	2.10	2.29	2.49
6	1.27	1.42	1.59	1.77	1.97	2.19	2.44	2.70	2.99
7	1.32	1.50	1.71	1.95	2.21	2.50	2.83	3.19	3.58
8	1.37	1.59	1.85	2.14	2.48	2.85	3.28	3.76	4.30
9	1.42	1.69	2.00	2.36	2.77	3.25	3.80	4.44	5.16
10	1.48	1.79	2.16	2.59	3.11	3.71	4.41	5.23	6.19
11	1.54	1.90	2.33	2.85	3.48	4.23	5.12	6.18	7.43
12	1.60	2.01	2.52	3.14	3.90	4.82	5.94	7.29	8.92
13	1.67	2.13	2.72	3.45	4.36	5.49	6.89	8.60	10.70
14	1.73	2.26	2.94	3.80	4.89	6.26	7.99	10.15	12.84
15	1.80	2.40	3.17	4.18	5.47	7.14	9.27	11.97	15.41
16	1.87	2.54	3.43	4.59	6.13	8.14	10.75	14.13	18.49
17	1.95	2.69	3.70	5.05	6.87	9.28	12.47	16.67	22.19
18	2.03	2.85	4.00	5.56	7.69	10.58	14.46	19.67	26.62
19	2.11	3.03	4.32	6.12	8.61	12.06	16.78	23.21	31.95
20	2.19	3.21	4.66	6.73	9.65	13.74	19.46	27.39	38.34

Uplift – For How Long?

- Many aspects of the fiscal regime and the particular project will suggest what is the right length of time for providing uplift
- This is a self-correcting mechanism
 - Those that can use the NOLs quickly are not disadvantaged and thus need little uplift
 - For whatever circumstances lead to prolonged recovery, uplift is a means of keeping whole
- Legacy producers with sizeable current production are advantaged
- New players may, depending on price forecasts, take decades to recover their costs

Quick Modeling Runs - Observations

- Life-cycle Model plus Legacy on 6% decline
 - \$10 T&S, \$30 costs for Legacy
 - Used 500,000 bpd as legacy production
- With a hard floor @ 4%
 - At prices above \$50/bbl there is sufficient taxable value from the legacy production to be able to immediately deduct the new project capital costs
 - Economically, this is nearly the same as cashable credits
 - Relative to a producer with no legacy production, this adds 3.5% to 4% to the project return (IRR) and doubles the discounted net present value
- With no hard floor
 - The absence of a gross minimum hard floor provides very small improvement to project IRR and net present value for new development

Legacy Operator, Legacy + New Oil Field (GVR eligible), No Wasted NOLs, No Hard Floor

	\$40	\$55	\$70	\$85	\$100
Total Years Min Tax - From Production Start	No Hard Floor	No Hard Floor	No Hard Floor	No Hard Floor	No Hard Floor
Max NOL (\$MM)	9,906	4,906	1,944	119	0
NOL Recovery Start Year - From Production Start	8 0	14 6	11 3	8 0	No NOLs
NOL Last Recovery Year	Never	21	13	8	No NOLs
Producer IRR	N/A	N/A	N/A	N/A	N/A
Producer NPV10	(1,632)	2,484	5,911	9,119	11,963
Producer Cash Flow	6,097	20,393	30,688	40,456	49,480
State Cash Flow	10,281	17,255	30,385	44,324	59,409
State NPV6	3,942	6,436	10,980	15,991	21,687

■ Assumptions:

- 7 years pre-production investment
- GVR benefits are realized for 3 years only (does not reflect current statute)

Legacy Operator, Legacy + New Oil (GVR eligible), No Wasted NOLs, With a Hard Floor

	\$40	\$55	\$70	\$85	\$100
Total Years Min Tax - From Production Start	40 32	37 29	13 5	10 2	5 Pre
Max NOL (\$MM)	9,906	4,906	1,944	119	0
NOL Recovery Start Year - From Production Start	Never	15 7	11 3	8 0	No NOLs
NOL Last Recovery Year	N/A	37	14	8	No NOLs
Producer IRR	N/A	N/A	N/A	N/A	N/A
Producer NPV10	(1,982)	2,044	5,520	8,682	11,707
Producer Cash Flow	4,810	19,574	30,076	39,788	49,093
State Cash Flow	12,261	18,515	31,325	45,352	60,004
State NPV6	4,764	7,327	11,693	16,779	22,148

■ Assumptions:

- 7 years pre-production investment
- GVR benefits are realized for 3 years only (does not reflect current statute)

New Operator, New Oil (GVR Strict 3 years), No Wasted NOLs , No Hard Floor

	\$40	\$55	\$70	\$85	\$100
Total Years Min Tax - From Production Start	No Hard Floor	No Hard Floor	No Hard Floor	No Hard Floor	No Hard Floor
Max NOL (\$MM)	8,096	7,420	7,045	6,897	6,815
NOL Recovery Start Year - From Production Start	17 9	13 5	11 3	10 2	9 1
NOL Last Recovery Year	37	24	17	15	14
Producer IRR	4.82%	9.38%	12.34%	14.69%	16.56%
Producer NPV10	(1,633)	(225)	918	1,968	2,896
Producer Cash Flow	6,086	13,832	19,772	25,558	30,495
State Cash Flow	6,120	10,636	17,929	25,459	34,295
State NPV6	1,682	2,879	4,935	7,195	9,831

- Assumptions:
 - 7 years pre-production investment
 - GVR benefits are realized for 3 years only (does not reflect current statute)
- With no hard floor, no tax is paid during minimum tax period

New Operator, New Oil (GVR Strict 3 years), No Wasted NOLs, With a Hard Floor

	\$40	\$55	\$70	\$85	\$100
Total Years Min Tax	40	37	19	16	15
- From Production Start	32	29	11	8	7
Max NOL (\$MM)	8,096	7,420	7,045	6,897	6,815
NOL Recovery Start Year	Not Used	14	12	11	10
- From Production Start		6	4	3	2
NOL Last Recovery Year	Not Used	37	19	16	15
Producer IRR	4.34%	9.04%	12.18%	14.53%	16.51%
Producer NPV10	(1,754)	(352)	863	1,913	2,899
Producer Cash Flow	5,367	13,680	19,787	25,498	30,664
State Cash Flow	7,226	10,869	17,905	25,552	34,036
State NPV6	2,037	3,163	5,022	7,295	9,778

■ Assumptions:

- 7 years pre-production investment
- GVR benefits are realized for 3 years only (does not reflect current statute)

New Operator, New Oil (GVR eligible), No Wasted NOLs, With a Hard Floor and 10% Uplift

	\$40	\$55	\$70	\$85	\$100
Total Years Min Tax	40	37	22	18	16
- From Production Start	32	29	14	10	8
Max NOL (\$MM)	11,152	10,476	10,101	9,953	9,871
NOL Recovery Start Year	N/A	14	12	11	10
- From Production Start		6	4	3	2
NOL Last Recovery Year	N/A	37	22	18	16
Producer IRR	4.34%	9.04%	12.34%	14.87%	16.77%
Producer NPV10	(1,754)	(352)	940	2,095	3,044
Producer Cash Flow	5,367	13,680	20,352	26,458	31,329
State Cash Flow	7,226	10,869	17,037	24,074	33,012
State NPV6	2,037	3,163	4,764	6,762	9,376

■ Assumptions:

- 10% Uplift
- 7 years pre-production investment
- GVR benefits are realized for 3 years only (does not reflect current statute)

ALASKA COMPETITIVENESS

Alaska Competitiveness Under Senate Resources CSHB111

- For legacy players
 - See this as positive as defines the priority use of the various deductions
 - Allows quick recovery of costs and NOLs
 - Allows credits to be recovered from corporate income taxes

- For new players
 - Uplift helps, but expected timing of new mega projects would suggest longer than 7 years are needed for uplift
 - Initiation of 1 barrel of oil production terminates accrual of uplift. This immediate termination could cost a new player needed uplift on billions in spending; would suggest that a sizeable threshold, such as 5000 barrel per day, be set as to when uplift ceases to be payable
 - Is the uplift particular to annual packages and each gets its own 7 year window, or are NOLs to be treated as one package regardless of year of creation and given the same 7 year window for uplift?
 - Recommend that the window apply separately to each annual package amount
 - NOLs to be used on a first in first out basis

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