Understanding the Impact of NOLs

CASTLE**GAP**

Castle Gap Advisors, LLC.
March 29, 2017

House Finance Committee

Document Contents

- Basics of Cost Recovery in Petroleum Fiscal Systems

- Basic Example

- Alaska NOLs and Their Impact

- A new field - GVR Example

- Legacy fields, a Non-GVR Example

CASTLEGAP

COST RECOVERY IN FISCAL SYSTEMS

CASTLE**GAP**

How Are 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, there is generally no allowance for costs recovery, as the tax is based on the revenue back to the lease or unit
  - There can be some costs allowed between the sale point in the market and the lease
  - LNG shipping is one example

- Net based systems have many different possible mechanisms for costs 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

CASTLE**GAP**

What is the Value of 'Recovery'?

- Looking at the same project, but run against the fiscal systems in several different regimes, the net present value to the producer (and thus the net present cost to the government) varies greatly

- These variations are the result of several different means 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 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

CASTLE**GAP**

EXPLANATION

CASTLE**GAP**

A Hypothetical Project for Explanation

- **Standard**
  - Net Investment of $500 in year 0
  - Revenue in years 1-5
  - 35% Petroleum Tax rate
  - Minimum Tax 4%

- **Per Barrel Credit**
  - $40 per year
  - Set for ease of example, not by calculation

- **NOL**
  - $500, 100% of the investment

A Simple Example to Explain How Things Work

- This is a simple example of investment in year 0 with 5 years of revenue
- Based on the parameters in this hypothetical example, with no "credits" a petroleum tax of 35% on $220 PTV per year results in tax of $77 per year or $385 overall tax paid

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
GVR	80	80	80	80	80	400
Adj GVPP	320	320	320	320	320	1600
Less Costs	100	100	100	100	100	500
PTV	220	220	220	220	220	1100
NOLs Avail	0	0	0	0	0	
NOLs Used	0	0	0	0	0	0
Adj PTV	220	220	220	220	220	1100
Tax @ 35%	77	77	77	77	77	385
Per bbl credit	0	0	0	0	0	0
Adj Tax	77	77	77	77	77	385
Min Tax @4%	0	0	0	0	0	0
Tax Paid	77	77	77	77	77	385
Income BCIT	143	143	143	143	143	715

CASTLEGAP

The Addition of Cost Recovery

- The investment to generate these revenues is assumed to be $500

- As we recover the $500 NOL, the overall tax paid goes to $210, or down $175 from the $385 in total tax paid without any NOL recovery
  - The is the expected reduction $500*35%= $175

- This is how NOLs work without any other credits or tax minimums

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
GVR	80	80	80	80	80	400
Adj GVPP	320	320	320	320	320	1600
Less Costs	100	100	100	100	100	500
PTV	220	220	220	220	220	1100
NOLs Avail	500	280	60	0	0	
NOLs Used	220	220	60	0	0	500
Adj PTV	0	0	160	220	220	600
Tax @ 35%	0	0	56	77	77	210
Per bbl credit	0	0	0	0	0	0
Adj Tax	0	0	56	77	77	210
Min Tax @4%	0	0	0	0	0	0
Tax Paid	0	0	56	77	77	210
Income BCIT	220	220	164	143	143	890

CASTLE**GAP**

The Impact of Credits

- Now introduce per barrel credits for production

- Without any NOLs and without any gross minimum tax, the impact of the per barrel credits lowers the overall tax owed from $385 to $185, or a reduction of $200

- The impact of a per barrel credit can change based on the price and the number of barrels while an NOL is based on actual money spent

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
GVR	80	80	80	80	80	400
Adj GVPP	320	320	320	320	320	1600
Less Costs	100	100	100	100	100	500
PTV	220	220	220	220	220	1100
NOLs Avail	0	0	0	0	0	
NOLs Used	0	0	0	0	0	0
Adj PTV	220	220	220	220	220	1100
Tax @ 35%	77	77	77	77	77	385
Per bbl credit	40	40	40	40	40	200
Adj Tax	37	37	37	37	37	185
Min Tax @4%	0	0	0	0	0	0
Tax Paid	37	37	37	37	37	185
Income BCIT	183	183	183	183	183	915

CASTLE**GAP**

Adding in NOLs With Barrel Credits

- The per barrel credits drop the tax owed to $185

- Now if NOLs are applied, the tax is further reduced to $90, or a difference of only $95 and not $175 when NOLs were used in isolation of any other credit

- What happened to the other $80? ($175 - $95)

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
GVR	80	80	80	80	80	400
Adj GVPP	320	320	320	320	320	1600
Less Costs	100	100	100	100	100	500
PTV	220	220	220	220	220	1100
NOLs Avail	500	280	60	0	0	
NOLs Used	220	220	60	0	0	500
Adj PTV	0	0	160	220	220	600
Tax @ 35%	0	0	56	77	77	210
Per bbl credit	40	40	40	40	40	200
Adj Tax	0	0	16	37	37	90
Min Tax @4%	0	0	0	0	0	0
Tax Paid	0	0	16	37	37	90
Income BCIT	220	220	204	183	183	1010

CASTLEGAP

The Explanation of Missing $80 of NOL value

- NOLs are used to reduce the Production Tax Value (PTV) to zero before any credits are considered (by statute)

- Because the $40 annual per barrel credit is available to reduce taxes owed to zero, using available NOLs to reduce the PTV to zero "wastes" NOLs

- Of the $220 of NOL used in the first year, only $106 impact the tax owed and $114 are wasted, here's how
  - PTV – NOL = Adjusted PTV * Tax Rate = Tax – Barrel Credits = Tax owed
    $220 - $106 = $114 * 35% = $40 - $40 = 0
  - The other $114 of written off NOL actually had no impact on the taxes owed
  - The second year calculations work out the same

- The combined lost or wasted value is:
  - Ineffective NOL * Tax rate = wasted value
  - $114 * 35% = $40 times two years = $80
    - The missing $80 on the previous chart

CASTLE**GAP**

Summary of Example

- No credits and no NOLs
  - Tax owed is $385
- Add in the per barrel credits
  - Tax owed $185
  - Tax savings from the per barrel credits $200
- Add in NOLs of 500
  - Tax owed is $90
  - Stand alone NOLs worth $175 in tax savings, thus would have thought taxes owed would be $10 ($185 minus $175)
- ***The NOLs are worth only a further $95 reduction, or 54% of the maximum possible impact***

CASTLE**GAP**

ALASKA NOLs AND THEIR IMPACT

CASTLE**GAP**

How Are NOLs (Net Operating Losses) Created

- An NOL is created in a calendar year, when deducting allowable expenses the PTV (Production Tax Value) is less than zero

- The amount of deductible expenses below a zero PTV then become an NOL (Charts are based on year zero creating a $500 NOL)

GVPP	1000
Allowable Expenses	1500
PTV	-500
NOL Created	500

- NOLs are generally created in the 3 to 5 years of spending prior to or in the first couple years of a new project commencing the production of hydrocarbons

CASTLE**GAP**

What is the Benefit of a CF (Carry Forward) NOL ?

- Much like deducting mortgage interest from your personal income tax, producers deduct their expenses and carry forward NOLs to reduce the amount of tax they will ultimately pay

- In a simple system (like most world wide petroleum fiscal systems) the tax savings should approximate the tax rate times the CF NOL

CF NOL	500
Petroleum Tax Rate	35%
Expected Tax Savings	175

- However, the presence of other mechanisms, such as other credits and deductions, can reduce the amount of savings actually realized from deducting CF NOLs

CASTLE**GAP**

What is the Benefit of a CF (Carry Forward) NOL in AK ?

- Carry Forward NOLs will likely only apply to projects on the North Slope

- The value to the taxpayer of the CF NOLs can be negatively impacted by credits or other mechanisms within the fiscal system:
  - For GVR Fields
    - The Gross Value Reduction applied to the GVPP
    - The $5/bbl tax credit
    - A gross minimum tax if a hard floor is adopted as per CSHB111
  - For non-GVR Fields
    - The sliding scale of per barrel tax credits
    - The gross minimum tax hard floor

- Ultimately, the above items can serve to greatly reduce the impact one might think that CF NOLs would have resulting in the taxpayer receiving only a fraction of the expected benefit

CASTLEGAP

GVR Example

- We have created a hypothetical situation in order to show the impact of a taxpayer using CF NOLs on the state petroleum tax take

- Look at a 5 year snap shot
  - Constant GVPP value of $400/year
  - Costs running $100/year
  - Petroleum tax rate of 35%
  - GVR of 20% of the GVPP
  - $5 per barrel tax credits
  - $500 CF NOL

- We will look at examples with and without a 'hard floor'

- We will examine how the petroleum tax savings to the producer compare to the expected level of $175 ($500 NOL x 35% tax rate)

CASTLE**GAP**

GVR Example – Low Prices

- Without any NOLs applied, for a GVR field the total tax owed over the 5 years would be $185

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
GVR	80	80	80	80	80	400
Adj GVPP	320	320	320	320	320	1600
Less Costs	100	100	100	100	100	500
PTV	220	220	220	220	220	1100
NOLs Avail	0	0	0	0	0	
NOLs Used	0	0	0	0	0	0
Adj PTV	220	220	220	220	220	1100
Tax @ 35%	77	77	77	77	77	385
Per bbl credit	40	40	40	40	40	200
Adj Tax	37	37	37	37	37	185
Min Tax @4%	0	0	0	0	0	0
Tax Paid	37	37	37	37	37	185
Income BCIT	183	183	183	183	183	915

* The per barrel credit in this example is set for ease of example, not by calculation

CASTLEGAP

GVR Example – Low Prices, No Hard Floor

- With $500 of CF NOLs applied, we would expect to see a $175 tax savings ($500 * 35%) thereby reducing the taxes owed to $10 ($185 - $175)

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
GVR	80	80	80	80	80	400
Adj GVPP	320	320	320	320	320	1600
Less Costs	100	100	100	100	100	500
PTV	220	220	220	220	220	1100
NOLs Avail	500	280	60	0	0	
NOLs Used	220	220	60	0	0	500
Adj PTV	0	0	160	220	220	600
Tax @ 35%	0	0	56	77	77	210
Per bbl credit	40	40	40	40	40	200
Adj Tax	0	0	16	37	37	90
Min Tax @4%	0	0	0	0	0	0
Tax Paid	0	0	16	37	37	90
Income BCIT	220	220	204	183	183	1010

- But, the tax savings due to application of NOLs is far less due to the $5 per barrel credit (we didn't have to take the PTV to 0 to zero out the taxes due)

- The producer only received 54% of the expected benefit. Said another way, only $260 of his $500 in CF NOL lowered his taxes

CASTLEGAP

GVR Example – Low Prices, Hard Floor

- With the addition of a hard gross minimum tax floor for GVR fields, the producer realizes even less value from his CF NOLs.

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
GVR	80	80	80	80	80	400
Adj GVPP	320	320	320	320	320	1600
Less Costs	100	100	100	100	100	500
PTV	220	220	220	220	220	1100
NOLs Avail	500	280	60	0	0	
NOLs Used	220	220	60	0	0	500
Adj PTV	0	0	160	220	220	600
Tax @ 35%	0	0	56	77	77	210
Per bbl credit	40	40	40	40	40	200
Adj Tax	0	0	16	37	37	90
Min Tax @4%	16	16	16	16	16	80
Tax Paid	16	16	16	37	37	122
Income BCIT	204	204	204	183	183	978

- Now the producer receives only 36% of the expected benefit. 64% of the expected benefit was offset by the per barrel credits and the gross minimum tax hard floor.

GVR Example – Higher Prices, No Hard Floor

■ The previous examples were indicative of low prices. Let's now look at higher prices (GVPP increased 25% to $500), but production unchanged

	1	2	3	4	5	Total
GVPP	500	500	500	500	500	2500
GVR	100	100	100	100	100	500
Adj GVPP	400	400	400	400	400	2000
Less Costs	100	100	100	100	100	500
PTV	300	300	300	300	300	1500
NOLs Avail	0	0	0	0	0	
NOLs Used	0	0	0	0	0	0
Adj PTV	300	300	300	300	300	1500
Tax @ 35%	105	105	105	105	105	525
Per bbl credit	40	40	40	40	40	200
Adj Tax	65	65	65	65	65	325
Min Tax @4%	0	0	0	0	0	0
Tax Paid	65	65	65	65	65	325
Income BCIT	235	235	235	235	235	1175

■ Without use of any CF NOLs, the total tax paid would be $325.
With $500 of CF NOL, the tax owed could possibly come down to $150.
(The $175 in savings)

CASTLE**GAP**

GVR Example – Higher Prices, No Hard Floor

- Add in $500 of CF NOLs

	1	2	3	4	5	Total
GVPP	500	500	500	500	500	2500
GVR	100	100	100	100	100	500
Adj GVPP	400	400	400	400	400	2000
Less Costs	100	100	100	100	100	500
PTV	300	300	300	300	300	1500
NOLs Avail	500	200	0	0	0	
NOLs Used	300	200	0	0	0	500
Adj PTV	0	100	300	300	300	1000
Tax @ 35%	0	35	105	105	105	350
Per bbl credit	40	40	40	40	40	200
Adj Tax	0	0	65	65	65	195
Min Tax @4%	0	0	0	0	0	0
Tax Paid	0	0	65	65	65	195
Income BCIT	300	300	235	235	235	1305

- At this higher price taxes are larger than the per barrel credits so the presence of NOLs has more impact
- The producer would realize roughly 74% of the expected benefit of the CF NOLs, or substantially more than at lower prices

CASTLEGAP

GVR Example – Higher Prices, Hard Floor

- Barrel credits and $500 of CF NOLs, now with a hard floor added

	1	2	3	4	5	Total
GVPP	500	500	500	500	500	2500
GVR	100	100	100	100	100	500
Adj GVPP	400	400	400	400	400	2000
Less Costs	100	100	100	100	100	500
PTV	300	300	300	300	300	1500
NOLs Avail	500	200	0	0	0	
NOLs Used	300	200	0	0	0	500
Adj PTV	0	100	300	300	300	1000
Tax @ 35%	0	35	105	105	105	350
Per bbl credit	40	40	40	40	40	200
Adj Tax	0	0	65	65	65	195
Min Tax @4%	20	20	20	20	20	100
Tax Paid	20	20	65	65	65	235
Income BCIT	280	280	235	235	235	1265

- The hard floor, much like the per barrel credits, negates or "wastes" the value of some of the NOLs
- In this situation the producer would realize roughly 50% of the expected benefit of the CF NOLs

CASTLE**GAP**

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.

- We are building a full field life cycle model to be able to run any number of real time what if scenarios so that way any changes made can be viewed to see their impact on state take.

CASTLE**GAP**

Non - GVR Example – Low Prices

- For a Non-GVR example, with only the sliding per barrel credits and gross minimum tax applied the total tax owed is only $80

- Applying $500 CF NOLs then by definition can be worth no more than $80 or at most 45% of the potential NOL value of $175

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
Less Costs	240	240	240	240	240	1200
PTV	160	160	160	160	160	800
NOLs Avail	0	0	0	0	0	
NOLs Used	0	0	0	0	0	0
Adj PTV	160	160	160	160	160	800
Tax @ 35%	56	56	56	56	56	280
Per bbl cred	64	64	64	64	64	320
Adj Tax	0	0	0	0	0	0
Min Tax @4	16	16	16	16	16	80
Tax Paid	16	16	16	16	16	80
Income BCI	144	144	144	144	144	720

Non - GVR Example – Low Prices

- The use of $500 of CF NOLs has zero impact on the tax owed as they must be used first to reduce the PTV to zero

	1	2	3	4	5	Total
GVPP	400	400	400	400	400	2000
Less Costs	240	240	240	240	240	1200
PTV	160	160	160	160	160	800
NOLs Avail	500	340	180	20	0	
NOLs Used	160	160	160	20	0	500
Adj PTV	0	0	0	140	160	300
Tax @ 35%	0	0	0	49	56	105
Per bbl cred	64	64	64	64	64	320
Adj Tax	0	0	0	0	0	0
Min Tax @4	16	16	16	16	16	80
Tax Paid	16	16	16	16	16	80
Income BCI	144	144	144	144	144	720

- At low unit prices, the combination of the per barrel credits and the minimum tax results in 0% value to the producer; or said another way no lost taxes by the state due to the use of CF NOLs

CASTLE**GAP**

Non - GVR Example – Higher Prices

- Using the same increase as in the GVR high price example, the tax paid grows to $135

	1	2	3	4	5	Total
GVPP	500	500	500	500	500	2500
Less Costs	240	240	240	240	240	1200
PTV	260	260	260	260	260	1300
NOLs Avail	0	0	0	0	0	
NOLs Used	0	0	0	0	0	0
Adj PTV	260	260	260	260	260	1300
Tax @ 35%	91	91	91	91	91	455
Per bbl cred	64	64	64	64	64	320
Adj Tax	27	27	27	27	27	135
Min Tax @4	20	20	20	20	20	100
Tax Paid	27	27	27	27	27	135
Income BCI	233	233	233	233	233	1165

- Although revenues increased $100 per year ($500 overall), the combination of the per barrel credits and the minimum tax results in only a limited increase in taxes paid to the state (11% or $55/$500)

CASTLEGAP

Non - GVR Example – Higher Prices

- With $500 of CF NOLs used , the tax paid is only reduced from $135 to $121

	1	2	3	4	5	Total
GVPP	500	500	500	500	500	2500
Less Costs	240	240	240	240	240	1200
PTV	260	260	260	260	260	1300
NOLs Avail	500	240	0	0	0	
NOLs Used	260	240	0	0	0	500
Adj PTV	0	20	260	260	260	800
Tax @ 35%	0	7	91	91	91	280
Per bbl cred	64	64	64	64	64	320
Adj Tax	0	0	27	27	27	81
Min Tax @	20	20	20	20	20	100
Tax Paid	20	20	27	27	27	121
Income BCI	240	240	233	233	233	1179

- The producer only realizes a reduction in petroleum tax of $14 relative to the maximum value of $175, or 9%

CASTLE**GAP**

Further Takeaways

- Use of CF NOLs has different producer value and state impact depending on the overall price level and the interaction of other credit mechanisms

- The producer will only begin to realize the full benefit of cost recovery at very high prices where the gross minimum does not come into play and the per barrel credits are greatly diminished or absent

- Only with full modeling can a somewhat clearer picture of the impact of NOLs be seen

- It is clear that at low prices CF NOLs have much less impact than CF credits

CASTLE**GAP**