

# Petroleum Fiscal Design HB 111



Castle Gap Advisors, LLC.  
March 23, 2017

House Finance Committee

# Agenda

---

- Consultant experience, perspective and role
- Stage setting concepts
- “Ask the Consultant” Discussion
- Tomorrow will be able to run real time interactive models to show the impact of provisions of HB111

---

# Experience, Perspective & Role

# Consultant Experience and Perspective

- 40 years of energy industry experience
  - Engineer to Senior Management at major oil company with roles in operations, regulatory compliance, commercial and large project business development
  - Executive at recognized consultancy with a primary role related to providing overall petroleum and fiscal system design advice to governments and national oil companies
  - Executive at one of the top three oil field service companies
  
- Fiscal Background
  - Designed or redesigned petroleum fiscal systems for multiple countries
  - From new emerging countries like East Timor with no prior energy infrastructure, to Iraq with extensive energy assets just emerging from years of war and conflict
  - Foreign company re-entry design for Saudi Arabia and Kuwait
  - Master plans and production sharing contract design for Middle East, AsiaPac and Latin America countries
  - Multiple license rounds design and execution

# Government Fiscal Policy Experience

- Working for a major oil and gas operator
  - US state regulatory commission testimony on market demand, down spacing, allowables
  - FERC filings and testimony related to industry restructuring under Orders 451, 500 and 636 that addressed the decontrol of natural gas and the setting of pipeline access and tariffs
  - Testimony and presentations to UK, Norway, Netherlands and EU energy and competition regulators on the opening up of European natural gas markets
  - Large project government approval processes on three continents for field development, offshore pipelines, LNG liquefaction, LNG regasification and power generation
- Working for one of the largest oil field service companies
  - Negotiated terms for 25 year risk service contract in Malaysia
  - Negotiated terms for 30 year risk service contract in Mexico
  - Bid Round modelling in Mexico, Ecuador, Peru, Colombia
- Understanding the economics of lower 48 shale basins
  - Multiple vendor financing deals in the US shale basins
  - Expert witness on valuations for bankruptcy proceedings

# Range of Consulting Clients and Deliverables

NOC/Government	Scope of Work
Australia	Oil and gas taxation
Brunei	Master natural gas plans
China	Oil and gas taxation, midstream regulation design
East Timor	Creation of petroleum legislation, associated regulations, production sharing contract; designed and executed a seismic spec shoot and the countries first formal bid round; assisted negotiations on Darwin LNG
Indonesia	Master natural gas plans
Iraq	Opening to foreign investment, bid rounds 1 & 2 design and execution, fiscal terms and production sharing contract
Kuwait	Upgraded services agreement to ETSA, natural gas strategy design
Saudi Arabia	Natural Gas Initiative- opening upstream and midstream to foreign investment, regulation design, design and negotiation of production sharing agreement
Trinidad & Tobago	Master natural gas plan
Venezuela	Bid round design and execution, heavy oil project contract design and execution

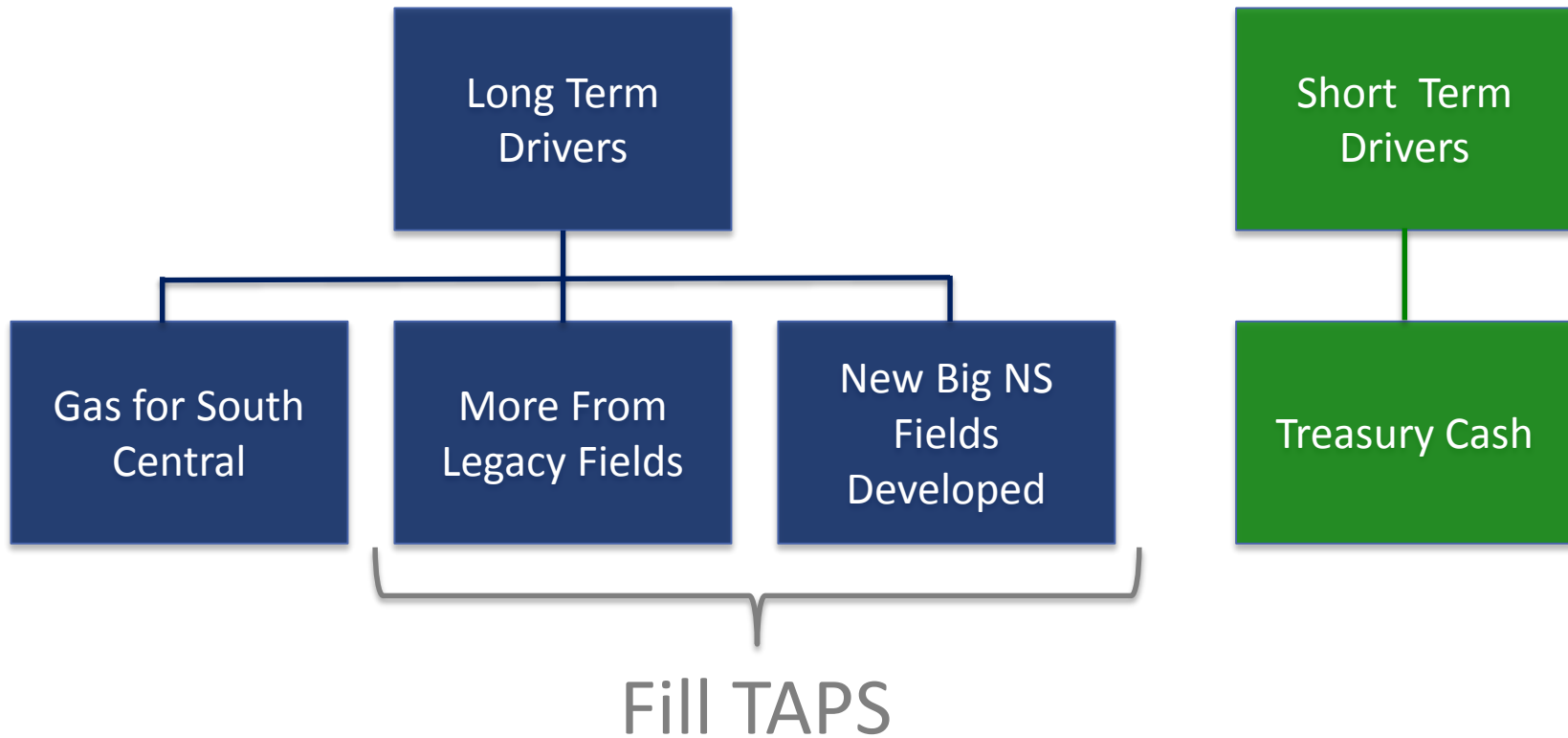
# Current Role in Alaska

- Hired by LB&A committee as consultant to advise legislators on all matters related to oil and gas
- Analyze proposed legislation and provide advice and recommendations based on prior sovereign experience
- For a variety of understandable and valid reasons, the pathway the legislature will choose to move forward is many times not the pathway we recommend. In that case, our role is to:
  - Make sure design goals, and tradeoffs, as well as key issues associated with chosen path are widely understood as much as is possible
  - Provide support by analyzing component impacts and helping avoid any potential shortcomings of their decided pathway
  - This is how we worked (while at GCA) with the State of Alaska for ACES and AGIA
- We are advisors and we are **not advocates** for any particular position

# Our Alaska Understanding



# This is How We See Alaska's Priorities

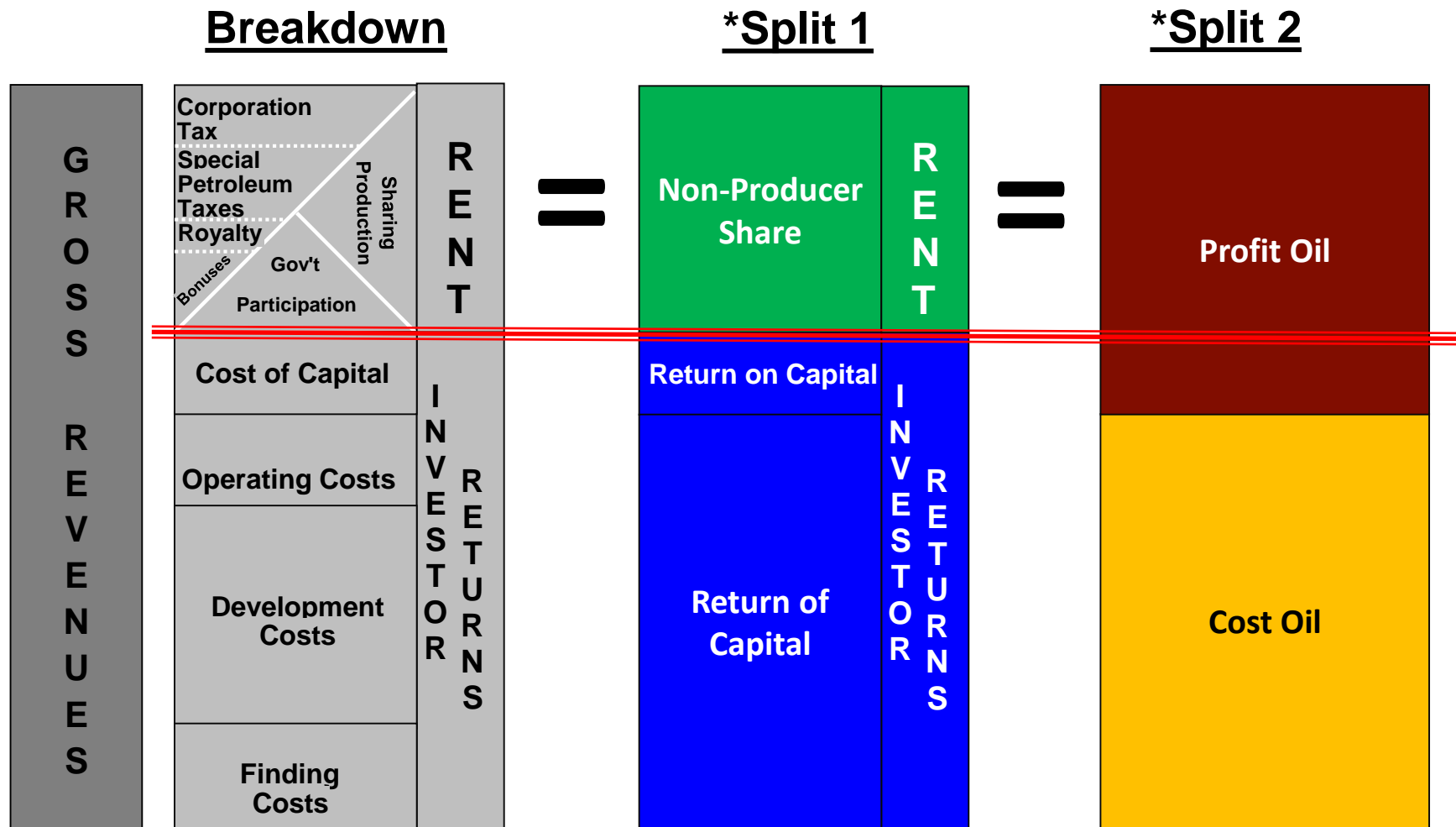


# Our “Recommendations”

- A mainly net based self-correcting petroleum taxation system that automatically takes less at low **margins** and more at high **margins** that would have durability and compete extremely well against most other regimes
- Simplification of the many many special terms in current legislation is possible while maintaining the desired differential treatment
- In order to achieve desired growth objectives, oil companies should be allowed to recover 100% of their costs and NOLs
  - First from production based income
  - With some form of uplift to account for time value of money
  - Eliminate cashable credits except for failed explorers

# GENERAL CONCEPTS

# Philosophy of Fiscal Design



*Reality is a constant adjustment of terms to achieve goals.*

# What is a “Fair” Split of Profit?

## ■ Company perspective

– Cover their cost of capital plus some ‘extra’ to cover:

- Location or situational risk
- Exploration success rate
- Research and Development
- Corporate overhead

### ■ **Non-allowed expenses**

## ■ Government Perspective

– When fairly new to energy

- Early revenues
- Local content

– When ‘experienced’

- Constant activity and jobs
- Multi-generational value generation and growth
- Local company participation

# The 100,000 Foot Overview

---

- The only “Constant” in the oil patch is change
  - Now in the fifth down cycle of my career
- Change does not necessarily mean “instability”, but change in the “wrong direction” does
- Fiscal systems built for predicted future outcomes ‘fail’ sooner or later
  - Triggers tied to specific, non-adjusting terms like prices
  - New trend is self-correcting terms
- For understandable reasons, sovereigns focus on the near term, many times putting longer term, more ‘profitable’ goals at risk

# Example of Alaska Change

- This chart exemplifies how quickly things can change from when particular legislation was passed

	Spending (\$millions)	Production / day (000)	Production Year (million)	Per Barrel			
				Tarriff & Transport	Opex & Capex	Total Cost	
2007	3,201	734.2	268.0	\$ 5.40	\$ 11.94	\$ 17.34	PPT ACES
2008	3,560	715.4	261.1	\$ 6.05	\$ 13.63	\$ 19.68	
2009	3,688	692.8	252.9	\$ 6.38	\$ 14.58	\$ 20.96	
2010	3,525	642.6	234.5	\$ 6.01	\$ 15.03	\$ 21.04	
2011	3,858	599.9	219.0	\$ 6.67	\$ 17.62	\$ 24.29	SB21
2012	2,975	579.3	211.4	\$ 8.37	\$ 14.07	\$ 22.44	
2013	4,442	531.6	194.0	\$ 9.76	\$ 22.89	\$ 32.65	
2014	5,212	530.4	193.6	\$ 10.42	\$ 26.92	\$ 37.34	HB247
2015	5,615	501.0	182.9	\$ 9.72	\$ 30.71	\$ 40.43	
2016	4,842	514.9	187.9	\$ 9.88	\$ 25.76	\$ 35.64	HB111

Source: DOR, Ken Alper

Source: DOR, Ken Alper

- Any further changes to fiscal policy needs to anticipate change in parameters and all possible scenarios

# Fiscal Design Takeaways

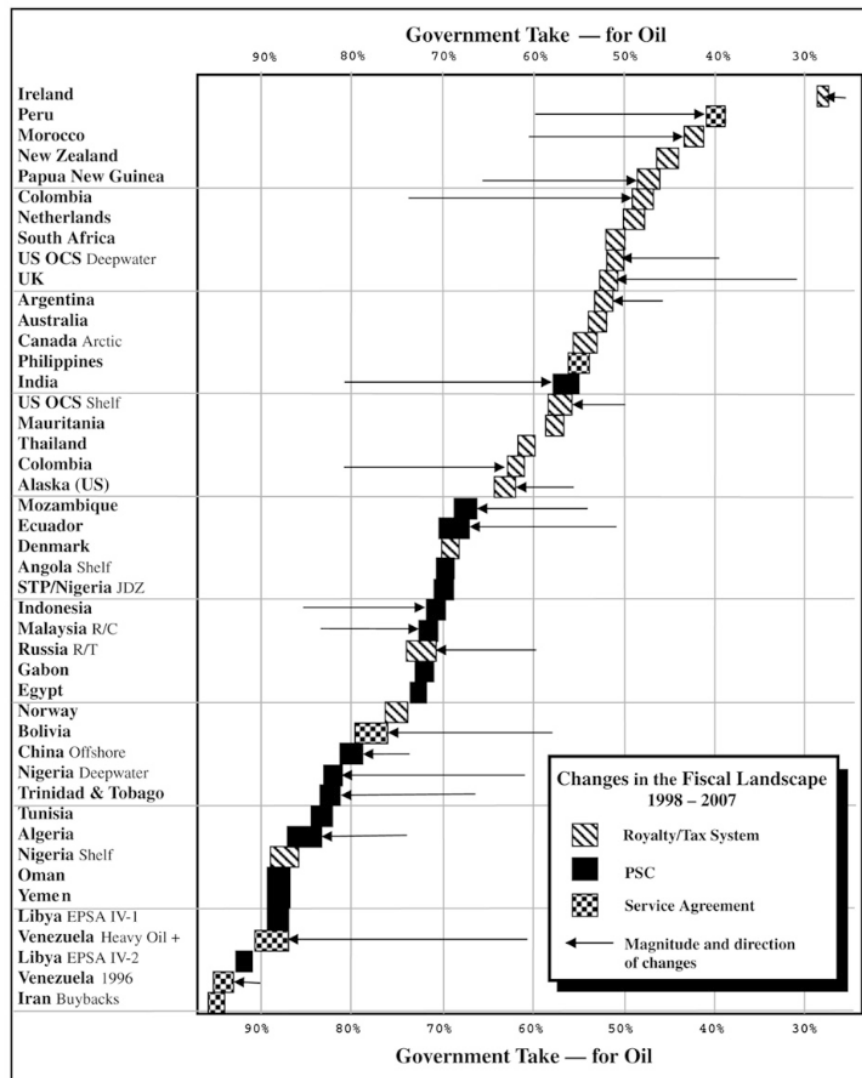
- There is no 'ideal' structure for taxing oil and gas, thus each taxing regime is to an extent unique
  - Over time some aspects or tools have consistently worked better than others
- Regimes generally try to level the playing field or provide as much balance as possible between:
  - Incumbents and new operators
  - Large companies/producers and small companies/producers
  - Exploration for new resources and production enhancement of existing fields
- However, all petroleum taxation structures in use today have biases
  - Companies will optimize their operations and profits
  - Which sometimes leads to unintended results



# Why Do Companies Invest in High Take Regimes?

- Great Rock
  - Size of potential reservoirs and projects
  - Economies of scale
  - Degree of control
  - Project Management
- Shape of the production curve
  - i.e. slow declines, long life
- “Durable” terms
- Incentives that mitigate or minimize largest risks

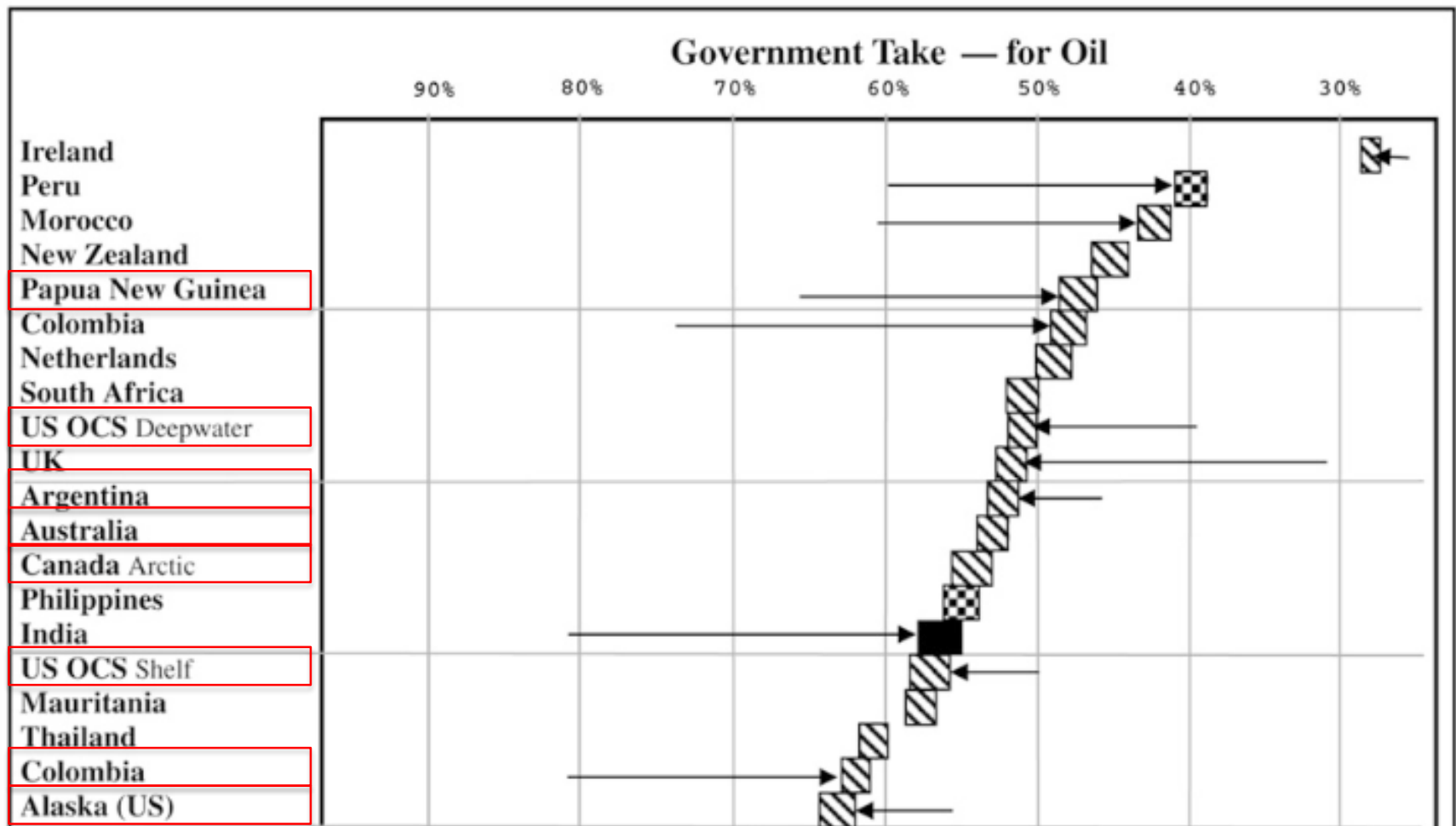
# Standard Regime Comparisons Are Not Necessarily Predictors of Producer Investment Activity



Source: Plot from Daniel Johnston

- Chart courtesy of Daniel Johnston
- It shows marginal dollar state (or non-producer) take
- 2007 levels are plotted with arrows showing where those regimes were in 1997 (arrows)
- One would assume that countries at the top received the bulk of oil company investment because they have the best terms, and those at the bottom would need to lower terms to compete
- Begs the question: Where did industry spend it money?
  - Majors
  - Independents

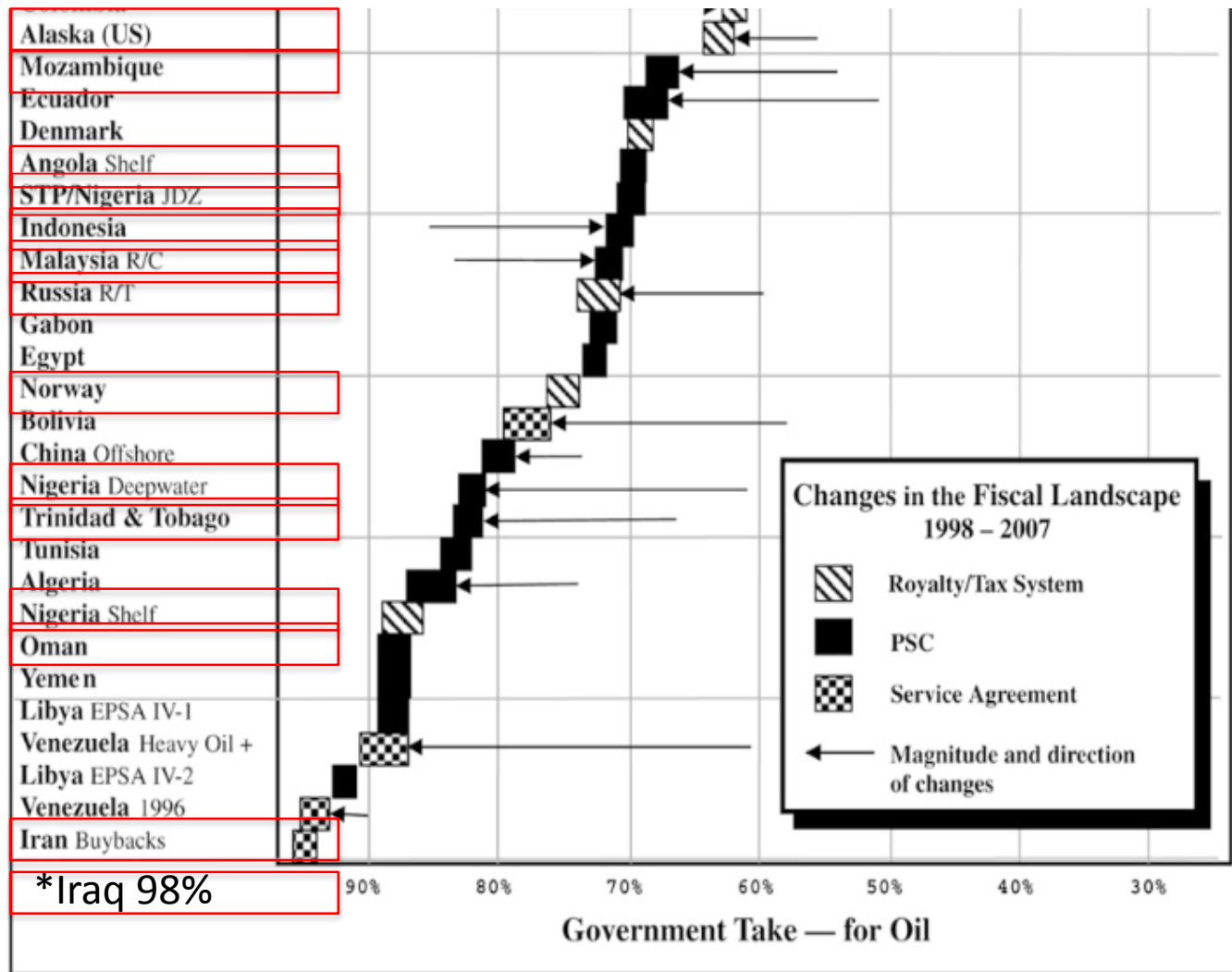
# Regimes With Government Take Lower Than Alaska



Source: Plot from Daniel Johnston, Projects from BP, XOM & COP Analyst Presentations

Countries with significant investment from major oil companies

# Regimes With Government Take Greater Than Alaska



Source: Plot from Daniel Johnston, Projects from BP, XOM & COP Analyst Presentations

# Where Does Alaska Stand Now Against L48?

## Petroleum Taxation Terms

- Royalty
  - In line with older leases
  - Favorable when compared to new leases
  - In the Lower 48, many new leases have 'drill or drop' clauses, forcing spending and activity on those leases
- Effective tax rate
  - One of the lowest at lower price levels
  - Competing mainly against gross based severance taxes
- Exploration and Production Credits
  - Unique and valuable to the oil companies
- Other unique aspects
  - Different taxation structures depending on location
  - Substantial tax credits for exploration and production, including cashable credits
  - 'Monthly' taxation

## Relative Risks

- A higher cost environment
  - Harsh weather conditions
  - Remote locations
  - Environmentally sensitive areas
- Economies of scale
  - Potential reservoirs are larger, require significant capital outlay
  - Long lead times and long productive life
- The petroleum taxation system
  - Number of changes
  - Many moving parts, complex to operate under and administer
- Generally TAPS is the only outlet for production
  - Commercially competitive access for all producers
  - Unpredictable tariff levels

# More Regimes Using Self-Correcting Mechanisms

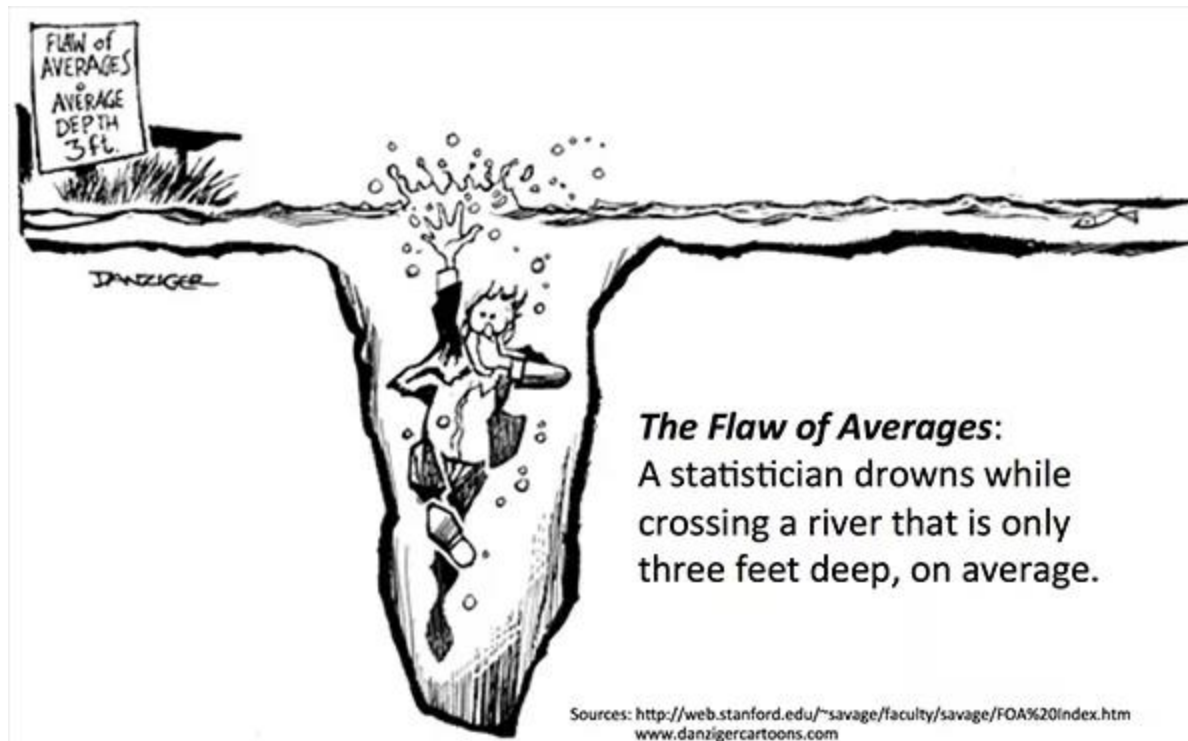
- In petroleum taxation design, the idea is for producers to receive a return of their costs and a fair return on their investment with government to receive the remainder
  - In reality, determining fair return on investment for the producer is equally challenging as determining a government's fair share
- In practice, taxation terms are set prospectively, i.e. guessing about the future, and not retrospectively with 20:20 hindsight
- A number of mechanisms have been developed and put in practice to allow fiscal systems to adapt to changing market 'reality'
  - Most are profit-based tools like rate of return and return on investment
  - Can be on a discounted or undiscounted basis
  - Calculations can be done annually or shorter periodic basis
  - Changes in taxation related to metrics can be shaped as fixed, bracketed, S curve
    - With S curve the rate of change in tax relative to profitability is low at low profitability and high at higher profitability

# Why Use Self-Correcting Mechanisms

- At the time of enactment, governments believe their system will provide the right balance of incentives and government take for the foreseeable future
- However, the future often brings unintended results
  - Prices can vary much higher or lower than the range of prices analyzed during the development of the fiscal policy
  - Interdependencies of input variables, such as costs and price, are often ignored for modelling and presentation simplicity
- Many different ‘tools’ and methods have been developed to try and make taxation systems self-correcting so as to minimize the unintended consequences

# Flaw of Averages – Avoid Unintended Consequences

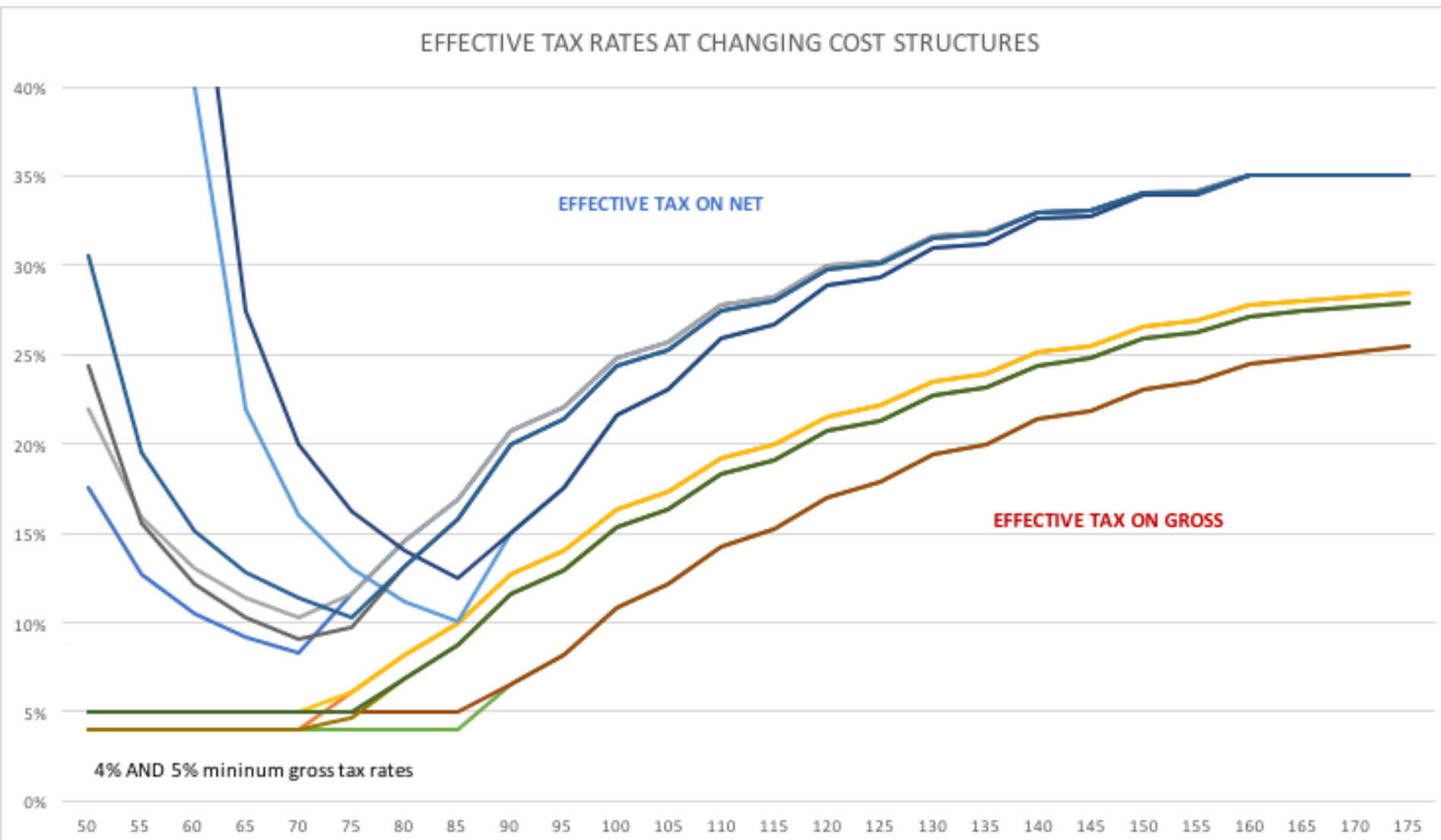
- Building a system off of averages does not address the outliers, which is the exact thing that needs to be addressed



- There is no existing or proposed field or operator that matches Alaska averages of +/- \$10 transport and \$33 lease costs.



# Effective Tax Rate at Costs of \$40, \$55 & \$65/bbl



---

# More Oil in the Pipeline

# Value of Extending the Life of Legacy Fields

- Assumptions
  - 250,000 bpd physical shut in rate
  - 50,000 economic shut in rate
  - New oil sufficient to keep pipeline running into the future
  - 6% decline on legacy from 250k to 50K
  - Prices \$50 to \$100 ANSWC
  - Net tax rates from 5% to 35%
  
- Additional revenue to Alaska ranges from **\$5-8Bn to \$30-\$50Bn**
  - This needs to be included in ‘analysis’ when looking at how to incentivize major new NS discoveries through development and production
  - Existence of extended life of TAPS may also encourage additional work in legacy fields

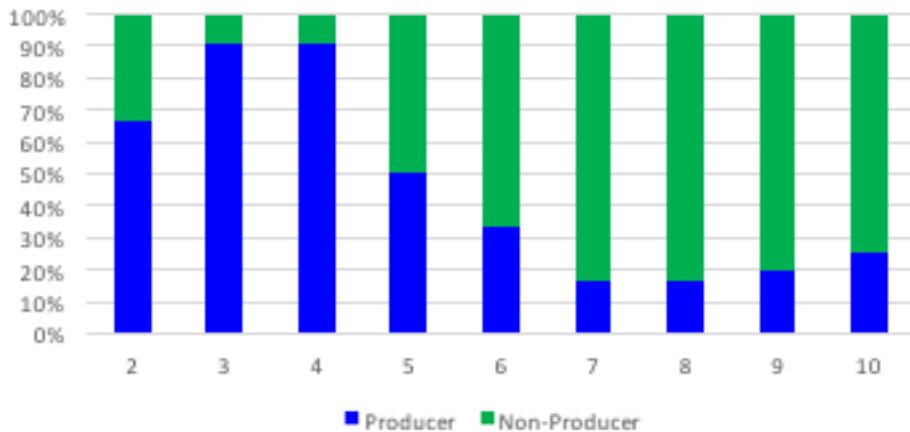
# Time Value of Money

# Time Value of Money Example

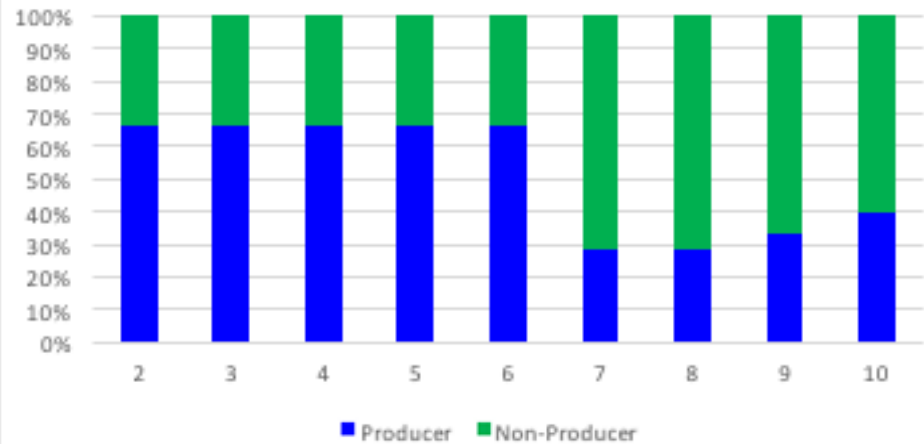
- Modeled a hypothetical field for purposes of only showing the effect of timing on producer economics
- All model runs are based on the same data
  - Year 1 an investment of 100
  - Years 2 through 10 there is 400 of revenue
    - 100 cost recovery
    - 300 of profit split between producer and government
- Depending on how cost recovery is handled, the results range from very doable and profitable project to a project that would not get developed

# Immediate Versus Delayed Recovery (Without Uplift)

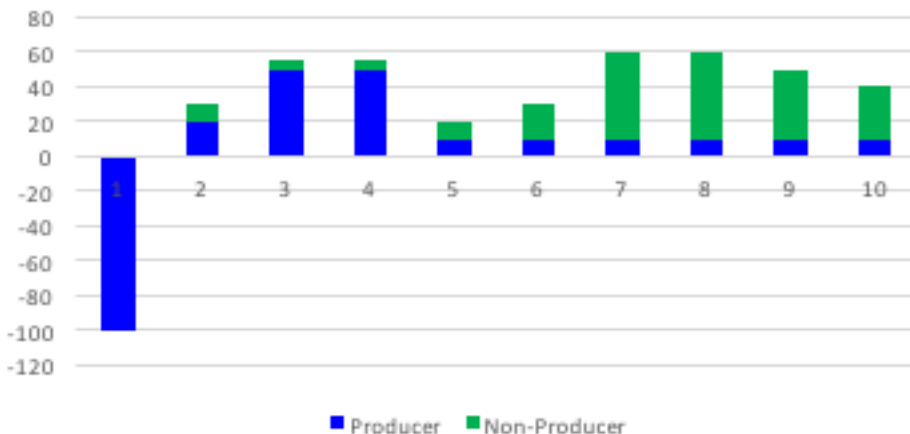
Accelerated Cost Recovery



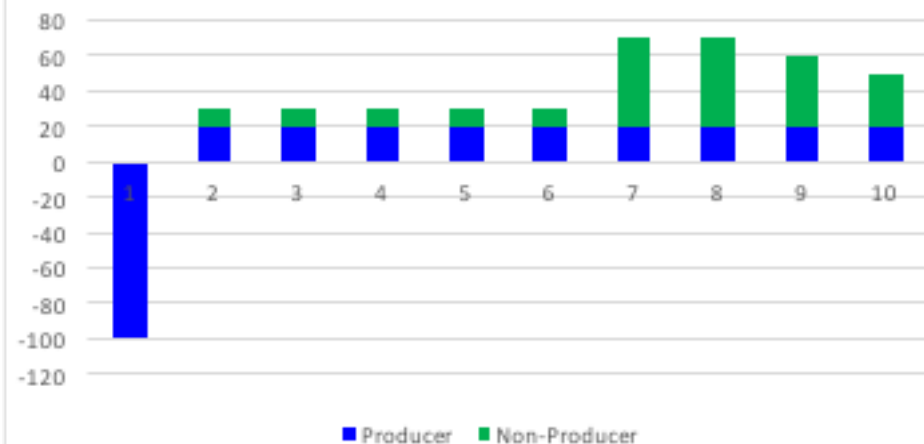
Delayed Cost Recovery



IRR=20%, NPV=\$27

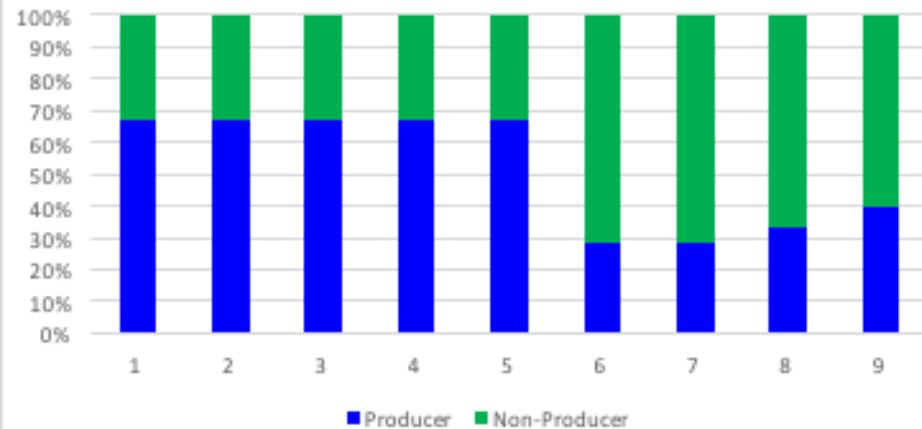


IRR=14%, NPV10=\$14

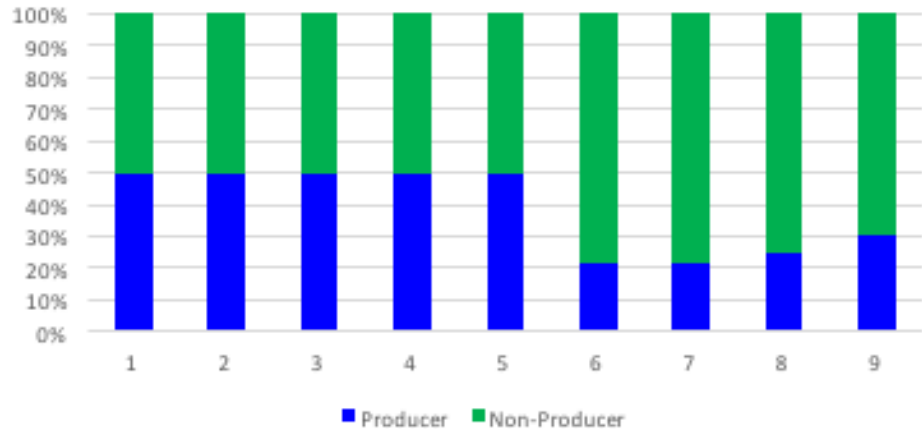


# Cash Credits vs 50% NOL

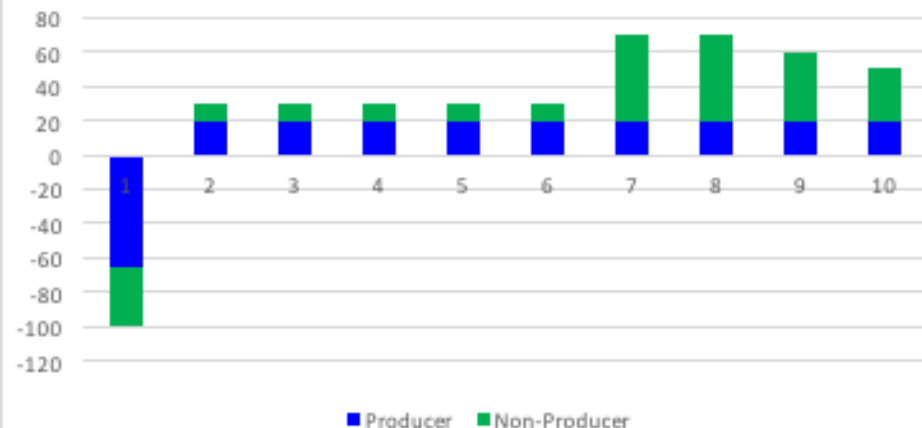
Cash Credits



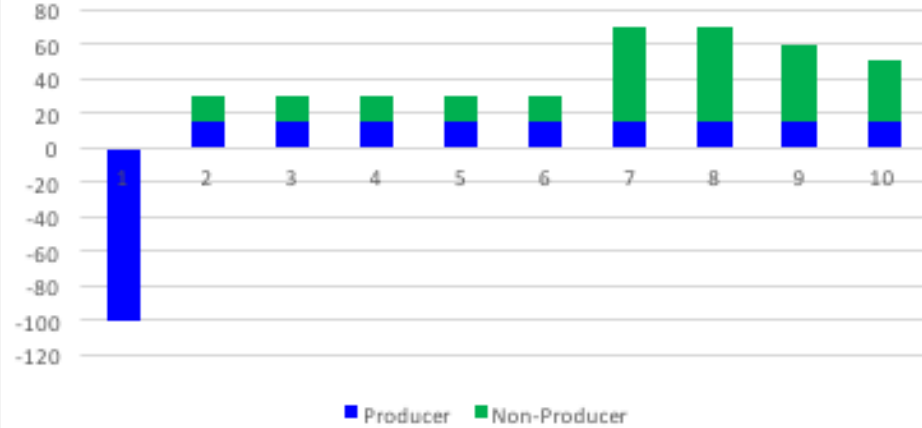
50% NOL



IRR=27%, NPV=\$46



IRR=6%, NPV=-\$12



# 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



---

Ask Your Consultant

# Question Topics That Have Come Up in Testimony

- NOLs and their handling in other regimes
- How many regimes offer cashable credits?
- What sort of taxes do other countries charge? Is Alaska 'normal'?
- Dry hole credit – where did it come from?
- Information sharing in other regimes
- Does HB111/did SB21 increase production?
- How many regimes pre-approve spending?
- How are partners in different economic positions issues handled?
- How many regimes limit NOLs?
- How many regimes apply credits at statutory rates?